

**Abstracts of Paper Presentations during 59<sup>th</sup> National Conference of Anatomical Society of India  
2011 held at Sri Aurobindo Medical College & Postgraduate Institute at Indore  
(26<sup>th</sup>-29<sup>th</sup> Dec. 2011)**

**1. Anatomical Considerations for C2 Pedicle Screw Placement - A Computerized Tomographic Study**

**Sivacharan P V, T Rajini, Varsha Mokhasi, Prakash, Prachikala\***

Department of Anatomy; \*Department of Radiodiagnosis, Vydehi Institute of Medical Sciences & Research Centre, Nallurahalli, Whitefield, Bangalore

**Aim** - The requirement to minimize the risk of C2 pedicle screw placement necessitates more detailed anatomical study of C2 pedicle. Aim of this study was to evaluate the linear and angular dimensions of C2 pedicle using axial computerized tomography.

**Material & Methods**: -Forty patients (28 males and 12 females) who had undergone axial computerized tomography of cervical spine in the department of Radio diagnosis, Vydehi Institute of Medical Sciences & Research Centre, Bangalore were evaluated for the study. Axial images of C2 pedicle thus procured were analyzed for the following parameters- Pedicle Width, Pedicle Axis and Pedicle Transverse Angle.

**Results** - The overall mean Pedicle Width was 5.08 +/- 1.26 mm, mean Pedicle Axis was 30.8 +/- 0.87 mm and mean Pedicle Transverse Angle was 40.5 +/- 2.94 mm and there were no significant differences in the parameters between male and female ( $p=0.632$ ) and the right and left half of the C2 pedicle ( $p= 0.613$ ).

**Conclusion** - Pre operative computerized tomographic study of the anatomy of C2 pedicle would potentially improve the accuracy of transpedicular screw placement and minimizes the risk of damage to the surrounding neurovascular structures *en procedure*.

**2. A Study on Locating the Motor Points of Axillary Nerve in Deltoid Muscle**

**Sanjay Kumar Sah, Haritha Kumari N, Aruna Mukherjees Topiwala National Medical College, Mumbai, Maharashtra**

**Aim**: The aim of present study is to localize the position of motor points of Axillary nerve within Deltoid muscle.

**Objectives**: Exact knowledge of motor point of Axillary nerve helps clinicians to avoid injury to Axillary nerve during intramuscular injections and surgery of shoulder joint. Axillary nerve is vulnerable to damage during intramuscular injections and numerous orthopedic surgical procedures. There have been reports in the literature of iatrogenic injury to the Axillary nerve during shoulder arthroscopy, thermal shrinkage of shoulder capsule and plate flexion of the proximal humerus.

**Materials and Methods**: Total 30 limbs were dissected during routine dissection hours in MGM Medical College, Kamothe, Navi Mumbai for Axillary nerve. The Axillary nerve is dissected from its origin to its termination into the deltoid muscle. The number of fibers originating from the main trunk of anterior division of Axillary nerve are taken into consideration and checked for their motor points in

deltoid muscle. The results are tabulated and analyzed. **Observations and Results**: The details of observations and results will be discussed during the time of presentation.

**3. A Comparative Study on Intensity of Varicosities In Veins of Lower Limb In Females of Different Working Classes**

**Diptika Patole, Haritha Kumari.N, Aruna Mukerjee Topiwala National Medical College, Mumbai, Maharashtra**

**Aim**: - A comparative study on intensity of varicosities in veins of lower limb in females of different working classes.

**Objectives**: - According to previous literature, varicosities are frequently found in females than in males. But the intensity of varicosities in females of different working classes differs comparatively. Since, there is very less literature regarding this concept, our main objective is to compare the intensity of varicose veins in females of 2 different working classes.

**Methods and Methodology**: - Among the subjects who came for physical examination of varicose veins in various hospitals, 60 female subjects who were suffering from grade I and grade II varicose veins were considered. Out of 60, 30 female subjects perform work while standing where as other 30 subjects perform work while sitting. Considered age is 30-60 yrs. A self-administered questionnaire is been taken from the subjects regarding the occupation, mobility of work, obstetric history, life-style and daily routine exercises. The subjects were divided into 3 groups - (1) 30-40, (2) 40-50 (3) 50-60 age groups. The intensity of varicosity is measured by the measuring the grade of pain through VAS (Vas Analogue Scale). The observations are noted, tabulated and statistically analyzed.

**Conclusion and Result**: - The details of observations and results will be discussed during the time of presentation.

**4. The Importance of Bone Age in the Diagnosis and Management of Endocrinological Disorders**

**Ameet Julka, Sandeep Julka\*, S Shrivastava, S K Wankhede, S Garg, Dr B Tiwari**

Department of Anatomy, M G M Medical College, Indore; \* Department of Endocrinology, R D Gardi Medical College, Ujjain

The skeletal maturity of any individual is known as bone age and it can be reliably estimated by a roentgenologic study of osseous development since the appearance and union of the centres of ossification occur in a fairly definite pattern and time sequence from birth to maturity. This is particularly helpful in the clinical workup of children with endocrinological disorders where skeletal growth is affected. Bone age can be Advanced, Delayed or Appropriate for chronological age in various endocrinological disorders. We present cases which affect skeletal maturation in a way that can lead to their diagnosis or can help therapeutic interventions. The present study aims to reiterate the importance of bone age in the diagnosis and management of endocrinological disorders.

**Materials:** X-rays of both hands of cases and Karyotyping incase of chromosomal disorders.

**Method:** We used the Greulich-Pyle atlas to accord a bone age to each bone of the hand and obtain an average reading.

**Results:** The endocrinological disorders were classified as Advanced, Delayed and Bone age Appropriate for chronological age.

**Condition-I:** Advanced bone age(Precocity)

Case 1-Hypothalamic Hamartoma

Case 2-Congenital adrenal hyperplasia

**Condition II:** Delayed bone age

Case 3- Hypothyroidism

Case 4- Growth hormone deficiency

**Condition III:** Bone age appropriate for chronological age (Chromosomal abnormalities)

Case 5-Turner's syndrome

Case 6-Biedel bardet syndrome

**Conclusion:** Assessing bone age through radiographs of both hands graded according to Greulich-Pyle method provided the endocrinologists an inexpensive tool to obtain an objective measure of determining the child's development status and an additional evidence of the effectiveness of the therapeutic measures employed.

### **5. Surgical Anatomy of Suprascapular Nerve**

**Lakshmi Rajgopal**

Department of Anatomy, Seth GS Medical College & KEM Hospital, Mumbai

**Aim:** i) To find out about various anatomical factors that may cause suprascapular neuropathy

ii) To anatomically localise the suprascapular nerve with the help of metric data in relation to nearby bony landmarks

**Materials and Methods:** 21 shoulders from 11 formalin-fixed cadavers were dissected to expose the suprascapular nerve as it passed through the suprascapular notch deep to superior transverse scapular ligament [STSL] and further deep to supraspinatus and infraspinatus. The length of STSL and the width of suprascapular notch at its middle were measured. The relationship of suprascapular nerve and suprascapular vessels to STSL was noted. The branching pattern and supply of suprascapular nerve to supraspinatus was noted. The presence and nature of inferior transverse scapular ligament was noted.

**Results:** Of the 21 shoulders studied, 10 belonged to the right side and 11 to the left side. 4 shoulders, 2 of right and 2 of left belonged to females. The mean length of STSL on the right side was 1.46 cm and on the left side it was 1.38 cm. Of the 21 shoulders, only in one left shoulder, the suprascapular nerve, the suprascapular artery and vein all travelled deep to STSL. About 1 to 3 branches were given off from the suprascapular nerve to the supraspiantus. In 4 shoulders, 2 of right and 2 of left the inferior transverse scapular ligament was absent.

**Conclusion:** Comparison of the findings of this study with available literature and the clinical significance of the findings will be discussed.

### **6. Atlanto-Occipital Fusion - Developmental Basis and Clinical Significance**

**Vandana A. Sharma**

Department of Anatomy, G.M.C. Bhopal

occipital fusion is an uncommon skeletal variation of cranio-vertebral region. During our study on human skulls in Dept. of Anatomy, Forensic Medicine and Regional Medicolegal Institute, GMC Bhopal and Pt.J.N.M.MC Raipur, we have found 2 human skulls with atlanto-occipital fusion. One skull shows incomplete atlanto-occipital fusion with bifid posterior spine with left sided inclination of 6 mm. The second skull shows complete atlanto-occipital fusion. The literature review had shown that complete or partial atlanto- occipital fusion has embryological basis and the cases with such cranio-vertebral variations may present with neurological signs and symptoms in 2nd decade of life onwards. Atlanto-occipital fusion may be associated with narrowing of foramen magnum, compression of spinal cord or brain stem and accordingly present clinical manifestations such as myopathy, limitation of neck movements, muscular weakness and atrophy; and sensory loss which may be serious. Reporting such variations seemed worthwhile as a prelude to any type of experimental work and for diagnostic and therapeutic purposes in clinical manifestations associated with atlanto-occipital region. This study is part of ongoing study on variations of human skulls.

### **7. Anatomy and Its Importance in Plastic Surgery**

**Seema Garg, S. Shrivastava, S.K.Wankhede, A. Julka, B.Tiwari, Anil Garg\***

Department of Anatomy, M.G.M. Medical College, Indore; \*Gokuldas Hospital and Research Centre, Indore

Advances in the field of Anatomy have led down many milestones in various fields of medicine specially in plastic surgery. Plastic surgery deals with reconstruction of defects and restoration of bodily functions and aesthetics. Trauma, cancer and congenital anomalies can cause tissue defects. These defects may range from small ulcers to loss of body parts like breast, mandible, maxilla, nose, ear and even phallus. Reconstruction of such defects needs simple skin grafts to composite tissue with skin, muscle and bone. As we all know that vascular supply is basic for survival of tissue or body part, detail understanding of anatomy especially vascular supply gives us various tissues which can be used for reconstruction. If we can maintain or restore vascular supply then we can use these body parts or tissues. Various muscles like latissimus dorsi, skin of fore arm and thigh and bones like fibula can be transferred to other body areas, for reconstruction of defects. Here by I will present various commonly used muscle, bone and fasciocutaneous flaps with their vascular supply.

### **8. Congenital Pseudoarthrosis of Tibia - A Rare Presentation**

**Sonal B. Thakur, Anuja Deshmukh, Vaishali Inamdar**

Dr.Shankarrao Chavan Government Medical College, Nanded

Congenital pseudoarthrosis of tibia is rare congenital

anomaly occurring 1 in 1,90,000 live births. It is one of the rare causes of limb shortening. A 8 years old male child born of consanguineous marriage came to orthopaedic OPD with history of significant shortening of left leg since birth so much so that patient can not use his left leg for walking. His right leg was normal. History, photographs and X-rays were taken and patient was diagnosed as a case of congenital pseudoarthrosis of tibia. X-ray of patient revealed dysplastic tibia and which fits into type II C (dysplastic and frank pseudoarthrosis) of Crawford classification. Fibula also shows dysplasia. Family history of neurofibromatosis-I is present. Significant association between congenital pseudoarthrosis of tibia and neurofibromatosis-I has been found. The case is of significance to orthopedicians and paediatrician from management point of view. Details of the case will be discussed during conference.

#### 9. Sexing Ulna by Multivariate Analysis

**Dope Santoshkumar A.,** Laeeque, M.S.Selukar, C.V.Diwan, Baig  
Department of Anatomy, Government Medical College, Latur

Aim of the study: Sexing ulna is one of the key questions to be answered in cases of unidentified bodies in medicolegal cases or anthropological studies. A number of studies are available in this regard. The studies being population specific and in general are of not universal help. Present study is an attempt to establish multivariate analysis of ulna for the determination of sex.

**Materials & Methods:** 193 adult human ulnae, 133 male and 60 female from the Bone Bank of Govt. Medical College Aurangabad, were used for the present study. Ten different Parameters of ulnae were studied for making four groups and analyzed statistically. A standard computer program "multivariate linear discriminant function" is used. The principle of "multivariate linear discriminant function" is that measured variables are taken as independent variables where as sex is a dependent variable. The measured variables are then analyzed by standard computer program and a discriminant functional score is obtained

**Result:** Any ulna falling on the male side of the sectioning point will be categorized as male ulna while that falling on female side of sectioning point will be categorized as female ulna. This enhances the accuracy of opinion.

**Conclusion:** Multivariate analysis of long bones including ulnae is of immense help in determination of sex of deceased person especially in cases where skeletal remains available are very less. Sex identification from skeletal remain has great medicolegal and anthropological significance.

#### 10. Study of Lip Prints among South Indian Population

**Pushpa N B,** Roshni Bajpe, Jayanthi K S  
Kempgowda Institute of Medical Sciences, Banashankari

**Aim:** To study the pattern of lip prints among south Indian population.

**Materials:** Dark coloured lip sticks, A4 Size white papers, and magnifying lens.

**Method:** The study was conducted on 100 south Indian

individuals of 17-40 years from Karnataka, Kerala, Andhra Pradesh, and Tamilnadu in the department of Anatomy, KIMS, Bengaluru. Males and females were equal in number. Individuals with trauma, inflammation, or any other pathology of lips were excluded from the study.

Dark coloured lip sticks was applied to thoroughly cleaned lips of the individuals and lip prints were taken on the A4 size paper. Lip prints were studied using magnifying lens and classified into 5 types according to Suzuki's classification.

**Results:** The most common single lip print pattern in all the individuals studied was Type II (45%) and type III was least common. Among males Type II was the most common and Type III was least common pattern. Among females Type I was most common and Type IV was least common pattern.

**Conclusion:** No two lip prints were identical. This study is an attempt to know the most common lip print among south Indian population in males and females.

#### 11. Incidence of Sutural Bone at Asterion in Adult Indian Skulls

**Singh Rajani**  
Department of Anatomy, CSM Medical University, Lucknow, U.P.

Asterion is the point of sutural confluence observed in norma lateralis of the skull where parietal, temporal and occipital bone meet. Present study was carried out in the department of Anatomy, CSM Medical University, Lucknow using fifty five dry human skulls to analyse the incidence of sutural bones at the asterion and its variations. At the asterion, sutural morphology was classified into two types: Type I- Where a sutural bone was present and Type II- Where a sutural bone was absent. Among 27 female skulls, percentage of Type -I was found to be 14.81 and Type-II contributed to 85.19%. 17.86% asterion were classified as Type-I and 82.14% as Type-II in male skulls. The examination of 55 skulls brought out 16.36% Type-I and 83.64% Type-II asterions. Sutural morphology of asterion is essential in surgical approaches to posterior cranial fossa. Therefore, the study has been carried out to alert the Indian neurosurgeons.

#### 12. Presence of the Foramen Thyroideum: A Cadaveric Study In Western Region of The India

**Joshi Mohini ,** Joshi SS\*, Joshi SD\*  
Department of Anatomy Rural Medical College, Pravara Institute of Medical Science, Loni, Maharashtra, \*Aurobindo Institute of Medical Sciences, Indore, MP

Foramen thyroideum has been described as an occasional opening existing in one or both plates of the thyroid cartilage which may or may not contain a neurovascular component. Present study highlights the anatomic features and its clinical implications.

**Methods:** The present study was carried out during the period of June 2007 to June 2009. Sample consists of the 50 Laryngeal preparations from adult cadavers of both sexes. The location, size and contents of foramen thyroideum were studied. **Result:** In the present study foramen thyroideum was present in 10% of specimen. Foramen thyroideum were unilateral in 1(2%) right lamina and 3(6%) left lamina

of thyroid cartilage. It was bilaterally present in 1(2%) specimen. The mean horizontal and vertical diameters (mm) of the thyroid foramina were found to be 2.8 mm and 3.3 mm on the right side. The mean horizontal and vertical diameters (mm) of the thyroid foramina were 3.1 mm and 3.4 mm on left sides. Foramen thyroideum functions as a unique conduit for branches of the laryngeal vessels and/or nerves.

**Conclusion:** Surgery of the larynx requires a sound knowledge of the normal anatomy as well as variations that may be encountered in this region. Incidental intra-operative injury could be avoided in microsurgery in anterior neck and larynx by understanding such anatomic landmarks.

### **13. Morphological Study of Hiatus Semilunaris**

**Mane S. B.,** Karambelkar R. R., Shewale A. D., Umarji B. N. Krishna Institute of Medical Sciences University, Karad, Maharashtra

Hiatus semilunaris is a cleft in the middle meatus of nose. Maxillary, Anterior ethmoidal and frontal air sinuses open in this cleft. It is essential for otorhinolaryngologists to know the exact position of the hiatus semilunaris and the exact sites of openings of the paranasal air sinuses during various endoscopic procedures and surgeries. In the present study, the length and height of the hiatus semilunaris is measured in cadavers by using sliding vernier caliper. Total 50 specimens are studied in that 27 are of right and 23 of left side. Anterior and posterior distance of hiatus semilunaris from anterior and posterior nasal openings is also measured. The measurements of openings of paranasal air sinuses are taken and statistically analysed. The details will be discussed during the time of presentation.

### **14. Scapular Anatomy as Applied to Safe Zone In Scapular Resection as A Treatment of Snapping Scapula Syndrome**

**Anjali Aggarwal,** Pratima Wahee, Harjeet Kaur, Daisy Sahni PGIMER, Chandigarh

**Background and Aim:** Resection of upper segment of scapula for treatment of snapping scapula syndrome is known to be associated with potential risk of injury to suprascapular nerve. Current study was conducted to find out safe zone at upper border of scapula during arthroscopic resection using standard Bell's portal and the amount of bone available for resection in Indian population.

**Material and methods:** From the junction of medial 1/3 and lateral 2/3 of the line joining acromion angle and superior angle a line was drawn along the costal surface such that it cuts the medial border midway between the centre of root of spine and the inferior angle. Sets measurements were performed.

**Results** Average safe zone between the suprascapular notch and the lateral edge of resection on the upper border of scapula in our specimens was ~16mm. Safe zone of more than 20mm was seen in 26% scapula and less than 10 mm in 14% cases. The average total lengths of upper border and medial border available for resection were ~43mm and ~45mm respectively. Average length of upper border that

would be resected was ~28mm.

**Conclusion:** In Indian population during arthroscopic resection of superomedial angle of scapula using standard Bell's portal and medial portal at the middle of medial border, proximity of suprascapular nerve to the resection site might be alarming in some of the cases and such cases may need special attention. Greater is the angulation of medial border and the distance between superior angle and acromion angle of scapula more is the safety of suprascapular nerve.

### **15. Anatomical Consideration of Pterional Anatomy From Clinical Point of View**

**Richa Gupta,** Anjali Aggarwal, Harjeet Kaur, Daisy Sahni Department of Anatomy, Postgraduate Institute of Medical Education and Research, Chandigarh

**Background:** Pterional approach is being commonly used for various neurosurgeries like tumours of brain located in sphenoidal wing, superior orbital fissure, sellar and parasellar region.

**Aim:** Present study aims to study incidence of different types of pterions and their distances from various bony landmarks in Indian population.

**Material and methods:** 46 pterions of adult human Indian skulls were studied. Incidence of various types of pterions was observed and linear distances were measured from centre of pterion to centre of zygomatic arch, fronto-zygomatic suture, temporo-zygomatic suture, bregma and external auditory canal.

**Observations:** Incidence of various types of pterions observed in present study was sphenoparietal (60.83%); epipterical (23.8%); stellate (8.6%); frontotemporal (3.2%). In sphenoparietal type, average distances between centre of pterion to centre of zygomatic arch, fronto-zygomatic suture, temporo-zygomatic suture, bregma and external auditory canal were observed to be 39.68mm, 34.2 mm, 56.5mm, 107.5mm and 42.4 mm, respectively. However, in rest of the types, these were found to be on higher side as compared to sphenoparietal type.

**Conclusions:** This basic information provides useful guidelines for surgeons to estimate the position of pterion before employing any operative technique.

### **16. The Topographical Anatomy of Round Window and Its Implication During Cochlear Implantation**

**Anjali Singla,** Daisy Sahni, Ashok K Gupta\*, Anjali Aggarwal

Department of Anatomy, \*Department of Otolaryngology, PGIMER, Chandigarh

**Background:** Round window is the main target in many modern otologic procedures like Cochlear implantation, middle ear implantable hearing aid transducers and local drug delivery to inner ear.

**Aim:** To examine various aspects of round window anatomy and its relation with adjacent structures like facial nerve and internal carotid artery.

**Methods:** Fifty human temporal bones of known sex and age were dissected under dissecting microscope to expose medial wall of tympanic cavity. Round window (RW) and

Oval window (OW) areas were cleared. Dimensions of RW, distances between RW and OW, distance of RW from facial canal and carotid canal were measured.

Results: Mean height and width of RW were found to be  $1.62 \pm 0.77$ mm (range 0.80-3.77mm) and  $1.15 \pm 0.39$ mm (range 0.64-2.15mm) respectively. Mean distance between RW and OW was found to be  $2.19 \pm 0.43$ mm (range 1.39-3.57mm). Distance of RW from carotid canal and facial canal were  $8.03 \pm 1.55$ mm (range 4.39-11.05mm) and  $4.28 \pm 0.67$ mm (range 2.99-6.31mm) respectively. Correlation of these parameters with respect to age, sex and height were not found to be statistically significant.

Conclusion: Knowledge of the variations of round window anatomy is relevant for atraumatic insertion of cochlear implant electrodes.

### 17. Anatomy of Coronary Venous System and Its Implications for Clinical Procedures

Arpandeeep, Daisy Sahni, Anjali Aggarwal

Department of Anatomy, PGIMER, Chandigarh

Background: Coronary venous system has become important with the advent of advanced invasive and interventional treatments (cardiac resynchronisation therapy and percutaneous mitral annuloplasty) for cardiac disorders.

Aim: To study gross anatomy of coronary sinus (CS) and its tributaries in thirty normal adult cadaveric hearts.

Method: Coronary sinus and its tributaries were carefully dissected under a magnoscope with lens magnification of 2.5X in thirty normal adult cadaveric hearts.

Following observations were made:

- (i) Relationship of CS and its tributaries with associated arteries
- (ii) Position of CS relative to left circumflex artery (LCx), mitral valve annulus (MVA) and left atrium
- (iii) Number of major tributaries between anterior interventricular vein (AIV) and middle cardiac vein (MCV)
- (iv) Opening angles of major tributaries of CS

Results: Number of tributaries between AIV and MCV ranged from 1 to 6. CS was lying parallel and at level of MVA in 36.6% cases, oblique to MVA in 33.3% cases & parallel and above MVA in 30% cases. CS / great cardiac vein intersected superficial to LCx in 56.6% cases, deep to LCx in 30% cases, dual intersection in 10% cases and no intersection was seen in 3.3% cases.

Conclusion: Knowledge of anatomic details and variations of coronary venous system will help in its better utilization in diagnostic and therapeutic purposes, for clinical decision making and anticipating degree of difficulty during various cardiac interventional procedures.

### 18. Microsurgical Anatomy of the Middle Cerebral Artery

Harsimranjit Singh, Daisy Sahni, Anjali Aggarwal

PGIMER, Chandigarh

Background: Microsurgical anatomy of middle cerebral artery (MCA) is of particular interest to the cerebrovascular surgeon. Perforators of MCA are of great importance during aneurysm surgery.

Aim: To study microsurgical anatomy of M1 segment of MCA.

Material and Methods: thirty MCAs were exposed in 15 formalin fixed brain specimens by dissecting under magnoscope (2.5X). The exposed M1 segment was further studied under OT microscope & following observations will be taken:

1. Outer diameter of MCA at origin
2. Relation of MCA with optic chiasma at origin
3. Length of M1 segment of MCA
4. Site of bifurcation of MCA
5. No. of perforators of M1 segment

Results: Description of results and its clinical relevance will be discussed during presentation.

### 19. Myocardial Bridges on Different Branches of Coronary Arteries

Amit Kumar, Anju Joy, Anil Agrawal\*, C Banerjee\*\*, CK Shukla\*\*, Praveen Kurey\*\*, Yogesh AS\*\*\*

CIMS, Bilaspur; \*Triveni Dental College, Bilaspur; \*\*Pt. JNM Medical College, Raipur; \*\*\*SAIMS, Indore

The muscle overlying the intramyocardial segment of the epicardial coronary artery is termed a myocardial bridge (MB) and the artery coursing within the myocardium is called a tunneled artery. Myocardial bridge is mainly found in anterior interventricular artery. The present study was carried out in 50 cadaveric hearts by the dissection method. Heart was collected from Pt. JNM Medical College, Raipur and CIMS Medical College, Bilaspur. Overall prevalence of myocardial bridging was found to be 28%. It was found to be more common over the left coronary artery (28%) than the right coronary artery (6%). In case of the left coronary artery, the incidence of myocardial bridging was more frequently seen over its anterior interventricular branch (24%). These myocardial bridges, as the clinicians observed through angiography, may be associated with a wide range of clinical problems, including acute coronary syndromes and arrhythmias.

### 20. Level of Bifurcation of Aorta and Iliocaval Confluence and its Clinical Relevance

Ashwini C A, Balaji Pai\*, Roopa Kulkarni, C Sheshgiri

Department of Anatomy, \*Department of Neurosurgery, M S Ramaiah Medical College, Rajajinagar, Karnataka

Aim: With the number of anterior lumbar procedures expected to increase significantly over the next few years, it is important for spinal surgeons to have a good understanding about the incidence of anatomic variations for prevention and treatment of vascular complications during these operations. This has instigated to do a study on level of bifurcation of aorta and iliocaval confluence levels. Material and methods: 20 dissection cadavers have been used to note down the level of the above said parameters with respect to lumbar vertebra.

Results: The level of bifurcation of aorta was observed to be varied from L3 to L4--L5 vertebrae. The inferior vena cava was formed at L4 to L4-L5 disc. Some variations were also noted.

Conclusion: A thorough knowledge of the vascular anatomy is essential to the spinal surgeons and evaluation of the same is recommended prior to the surgery.

**21. Human Tibial Torsion - Morphometric assessment and Clinical Relevance**

**Gandhi S**, Singla RK\*, Kullar JS\*, Agnihotri G\*, Suri RK, Rath G

Department of Anatomy, Vardhman Mahavir Medical College, New Delhi; \* Department of Anatomy, Government Medical College, Amritsar

Tibial Torsion is an important anatomical parameter in clinical practice and displays variability among individuals. These variations are extremely significant in view of alignment guides such as those related to rotational landmarks of Tibia in Total knee Arthroplasty. Further, precise knowledge and information pertaining to angle of Tibial Torsion also helps in correction of traumatic malunion or congenital malrotation of Tibia.

The present study was carried out to determine angle of Tibial Torsion in one hundred (100) adult dry Tibia bones in the department of Anatomy, Govt. Medical College Amritsar. The study group comprised of 50 males & 50 females with equal number of right and left sided bones. The measurements were meticulously recorded and the data was subjected to statistical analysis and results were analyzed and discussed in the light of existing literature. On right side, it was found to be  $29.84^{\circ} + 4.86$  (Range= $22.00^{\circ}$ - $38.00^{\circ}$ ) in males &  $28.92^{\circ} + 5.10$  (Range= $15.00^{\circ}$ - $38.00^{\circ}$ ) in females. On left side, it was found to be  $28.00^{\circ} + 4.94$  (Range= $20.00^{\circ}$ - $40.00^{\circ}$ ) in males &  $28.12^{\circ} + 4.28$  (Range= $20.00^{\circ}$ - $37.00^{\circ}$ ) in females. The present study is an endeavor to provide a base line data with reference to angle of Tibial Torsion in Indian population. The results of the study assume special importance in view of the technical advancements in reconstructive surgical procedures in orthopedic practice.

**22. A Morphological Study of Lateral Cord of Brachial Plexus in Human Fetuses**

**Divya Shenoy**, Antony Sylvan D'souza, Biswabina Ray, Harpreet Singh Gulati

Department Of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Background & aim of the study:** The lateral cord of brachial plexus is formed by the union of anterior divisions of upper and middle trunks. Normally, it gives off three named branches. The variations in the branching pattern of the lateral cord are quite frequent. Most of the studies related to this have been on adult cadavers. We have chosen the fetuses because of easy availability and lack of fat in the field of dissection. The purpose of our study is to review the branching pattern of lateral cord and its relations with the axillary vessels.

**Materials & methods:** We dissected 20 human fetuses that were free of any gross malformations involving their upper limbs. The study was done at Kasturba Medical College, Manipal. The anatomy of lateral cord branches was noted.

**Results:** Variation in branches of lateral cord of brachial

plexus and its relation with axillary vessels was noted in the fetuses. The results obtained were compared with previous studies and analyzed

**Conclusion:** The anomalous branching of lateral cord has monumental significance in diagnosing and managing brachial plexus injuries and also in operative procedures involving axillary vessels.

**23. A Study of Nutrient Foramina in Upper Limb Long Bones**

**Vinay G**, Anbalagan J, Arun Kumar Bilodi

Department of Anatomy, Mahatma Gandhi Medical College & Research Institute, Pillaiyarkuppam, Puducherry

**Introduction:** Nutrient foramen is the largest foramen on the shaft of long bones through which nutrient artery passes. It plays important role in nutrition and growth of long bones.

**Aim:** To observe the number, position, direction of nutrient foramina and its variation from the normal.

**Materials and Method:** Present study was carried out on 104 long bones of upper extremity, using Vernier calliper and Osteometric board.

**Observation:** Most of nutrient foramina found on anterior surface and middle 1/3 of upper limb long bones.

**Conclusion:** The study of nutrient foramina in shaft of long bones is of importance in medico-legal aspect. A comprehensive knowledge of variations in nutrient foramina of long bones may help surgeons for the placement of internal fixation devices. Results of the study will be discussed during presentation.

**24. Incidence of Radio-Mediano-Ulnar Arch**

**Padmalatha. K**, Prakash B. S, B. R. Ramesh

Department of Anatomy, Dr. B. R. Ambedkar Medical College, K.G.Halli, Bengaluru

During the routine dissection of cadavers allotted for first year MBBS students in our college, we came across the presence of median artery and the formation of Radio-mediano-ulnar arch in 3 out of 40 dissected upper limbs. According to Coleman & Anson (1961) the Radio-mediano-ulnar arch belongs to Group I – complete palmar arch (78.5%) - "Type D" Radio-mediano-ulnar arch. The Median artery is a transitory vessel that represents the arterial axis during early embryonic life. It normally regresses by second month, to become a small slender artery - Arteria Comitans Nervi Mediana. Incidence of palmar type of median artery has been reported ranging from 1.5% to 27.1% cases. In the present study, the percentage of incidence is 7.5%. The clinical significance and embryological significance will be discussed in detail during presentation.

**25. Anatomical Study of Unusual Variation in Musculocutaneous Nerve**

**Anatomical Study of Unusual Variation in Musculocutaneous Nerve**

**Eti Sthapak**, U.L. Gajbe

Department of Anatomy, JN Medical College, Sawangi, Wardha, MS

**Aim of the study:** Variational study of peripheral nerve constitutes a potentially important clinical and surgical aspect. The aim of this work is to study the variations of musculocutaneous nerve in the arm with respect to its branching pattern and distribution as well as its possible communication with median nerve.

**Material & method:** This study was carried out in Jawaharlal Nehru Medical College, Sawangi (Meghe) Wardha Maharashtra. Dissection of formalised 40 cadavers (80 upper limbs) was carried out using regular dissection kit with the help of standard dissection manual in two years.

**Result:** The musculocutaneous nerve was absent in 10 arms (12.5%) and the median nerve took over the area of supply of musculocutaneous nerve by giving both the muscular and sensory branches. 17 Arms (21%) showed a communicating branch between musculocutaneous and median nerves.

**Conclusion:** This present study provides the evidence of variation of Musculocutaneous nerve and in cases of absent musculocutaneous nerve; this can explain weakness of the arm flexor muscles in high median nerve paralysis.

#### **26. A spectrum of vertebral synostosis**

**Vasudha Kulkarni, B.R.Ramesh, Dr.Prakash.B.S**

Department Of Anatomy, Dr.B.R.Ambedkar Medical College, K.G.Halli, Bengaluru, Karnataka

Vertebrae and their intervertebral discs are one of the chief manifestations of body segmentation or metamerism. The differentiation and resegmentation is the hallmark of vertebral development. Inappropriate vertebral fusion may lead to Block vertebra or congenitally fused vertebra.

Vertebral fusion is congenital, acquired or surgical. It can occur at cervical, thoracic or lumbar levels. Acquired spinal fusion occurs in pathological conditions such as tuberculosis, juvenile rheumatoid arthritis, trauma etc. Surgical fusion of vertebrae is done in cases of degenerative disc disease, vertebral fracture, scoliosis etc. During Osteology demonstration class for 1st MBBS students, we found three different cases of Assimilation of Atlas, Fused cervical (C6-C7) and fused thoracic (T1-T2) vertebrae. The clinical implications and radiographic features of spectrum of these fused vertebrae will be discussed in the scientific session.

#### **27. A Study of the Congenital Anomalies of the Gall Bladder**

**Mrinalini Konjengbam**

Department of Anatomy, Regional Institute of Medical Sciences, Imphal, Manipur

**Aim Of The Study:** To study the occurrence of congenital anomalies of the gall-bladder.

**Materials and Methods:** Thirty (30) cadaveric livers in the department of Anatomy, RIMS, Imphal kept for undergraduate teaching were examined for any salient variations or anomalies. The gall-bladders were dissected carefully from the gall-bladder fossa of the liver and the viscera, along with the cystic duct were inspected for any anomalies.

**Results:** Two (2) cases showed recognized congenital

anomaly.

1. Double gall-bladder/Duplication of the gall- bladder with double cystic ducts joining just before draining into the common bile duct.

2. Phrygian cap gall-bladder with dense peritoneal covering enclosing the whole gall-bladder.

**Conclusion:** Anomalies of the gall-bladder is important in clinical practice since it may cause some clinical, surgical and diagnostic problems. Preoperative identification of such rare anomalies avoids biliary and vascular injuries and the other consequences of missed diagnosis.

#### **28. A Study on Anatomical Organisation of Aortic Arch Anomalies**

**V. Sunitha**

Department of Anatomy, Maharajah's Institute of Medical Sciences, Nellimarla, Vizianagaram

Congenital abnormalities of aortic arch result from aberrant development of 1 or more components of embryonic pharyngeal arch system and represent less than 1% of all congenital cardiac defects. Variations of aortic arch appear in a large number of possible combinations with various frequencies. Most of the variations are asymptomatic and uncovered as a sudden finding in imaging studies. Day to day advances in the fields of cardiac & vascular surgery need to revive interest in the developmental and adult anatomy of aortic arch and its great vessels. The study was conducted in 25 cadaver specimens by routine dissection method & 100 angiograms. The variant specimens were injected with silicon gel and the models were secured for preservation in the museum. The observations of the study will be discussed in the conference.

#### **29. An International study on Superficial Arcades of palm in the hands of Indians, Nepalese and Chinese**

**Arun Kumar S. Bilodi**

Department of Anatomy, Mahatma Gandhi Medical College & Research Institute, Piliyarkuppam, Puducherry

**Aim:** The objective of present study is to know the various types of superficial arterial arcades of palm & their percentages of incidences

**Period of study:**-This is five years study done in different Medical Colleges in different countries

**Place of study:** This study was done the department of Anatomy at 5 Medical Colleges of 3 different countries at 1. Sri Devraj Urs Medical College - Karnataka -India-40- hands, 2) Nepalgunj Medical College-Nepalgunj-Nepal-10-hands, 3) Xing Xiang Medical College -Xing Xiang -Republic of China-10 hands., 4) Rajarajeswari Medical College -Bangalore -Karnataka. 20 hands, 5) Hassan Institute Of Medical Sciences -Hassan -Karnataka-India-20 hands.

**Material & methods:** A detail study was done on one hundred Superficial Palmar Arches for its incidences & variations Each hand was carefully dissected to display Superficial Palmar Arches.Later they were cleaned dried & painted very carefully fabric red color paint .All unwanted fascia, fat were removed by underwater dissection cleaned & dried .Then they were grouped & photographed.

**Observations:** In hands of Indian origin, there were majority of complete variety of Superficial Palmar Arches of Radio ulnar type (76.00%). Rest were incomplete palmar Arches where they received a twig from the deep palmar arch (24.00%). But there were no incidences of Medio ulnar type by the median artery accompanying the median nerve. But in hands of Chinese origin there were majority of incomplete palmar arches of Radio ulnar type. Here also there were no incidences of median artery accompanying the median nerve (85.00%). The incidences of complete variety was only 15.00 %.

**Conclusion:** This variation of arterial arcades of palm may be due to genetic variation, developmental variations or population variation So present study has not only anatomical importance, but also anthropological, embryological & surgical importance. This study of variations is also paramount importance to vascular surgeons. Hence it has been studied & reported.

### **30. Anatomical Study of Accessory Sulci of Liver and its Clinical Significance in North Indian Population**

**Muktyaz Hussein,\*Mahboobul Haque,Suniti R Mishra.**

Department of Anatomy, M.R.A. Medical College Ambedkar Nagar U.P.; \*S.R.M.S. Institute of Medical Sciences Bareilly U.P.

Abnormalities of liver are rare inspite of its complex development in the ventral mesogastrium; common abnormalities are irregularities in form, occurrence of accessory sulci (AS) or presence of cysts. Research studies have mainly described the diaphragmatic sulci in the liver; however there are no research reports on the presence of AS on the inferior surface of the liver. The AS of the liver is a rare anomaly. Anatomy textbooks lack data on the presence of (AS) of the liver, research reports being the only source of information. Accessory sulcus can be incidentally detected during radiological procedures, routine autopsies, or anatomical dissections. Usually the diaphragm which is related to the superior surface may exert costal pressure to give rise to diaphragmatic sulci (DS). The main aim of the present study is to explore the presence of anomalous AS in cadaveric liver and to compare it with the normal liver. The present study was conducted in the department of Anatomy M.R.A. Medical College Ambedkar Nagar and Shri Ram Murti Smarak Institute of Medical Sciences Bareilly U.P. The materials used for present study comprises 36 adult livers with age ranging from 18 to 70 years which were dissected during routine dissection classes for medical undergraduate students over a period of five years. Livers were carefully studied for the presence of AS and the findings were appropriately documented. In the present study we found accessory sulci and grooves in 8 cadavers (14.5%).

### **31. Variations in the formation of Circle of Willis Bhavani Prasad. G**

Department of Anatomy, Pondicherry Institute of Medical Sciences, Pondicherry

The length and diameter of arteries forming the circle of Willis was observed in 30 formalin fixed brains. In One

case an incomplete circle of Willis was observed due to absence of Posterior communicating artery. An anterior communicating artery shows fenestration in two cases and was double in another two cases. Unilateral string arteries are common than bilateral. The variation for length and diameter was greatest for posterior communicating artery found in 9 cases and most frequently in posterior communicating artery. A significant inverse relationship observed between the diameters of the posterior cerebral and posterior communicating arteries.

**Everything on Renal Artery - A Study in Kidney Donors**

M.Kumaresan, Vijayakumar, P.Saraswathi  
Department of Anatomy, Saveetha Medical College, Chennai

**Aim:** To determine the morphometry, level of origin, branches & variations in both renal arteries

**Materials:** CT angiogram pictures

**Methods:** 100 angiogram images have been collected from specialized scan centers from Chennai.

**Results & Conclusion:** The measurement were tabulated, level of origin, branches & variations of renal artery will be discussed along with clinical implications in the venue.

### **32. Study of Morphology of Palmaris Longus**

**Rajesh. S, Vijaya kumar S, Melani Rajendran**  
Department of Anatomy, Sri Ramachandra Medical College and Research Institute, Sri Ramachandra University, Chennai

Palmaris longus muscle has drawn the attention of all Anatomists in view of its wide spectrum of morphological variations. It is one of the variable muscles and is a phylogenetically degenerating muscle with an evolutionary interest. It is a good choice for autogenous tendon graft in various surgeries. A study was carried out in 40 upper limbs to find out the morphology and agenesis of the muscle. In one cadaver exhibited bilaterally, reversed Palmaris longus, distal three fourths was fleshy and proximal one fourth was tendinous. At its insertion, its lateral part was divided into two slips, superficial slip was attached to palmar aponeurosis and flexor retinaculum, deep slip had multiple attachments. In another limb muscle was bitendinous and in another limb, middle third was fleshy with proximal and distal thirds tendinous. No limbs showed agenesis of Palmaris longus. Knowledge of such anomalies is essential to the radiologists, general and plastic surgeons.

### **33. Morphology of Bicipital Aponeurosis**

**Joshi S.D., Joshi S.S., Yogesh A.S., Mittal P.S.**  
Department of Anatomy, SAIMS Medical College and Postgraduate Institute, Indore

Bicipital aponeurosis, which extends from the medial margin of the tendon of biceps brachii, is directed downwards and medially to be attached to posterior subcutaneous border of ulna. During routine dissection it was observed that bicipital aponeurosis showed variations in the presence or absence of



tendinous fibers and in its width. Hence, a systematic study of morphology of bicipital aponeurosis was undertaken in this department in 24 limbs (right -12, left - 12). A number of variations were seen as regards contribution of fibers from the short and long head of biceps, presence or absence of tendinous fibers, stratification where it is attached to the biceps tendon, etc. Details of our findings will be discussed at the time of presentation.

#### **34. Variation in the Morphology of Platysma Muscle**

**R. Chhapparwal, P.S. Mittal, S.D.Joshi, S.S. Joshi**

Department of Anatomy, Sri Aurobindo Medical College and Post Graduate Institute Indore, M.P.

Platysma muscle from being considered insignificant functionally, has been shown to help in the depression of mandible; drawing the lower lip and of the mouth downwards and laterally in expression of horror and surprise; to unexplained role in sudden deep inspiration and sudden violent efforts. Lower extent of the muscle may be variable; the medial margins may meet in the midline above as well as below the hyoid.

Literature is replete with the variations of platysma in the form of: i) complete absence, ii) joined by slips from mastoid process, occipital bone and the fascia over the trapezius.

In the present study we have measured the distance between the medial borders of the muscle: i) 5cm and 10 cm above the supra sternal notch (SSN), ii) the width of the muscle in the middle of the neck and iii) where it crosses over at the angle of the mandible. We have also observed the extent of the decussation from symphysis menti.

The distance between the medial margins 5 cm above the SSN was from 2.5 cm to 4.4 cm; and 10 cm above the SSN it was found to be 2.1 cm to 2.9 cm indicating the convergence of the borders superiorly. Below the symphysis menti the decussation was absent in some, whereas, in some it was 2.5 cm broad, showing from 2 to more than 4 fasciculi decussating. The width of the muscle at the middle of the neck was seen to be as narrow as 4.4 cm and as broad as 7.6 cm. Width of the fibres crossing superficial to the the angle of the mandible ranged from 3.1cm to 5.3cm. Photographs showing some of these variations will be displayed along with the review of literature.

#### **35. Study of Pyramidal Lobe and Levator Glandulae Thyroidae**

**Anuradha Baruah, Anjan Rajkonwar**

Department of Anatomy, Assam Medical College, Dibrugarh, Assam

The thyroid gland consists of two symmetrical lobes united in front of 2nd, 3rd and 4th tracheal rings by an isthmus of glandular tissue. Materials and methods: In the present study specimens of thyroid gland are collected from cadavers available in the Dept of Anatomy, AMC. The study is carried out by simple dissection method. Result: The study shows presence of pyramidal lobe and levator glandulae thyroidae in a number of cases. Conclusion: It is found that no other

congenital anomaly of thyroid gland is associated with this condition.

#### **36. High Division of Sciatic Nerve**

**K. Hema Sreenivas**

Department of Anatomy, Narayana Medical College, Nellore

Aim of the study: To observe any variations in the routine dissections.

Material and methods: 20 lower limbs of formalin fixed cadavers.

Observations: Out of 20 lower limbs, 5 lower limbs showed variations unilaterally in the right limb of all the cadavers.

Results: Sciatic nerve after coming out of greater sciatic foramen immediately divided in to two branches. The tibial nerve passed above the pyriformis muscle where as the common peroneal nerve passed bellow the pyriformis muscle. These were all seen unilaterally in the five limbs but no bilateral variation was observed.

Conclusion: Precise knowledge regarding the variations in the origin and branching pattern of sciatic is vary essential in treating sciatica, intramuscular injection in neonates, fracture neck of femur and dislocation of hip joint. The present modern equipment like MRI, CT scan has enabled the surgeons in the early diagnosis and surgical intervention of these underlying causes.

#### **37. Ossification Abnormalities of Scapula: A Dry Bone Study**

**Navneet Kumar, Anita Rani, Rakesh Kumar Diwan, Rakesh Kumar Verma, Arvind Kumar Pankaj**

Department of Anatomy, C. S. M. Medical University Lucknow, U.P.

Introduction: The Scapula a tri angular flat bone present at upper part of posterior aspect of rib cage. The abnormal ossification of scapula is not common but when present creates serious hindrance in day to day activity.

Aim of study: To study the various ossification abnormalities associated with scapula.

Materials and methods: 267 adult, dry scapulae of unknown sex were obtained from the osteology processing lab of C.S.M. Medical University, Lucknow (U.P). The body, superior border, lateral border, medial border, acromian process and coracoid process were observed for abnormal ossification. Results: In lower 2/3rd part of body of scapula, oval and circular shaped gaps were found in 16(5.99 %) cases. The superior border was ossified near or at the supra scapular notch in 22 (8.23%) scapulae. The bony growths were present in 8(2.99%) scapulae at the lateral border. Only one scapula was found with large bony projection at the medial border. The bony abnormal growth at the acromian process was observed in 6 (2.24%) scapulae. In one bone, a large facet was found on the superior surface of coracoid process.

Conclusion: The osseous abnormalities related to superior border and body of scapula are higher in comparison to its other parts.

**38. Clinically significant neuromuscular variations in the upper arm**

**S. Vijaya Kumar**, Rajesh. S And Melani Rajendran  
Department of Anatomy, Sri Ramachandra Medical College and Research Institute, Sri Ramachandra University, Chennai

Branching pattern of the brachial plexus are reported by many investigators. But the variations observed in the present study are uncommon. During routine dissection, multiple variations were observed on the left side of a male cadaver. Observations: Formation of median nerve was at a higher level. Lateral cord was terminated as a smaller lateral root of median nerve sculocutaneous nerve. Medial cord, medial root of median nerve and ulnar nerve were found behind second part of axillary artery. Musculocutaneous nerve after piercing coracobrachialis joined with median nerve. Musculocutaneous nerve was divided into two branches within coacobrachialis. A common trunk for thoracodorsal and lower subscapular nerve. Axillary nerve was communicated with lower subscapular nerve. Coracobrachialis, apart from its common origin with short head of biceps brachii, some fibres arose separately by an aponeurotic tendon. Coracobrachialis was divided into medial and lateral portions by musculocutaneous nerve and both portions were united and continued down to medial intermuscular septum and medial supracondylar ridge. Such variations might result in neurovascular compression symptoms in the upper limb and might cause confusion in brachial plexus anaesthesia in trauma.

**39. Course of the Superficial Branch of the Radial Nerve and its Branches Along With Variations In Length and Distribution – Cadaveric Study**

**Caroline Sangeetha.J.**, Mamatha.H, Antony Sylvan D'souza, Suhani.S.  
Department of Anatomy, KMC, Manipal

Aim of the study: Superficial branch of radial nerve (SBRN) is one of the branches of radial nerve arising from the posterior cord of the brachial plexus. The radial nerve enters the forearm and divides into deep and superficial branches. The superficial branch passes straight downward along antero-lateral aspect of upper 2/3rd of forearm. This study is to assess the normal course of superficial branch of the radial nerve and variations in length and its distribution to avoid risk of injury to the nerve during surgical procedures. Materials and methodology: Dissections were performed on 30 cadavers of both upper limbs. Forearm length was measured from lateral humeral epicondyle to radial styloid process. The radial nerve was identified in the forearm in the interval between brachioradialis and brachialis and was dissected proximo- distally. The division of radial nerve into superficial and deep branches was identified. The distance between the point of origin of SBRN to lateral humeral epicondyle and humero-radial joint was measured. Next we

measured the distance from radial styloid to the point where it becomes superficial and gave its first branch. Then we observed the number of branches of SBRN crossing wrist joint and its supply to the dorsum of the digits.

Result: All these measurements were determined with the help of reference pins for bony landmark, Inch tape for measuring the length of nerve and photographs were taken for each dissected specimen.

**40. Morphological Study of Human Thyroid Gland**

**Karambelkar R. R.**, Shewale A. D., Umarji B. N., Mane S. B.  
Krishna Institute Of Medical Sciences University, Karad

The thyroid is an important endocrine gland helping for maintenance of basal metabolic rate. It is endodermal in origin and develops from lower end of thyroglossal duct. It has two lateral lobes and central isthmus. Structural variations and congenital anomalies of thyroid gland are of wide range. So in present study an attempt is made to observe the variations and dimensions of the thyroid gland. The results will be discussed during time of presentation.

**41. Mucin Histochemistry of Human Sublingual Salivary Gland**

**Karambelkar R. R.**, Umarji B. N., Mohite S. S., Shewale A. D.  
Krishna Institute of Medical Sciences University, Karad

The sublingual gland is predominantly mucous salivary gland, secreting mucosubstances which perform a wide variety of functions like lubrication, protection against acids etc. Thirtynormal human sublingual salivary glands obtained during autopsies or surgical removal were collected and fixed in 10 % formalin with 2% calcium acetate and a pinch of phosphotungstic acid. 4 to 5 micron thin sections were cut after preparing paraffin blocks. The sections were stained by using specific stains like periodic acid schiff, Alcian blue of different pH and Aldehyde fuschin singly and in combinations. Confirmatory tests were also carried on. The normal human sublingual salivary gland shows presence of acidic mucosubstances mainly, which are predominantly sulphated or strongly acidic. The sulphated mucosubstances possess a lubricating, antiviral and antibacterial property. Any change in its nature makes sublingual salivary gland vulnerable for infection.

**42. Morphometric Study of Pharyngeal Opening of Auditory Tube**

**Mohite S. S.**, Karambelkar R. R., Umarji B. N., Mane S. B.  
Krishna Institute of Medical Sciences University, Karad

The auditory tube is also known as the pharyngotympanic tube. It connects the tympanic cavity to the nasopharynx and allows the passage of air between these spaces to equalize the air pressure on both aspects of tympanic membrane. The auditory tube is making an angle of approx. 450 with saggital plane and 300 with the horizontal. It is essential to know the dimensions and position of the pharyngeal opening of auditory tube for otolaryngologists in different diseases and catheterization. In our study we have measured the

dimensions of auditory tube opening and its distance from different bony points. The data is analysed statistically. The results will be discussed during time of presentation.

**43. Morphological Study of Plantaris Muscle**

**Mohite S. S., Karambelkar R. R., Umarji B. N.**  
Krishna Institute of Medical Sciences University, Karad

Plantaris muscle is the deep muscle in the posterior compartment of leg. It is attached proximally on the distal part of the lateral supracondylar line and to the oblique popliteal ligament. It has got a small belly and long tendon. The insertion of the muscle reaches to the crural fascia. But it is a subject of confusion because it is said as a rudiment of a large muscle or a vestigial muscle. It is considered to be an organ of proprioceptive function for larger, more powerful planter flexors. As it contains high density of muscle spindles. So considering its great variability of size, origin and insertion a study has been undertaken. The length of the muscle, its fleshy parts and tendon are considered for this study. The details will be discussed during time of presentation.

**44. Metrical Analysis of Sutures of Hard Palate**

**Karambelkar R. R., Jadhav Avantika V., Umarji B. N., Doshi M. A.**

Department of Anatomy, Krishna Institute of Medical Sciences University, Karad

Sutures are an example of fibrous variety of joints and are further classified into plane, serrate, squamous and dentate varieties. The interpalatine and intermaxillary are plane sutures and are forming hard palate. In females the face is round and width and length of the face are almost equal. So a morphological study of these sutures including length may help for sexual dimorphism. Sutures like coronal and saggital are widely studied but study of these sutures have remained a bit neglected so it was studied in 100 crania of known sex. The findings will be discussed at the time of presentation.

**45. Morphometric Study of Carotid Canal**

**Karambelkar R. R., Shedge Swapna A., Umarji B. N., Mali Roopali**

Department of Anatomy, Krishna Institute of Medical Sciences University, Karad

The carotid canal is a bony canal present in petrous part of temporal bone through which internal carotid artery with sympathetic plexus surrounding it passes. Abnormality of internal carotid artery may lead to variation in blood supply to cerebrum and cause a major neurological deficit. One of the main causes of carotid artery variation may be the morphological structure of canal, size, septation and length may compress carotid artery and hence morphological study of carotid canal in 100 human dry crania of known sex is undertaken. Vessels are smaller in females and accordingly

canal will also be of lesser dimensions. So the study will also help for sexual dimorphism and will be of great help in forensic medicine. The results will be discussed at time of presentation.

**46. Anatomical consideration of sciatic nerve division in popliteal fossa block- A fetal study**

**Manisha Barnwal, Anjali Aggarwal\*, Daisy Sahni\*, Harjeet Kaur\*, Richa Gupta\***

Chhattishgarh Dental College and Research Institute, Rajnandgaon, Chhattishgarh ; \*Post Graduate Institute of Medical Education and Research, Chandigarh

Regional anesthesia and peripheral nerve block is of increasing interest for anesthesiologists in pediatric patients. Sciatic nerve block in popliteal fossa is now preferable for effective analgesia in infants and toddlers after major foot surgeries. Because of excellent analgesia in post operative period and without risk of cardiovascular or respiratory depression induced by opioid, regional anesthesia is preferred. We took fetus of near term pregnancy. Lateral length of femur and distance between division of sciatic nerve and lateral condyle of femur were measured. We also studied diameter of sciatic nerve at different levels and correlated it with length of femur and crown heel length. Result will be discussed in presentation. This study will help anesthetists to block sciatic nerve at peripheral centers where ultrasound facilities are not available.

**47. Labral Attachment of the Long Head of the Biceps Brachii Muscle: Cadaveric Study**

**R J Patil, Surekha D Jadhav\*, M A Doshi, M P Ambali, Priya P Roy, Rajeev R Desai**

Krishna Institute of Medical Sciences (DU), Karad, Satara; \*Padmashri Dr. Vithalrao Vikhe Patil Medical College, Ahmednagar, Maharashtra

Most of the anatomical texts have been described the proximal attachment of the tendon of long head of biceps from supraglenoid tubercle. But other studies have shown its additional attachment to glenoid labrum at variable extent. The aim of the present study was to define the extent of labral attachment of the tendon of long head of biceps brachii. We studied the proximal attachment of the tendon of long head of biceps in 50 formalin preserved shoulder joints. In 2 cases it was attached to the supraglenoid tubercle only and in 48 cases we observed that tendon of long head of biceps was attached to supraglenoid tubercle and glenoid labrum. The tendon was found to be attached to the posterior part of the labrum in all cases while in 18.75% cases it was attached to the anterior part as well. The awareness of the labrum attachment to variable extend might help surgeons in planning their surgical procedures. Also these normal anatomical variations are significant for arthroscopic diagnosis and may help to explain the various patterns of injury seen in partial or complete detachment of the tendon, the labrum or both. Details of our work will be discussed during presentation.

**48. Variation in Fibularis Tertius Muscle and Its Clinical Significance**

**M P Ambali, S D Jadhav\***, M A Doshi, R J Patil, Priya P Roy, Rajeev Desai

Department of Anatomy, Krishna Institute of Medical Sciences Deemed University, Karad; \*Padmashri Dr. Vithalrao Vikhe Patil Medical College, Ahmednagar

Fibularis tertius is a muscle of the anterior compartment of the leg. The fibularis tertius, in humans, is a variable muscle – it may be as bulky as the Extensor Digitorum Longus or be very thin and rudimentary or may be absent. It represents the extensor digiti minimi with its insertion displaced to the base of the fifth metatarsal. We have dissected 90 lower limbs to see the variation in the fibularis tertius. We found variation in 12 cases, and absence of muscle in 36 cases. We also noted variations in distal attachment of this muscle.

Usually, the fibularis tertius is involved in dorsiflexion and eversion of the foot. In many cases, the absence of it may be asymptomatic and it may be incidentally detected during cadaveric dissections or autopsies. The existence of fibularis tertius may help in the swing phase of bipedal walking. It may be used for tendon graft surgeries. The pull of the fibularis tertius may be responsible for causing stress on the fifth metacarpal and account for all stress fractures in any individual. The absence of the PT may puzzle any transplant and foot surgeons performing graft operations. We as anatomists discuss the clinical implications of the variations of fibularis. Details will be discussed during paper presentation.

**49. Variations in Bifurcation Point and Branching pattern of Common Carotid Arteries: Cadaveric Study**

**Surekha Jadhav, MA Doshi\***, BN Zambre, Raosaheb J Patil\*, MP Ambali\*, Sarita Morgum\*\*

Padmashri Dr. Vithalrao Vikhe Patil Medical College, Ahmednagar; \*Krishna Institute of Medical Sciences (DU), Karad; \*\*Shri BM Patil Medical College, Bijapur

Carotid arteries are the main arterial trunks of the head and neck. They are important landmarks defining dissection plane during radical neck surgeries. These arteries divide at the upper border of the thyroid cartilage. This position can vary considerably. The purpose of the present study was to see the point of bifurcation and branches arising from carotid arteries. Variations in the bifurcation levels and branching pattern of common carotid arteries are important during neck surgeries, catheterization, for radiologist in image interpretation and in accurate ultrasonic image correlation. Fifty adult cadavers of unknown sex and age were studied. After taking skin incisions from the chin to the supra-sternal notch and along the lower border of mandible, skin flaps were reflected and bifurcation levels and extra branches arising from carotid arteries were noted. The bifurcation level was classified into three groups. Type I: Normal- at the superior border of thyroid cartilage (57%); type II: high- above the superior border of thyroid cartilage (42%); type III: low- below the superior border of thyroid cartilage (1%). Various branches given from carotid arteries were superior thyroid, thyrolingual trunk and Lingual artery. Details of our

study will be discussed at the time of presentation.

**50. Incidence of Palmaris Longus Muscle Agenesis in Gujarat Population**

**M. R. Tandel, D.P. Kanjiya, L.K. Sutaria, S. M. Chaudhary, C. A. Pensi**

Department Of Anatomy, B.J. Medical College, Ahmedabad, Gujarat

Background: Palmaris longus muscle is one of the superficial slender muscles of forearm that act on the skin and distal digital webs. It has been described as a phylogenetically degenerate metacarpophalangeal joint flexor. It is harvested as a tendon graft in many surgical procedures. Palmaris longus muscle is a choice of muscle in cosmetic, plastic and reconstructive surgery. There are many studies on various ethnic groups of different regions.

Aim: This prospective, observational and cross sectional study was conducted to determine the incidence of unilateral and bilateral agenesis of Palmaris Longus and its association with sex and side of the limb in the Gujarat population of India.

Materials and Methods: We examined 474 subjects (273 males and 201 females) clinically belonging to 18 – 25 years for agenesis of palmaris longus by various clinical techniques and also done cadaveric study of 50 upper limbs of 25 cadavers of Gujarat region. Data was collected and analyzed by Pearsons Chi-square test.

Results: In clinical study total agenesis of palmaris longus muscle was seen in 67(13.08%) subjects out of whom 13.19% was males and 12.94% was females. Unilateral agenesis was seen in 38.71%, bilateral agenesis in 61.29%, right sided agenesis in 45.83% and left sided in 54.17%. In cadavers out of 50 upper limbs, Palmaris longus agenesis was seen in total 4 limbs in which 1 limb had bilateral agenesis and 2 left limbs had unilateral agenesis.

Conclusions: Prevalence of palmaris longus agenesis is more common in males and unilateral agenesis is more common on left side.

**51. Morphological and Morphometrical Study on Superficial Palmar Arch in Human Cadavers**

**Prakash Mane, Haritha Kumari.N, Aruna Mukherjee**  
MGM Medical College, Mumbai, Maharashtra

Aim: - To study the morphological & morphometrical analysis of superficial palmar arch in human cadavers.

Objective:- Variation in the pattern of blood supply of palm are frequently encountered. Awareness & identification of such variations is crucial during hand surgery. Hence, our objective is to morphologically & morphometrically analyse the superficial palmar arch in human cadavers.

Materials & Methods:- A total 30 palms of 15 cadavers were dissected & observed during routine dissection hours for superficial palmar arch. These palms are dissected from human cadavers, Anatomy Department, MGM Medical College, Kamothe, Navi Mumbai. The total length of arch including formation, branching pattern & variation with termination are noted. The results are tabulated & analysed. Observation & Result:-The details observation & result will

be discussed during the time of presentation.

**52. A Study on Mode of Origin Of Musculocutaneous Nerve**

**J. Jyothi, KSN Prasad**

Department of Anatomy, Siddhardha Medical College, Vijaywada, AP

**Background:** The frequency of variation found in the arrangement and distribution of the branches in the brachial plexus, make this anatomical region extremely complicated. The surgical concerns involved with these variations include anesthetic blocks, surgical approaches, interpreting tumor or traumatic nervous compressions having unexplained clinical symptoms (sensory loss, pain, wakefulness and paresis), and the possibility of these structures becoming compromised. The clinical importance of these variations is discussed in the light of their differential origins.

**Methods:** 55 limbs of embalmed adult cadavers allotted to routine dissection for under graduate students in Siddhartha medical college, Vijayawada were studied.

**Aims & objectives:** The study is aimed at study normal distribution of brachial plexus. To note the variation in origin of musculocutaneous nerve.

**Results:** The point of origin of musculocutaneous nerve from median nerve formation is measured. Musculocutaneous nerve arises 3 cm away from the formation of median nerve is observed in two cases.

**Conclusion:** Further studies are needed to confirm the existence of these variations in a larger sample of cadaver specimens.

**53. Some Observations on the Origin of Pectoralis Minor Muscle**

**Mittal P.S., Mittal M., Agichani S.**

Department of Anatomy, SAIMS Medical College and Post-graduate Institute, Indore

Pectoralis minor can be described as key muscle of the pectoral region because of its important relations. Normally it arises from 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> ribs near their costochondral junction and the fascia covering the intercostal muscles. Variations in the origin of the muscle have been described in the literature. But we did not come across any systematic study in the population of this region. Hence, this study was undertaken. Only in 36.3% cases the origin of Pectoralis minor was normal i.e.: from 3<sup>rd</sup>, 4<sup>th</sup> & 5<sup>th</sup> ribs bilaterally; whereas, in 63.6% cases it was seen extending up to the 2<sup>nd</sup> rib. The significance of the findings will be discussed.

**54. A Study of Vertebral Anomalies**

**Pradipta Ray Choudhury, K.L.Talukdar, J. Sarma, Prabahita Baruah**

Department of Anatomy, Gauhati Medical College, Guwahati

**Aim:** to study anomalies in various vertebrae. Anomalies of vertebrae may be due to abnormal vertebral development and result in growth asymmetry. Vertebral malformations can be classified as being caused by defects of formation,

segmentation or mixed anomalies.

**Materials and methods:** the study was conducted on 200 numbers of different vertebrae available in the osteology laboratory, Department of Anatomy, Gauhati Medical College. The vertebrae were examined for any abnormalities under day light.

**Results and observations:** among the available vertebrae, we found 4(four) anomalous vertebrae which had defects in fusion or segmentation. These vertebrae were then examined, studied and photographed.

**Conclusion:** such anomalies of vertebral column are likely to progress over the period of skeletal growth producing severe deformities. Keeping all these facts in mind, an attempt has been made to study the vertebral anomalies and details of the study will be discussed at the conference.

**55. Stature estimation from percutaneous ulna length**

**Shradha Iddalgave, C. M. Ramesh, Muralidhar P. Shepur**

Department of Anatomy, J. J. M. Medical College, Davangere, Karnataka

Assessment of body height from different parts of body by anthropometric study of skeleton is an area of interest to Anatomists, Forensic Experts and Anthropologists. In this study 100 students of J. J. M. Medical College, Davangere, Karnataka are included. Ulna length (distance between most proximal point of the olecranon process and tip of the styloid process of ulna) with forearm flexed at 90° in supine position is measured. The height and weight of each student is noted. This study describes an equation devised for estimation of stature based on Percutaneous Ulna length and the correlation co-efficient of height with right and left ulna length.

**56. A Study on Musculus Levator Glandulae Thyroideae**

**P.V.Chandrika, K.S.N.Prasad**

Department of Anatomy, Siddhartha Medical College, Vijaywada, AP

Musculus Levator Glandulae Thyroideae is a fibrous or fibromuscular band that stretches from the pyramidal lobe or upper border of isthmus of thyroid gland usually on left side, to the body of the hyoid bone. Morphological variations including blood supply and congenital anomalies of thyroid gland are of wide range and have been reported in the literature.

**Aim:** To study the prevalence of Musculus Levator Glandulae Thyroideae in adult cadavers and to highlight the variations of morphology especially Musculus Levator Glandulae Thyroideae.

**Material & methods:** The present study of thyroid gland was done from cadavers of routine dissections of head and neck at Siddhartha Medical College, Vijayawada. Midline structures were exposed in 14 cadavers of either sex.

**Results:** Out of the 14 cadavers Musculus Levator Glandulae Thyroideae was observed in 3 cadavers of which 2 are male and 1 is female. Pyramidal lobe was observed in 1 male & 1 female cadaver.

**Conclusions:** This study highlights the significance

of understanding thyroid anatomy and its associated anatomical variations thus providing guide for safe and effective thyroid surgeries. The prevalence and classification of Musculus Levator Glandulae Thyroideae are discussed in detail.

#### 57. Variations in Branching Pattern of Radial Artery

**Mithil.N.Potuganti**, K.Krupadanam, B.R.Zambare\*, Rakate S. Nilesh

Department of Anatomy, NRI Medical College, Guntur; P.D.V.V.PF's Medical College, Ahmednagar; \* P.D.V.V.PF's Medical College, Ahmednagar

**Aims & Objectives:** Arterial supply to man's hand-his most important earning tool is derived from two anastomotic arches- superficial and deep- a place for most variations to occur, knowledge of which is important for vascular and reconstructive surgeons apart from anatomists.

**Materials & Methods:** Three different variations were found in 60 specimens kept for dissection in Department of Anatomy. Radial artery was exposed according to standard methods. Results were photographed and documented well.

**Results:** Most common radial artery variations are usually observed after it winds over back to dorsal aspect of wrist. The following variations were encountered:

1. On dorsum of a right wrist, radial artery divided into lateral and medial branches. Medial branch entered palm through 2nd dorsal interosseous space and completed deep palmar arch, while the lateral ended by supplying the thumb.
2. In another specimen, on the left side, the radial artery has given a branch which split into a slender branch that ended on dorsum and a larger branch passed through first interdigital cleft and completed Superficial Palmar Arch (SPA).
3. Radial artery, before dipping into palm, gave a branch that passed through 1st interdigital cleft and established a communication with SPA in a left handed specimen.

**Conclusions:** These variations are not found commonly in literature where most of them had embryological relations with median artery. A profound knowledge of anatomical variations could prevent fatal errors particularly during radial artery catheterization.

#### 58. Stature estimation from percutaneous ulna length

**Shradha Iddalgave**, C. M. Ramesh, Muralidhar P. Shepur  
Department of Anatomy, J. J. M. Medical College, Davangere, Karnataka

Assessment of body height from different parts of body by anthropometric study of skeleton is an area of interest to Anatomists, Forensic Experts and Anthropologists. In this study 100 students of J. J. M. Medical College, Davangere, Karnataka are included. Ulna length (distance between most proximal point of the olecranon process and tip of the styloid process of ulna) with forearm flexed at 90° in supine position is measured. The height and weight of each student is noted. This study describes an equation devised for estimation of stature based on Percutaneous Ulna length and the correlation co-efficient of height with right and left

ulna length.

#### 59. A Study on Musculus Levator Glandulae Thyroideae

**P.V.Chandrika**, K.S.N.Prasad  
Department of Anatomy, Siddharta Medical College, Vijaywada, AP

Musculus Levator Glandulae Thyroideae is a fibrous or fibromuscular band that stretches from the pyramidal lobe or upper border of isthmus of thyroid gland usually on left side, to the body of the hyoid bone. Morphological variations including blood supply and congenital anomalies of thyroid gland are of wide range and have been reported in the literature.

**Aim:** To study the prevalence of Musculus Levator Glandulae Thyroideae in adult cadavers and to highlight the variations of morphology especially Musculus Levator Glandulae Thyroideae.

**Material & methods:** The present study of thyroid gland was done from cadavers of routine dissections of head and neck at Siddartha Medical College, Vijaywada. Midline structures were exposed in 14 cadavers of either sex.

**Results:** Out of the 14 cadavers Musculus Levator Glandulae Thyroideae was observed in 3 cadavers of which 2 are male and 1 is female. Pyramidal lobe was observed in 1 male & 1 female cadaver.

**Conclusions:** This study highlights the significance of understanding thyroid anatomy and its associated anatomical variations thus providing guide for safe and effective thyroid surgeries. The prevalence and classification of Musculus Levator Glandulae Thyroideae are discussed in detail.

#### 60. Variations in Branching Pattern of Radial Artery

**Mithil.N.Potuganti**, K.Krupadanam, B.R.Zambare\*, Rakate S. Nilesh

Department of Anatomy, NRI Medical College, Guntur; P.D.V.V.PF's Medical College, Ahmednagar; \* P.D.V.V.PF's Medical College, Ahmednagar

**Aims & Objectives:** Arterial supply to man's hand-his most important earning tool is derived from two anastomotic arches- superficial and deep- a place for most variations to occur, knowledge of which is important for vascular and reconstructive surgeons apart from anatomists.

**Materials & Methods:** Three different variations were found in 60 specimens kept for dissection in Department of Anatomy. Radial artery was exposed according to standard methods. Results were photographed and documented well.

**Results:** Most common radial artery variations are usually observed after it winds over back to dorsal aspect of wrist. The following variations were encountered:

1. On dorsum of a right wrist, radial artery divided into lateral and medial branches. Medial branch entered palm through 2nd dorsal interosseous space and completed deep palmar arch, while the lateral ended by supplying the thumb.
2. In another specimen, on the left side, the radial artery has given a branch which split into a slender branch that

ended on dorsum and a larger branch passed through first interdigital cleft and completed Superficial Palmar Arch (SPA).

3. Radial artery, before dipping into palm, gave a branch that passed through 1st interdigital cleft and established a communication with SPA in a left handed specimen.

Conclusions: These variations are not found commonly in literature where most of them had embryological relations with median artery. A profound knowledge of anatomical variations could prevent fatal errors particularly during radial artery catheterization.

**61. A Study on Variations in the Branching Pattern of Axillary Artery**

**Harpreet Singh Gulati**, Antony Sylvan D'souza, Biswabina Ray, Lalu Krishna  
Department of Anatomy, Kasturba Medical College, Manipal

Background & Aim of the Study: Axillary artery, a continuation of subclavian artery, is the main (axis) artery to the upper limb. Normally it gives rise to six named branches before continuing as brachial artery. Variability in the origin of certain branches of the axillary artery is frequently apparent but not uniformly studied. The objective of this study is to present the abnormalities in the branching pattern of axillary artery with a view to clarification and quantification of both the "regularity" and "variability" in these vessels.

Materials & Methods: The study was conducted at Kasturba Medical College, Manipal. Thirty axilla were dissected (15 cadavers bilaterally) and the branches of axillary artery were observed from their point of origin from axillary artery and traced to their termination. The percentage of each branch arising normally and abnormally was also calculated to fulfill the objective of this study holistically.

Results: Four variations were noted in its branching pattern, with one variation being present bilaterally in the same cadaver. One of the variations is a rare and unique entity.

Conclusion: Such anomalous branching pattern may represent persisting branches of the capillary plexus of the developing limb buds. These variations have pragmatic importance for surgeons for accurate diagnosis and surgical procedures and also for vascular radiologists for construing angiographic images.

**62. A Study on the Pattern of Segmental Arteries in Human and its Variations**

**Feroz Hussain**, Joydev Sarma  
Department of Anatomy, Medical College, Guwahati, Assam

Aim of study: To study the pattern of segmental arteries in human kidneys and to focus on its variations.

Materials and Methods: Kidneys were collected from unclaimed human cadavers from the department of Forensic Medicine, Gauhati Medical College, after fulfilling all medico-legal formalities.

Results and observations: The renal artery primarily divides into anterior and posterior divisions anywhere between aorta and the hilum or even inside the hilum of kidney. The

secondary branches from these primary divisions are the segmental arteries.

The anterior division usually divides outside the hilum as apical, upper, middle and lower segmental arteries. The posterior division usually gives 3 unnamed collateral branches to supply the posterior segment. The present work includes 40 kidney specimens. There are variations observed in the course of these segmental arteries. Accessory renal arteries are also common.

Results and data will be analysed using statistical package. Conclusion: The present work has been undertaken because of its urosurgical importance in making a relatively blood less surgical approach to the kidneys and to save the healthy renal tissue in partial nephrectomy. The details of this work will be discussed in the form of a paper during the conference.

**63. The Right Coronary and Its Variations - A Cadaveric Study**

**Manisha Patil**, Medha Puranik\*  
Department of Anatomy, B.U.D.U. Medical College, Sangali;  
\*Bharati Vidyapeeth Medical College, Pune, Maharashtra

Aim: 1. To study variations in origin, course, branching pattern, termination of right coronary artery and detect anomalies if present. 2. To note the presence of myocardial bridges.

Materials and Methods: 150 adult human hearts fixed in 10% formalin obtained from the cadavers in the department of Anatomy of various Medical Colleges of Western Maharashtra were dissected to study right coronary artery. Results: Ostium of right coronary artery (RCA) was observed in anterior aortic sinus in 148 hearts but in 2 cases, an anomalous origin of right coronary from left posterior aortic sinus was found which was in the form of vertical slit and was tubular in position. In one heart RCA bifurcated at inferior border of heart into two posterior ventricular rami. In one heart, right coronary artery was running out of the coronary sulcus on the entire diaphragmatic surface supplying it. Right coronary artery gave right conus artery (70%), posterior interventricular artery (80%) of hearts, S.A. nodal artery (80%) hearts and A.V. nodal artery (86.67%). Myocardial bridges were noted on 1st segment of RCA in 12.67% hearts, acute marginal artery in 6% hearts and over right conus branch in 1.33% hearts. Rest of the observations and applied importance will be discussed during presentation.

Conclusion: Sound knowledge of variations of coronary arteries is essential for the radiologists, clinicians and members of forensic medicine.

**64. A Study on Arteria Profunda Femoris and its Variations**

**K. Bharathi**, K.S.N. Prasad  
Department of Anatomy, Siddharta Medical College Vijaywada, AP

The femoral artery is easily accessible to catheterisation and for investigation of arterial system in the body and

the profunda femoris artery is used for arteriography & non invasive procedures. The average distance of origin of profunda femoris artery usually in the range of 3.5 cm to 4 cm according to Bannipster et al (1995) and Snell (1992). The Lateral circumflex artery mostly originated from the profunda. The medial circumflex artery occasionally may arise from the femoral artery according to Lipshutz (1916) and Clarke and Colborn (1993). Present Study is aimed at course and variations of arteria profunda femoris and its main branches. Twelve lower limbs of six adult human cadavers were used for study. The level of origin of the profunda femoris artery, medial and lateral circumflex arteries are studied with reference to the midpoint of the inguinal ligament. Measurement was done with a scale and vernier calipers. The mean distance of origin of profunda femoris from the midpoint was observed as 2.9 cms while shortest is 1.6 cms. The mean distance of lateral and medial circumflex arteries found to be 3.8 cms and 3 cms respectively. In one specimen medial circumflex artery is bilaterally arising from femoral artery that is at a distance of 2.9 cm on the left side and 3 cm on right side. Out of Twelve lower limbs three lower limbs in which medial circumflex femoral artery has direct origin from femoral artery. The average distance of origin of profunda femoris from the midpoint of inguinal ligament was 2.9 cm that was less than 3.5 cm and 4 cm mentioned by Banister et al (1995) and Snell (1992).

**65. A Study of Superficial Palmar Arch and its Variations**

**M.P. Sultana, K.S.N. Prasad**

Department of Anatomy, Siddhartha Medical College, Vijaywada, AP

Knowledge of the Anatomical variations of the Hand is necessary for successful hand Surgeries, such as, vascular repairs and vascular graft applications. In the present study, 30 upper limbs were dissected from the Department of Anatomy Siddhartha Medical College, Vijaywada. The study has shown the presence of incomplete arch in 5 upper limbs. In one specimen the incomplete arch was identified which is formed by Ulnar Artery & Median Artery without anastomosis. This comes under Incomplete Arch Type 'C' classification. The remaining four incomplete arches were formed by Radial and Ulnar Arteries without anastomosis. This comes under incomplete Arch Type 'A' Classification. The Identification of such variations in arterial pattern of hand using Doppler Ultrasonography, acquires great importance in various surgical interventions of hand. Details will be discussed later.

**66. Variations of Abductor Pollicis Longus**

**Enakshi Ghosh, R.G. Kar Medical College, Kolkata, Vasanti Arole**

Department of Anatomy, Pad. D. Y. Patil Medical College, Pune

Introduction: Origin: Abductor pollicis longus is an extensor muscle of forearm, which arises from posterior surfaces of both radius & ulna & from intervening interosseous membrane.

Insertion: the muscle emerges between posterior & lateral groups of superficial extensor muscles, forms a rounded tendon, which is inserted into the radial side of the base of 1st metacarpal bone.

Materials & methods: 100 upper limbs of formalin fixed cadavers, Dept. of Anatomy, RGKMC, Kolkata comprised material for study.

Observations:

A. Abductor pollicis longus having three tendinous slips with same insertion. The slips are seen getting fused with each other & inserted at the base of 1st metacarpal. (found in 2% of limbs)

B. Abductor pollicis longus having four tendinous slips- medial two slips are seen getting fused with each other, blending with fascia covering the muscle; lateral two slips are seen getting inserted at the base of 1st metacarpal bone, separately- side by side.

C. Abductor pollicis longus having three tendinous slips (lateral & intermediate) are seen getting inserted at the base of 1st metacarpal bone, separately- side by side. Medial most slip blends with the fascia covering abductor pollicis brevis. (found in 6% of limbs)

D. Abductor pollicis longus having two tendinous slips are seen getting inserted at the base of 1st metacarpal bone, medial one proximally & lateral one distally. (found in 2% of limbs)

Conclusion: Variations of abductor pollicis longus - Presence of multiple tendons-useful in tendon transplants, reconstruction of hand in cases of crippled hands, reconstruction of burn injuries etc.

**67. A Brief Study on the Variation of the Lungs**

**Ramesh P, Lydia S. Quadros, Antony Sylvan D'souza**

Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

The right lung normally has three lobes separated by horizontal and oblique fissures and the left lung normally has only two lobes separated by an oblique fissure. During the routine dissection for undergraduate students, we observed that the right lung had two large lobes separated by an incomplete oblique fissure and a small lobe very close to the hilum which is separated by a fissure at the base of the lung. We have also seen that the left lung had three lobes and two fissures, one of the fissures being incomplete. Objectives: Due to these variations, we conducted a study in our department. Materials and methods: Formalin-fixed lungs, parameters such as incomplete fissures, abnormal lobes, accessory lobes were noted. Results: A higher percentage of lungs showed variations in the pattern of fissures and lobes. Conclusion: Anatomical knowledge of such variations is of utmost importance for the surgeons during lobectomies and also radiologists and academicians in the medical field.

**68. The Conal Coronary Artery**

**Manisha Patil, Medha Puranik\***

Department of Anatomy, B.U.D.U. Medical College, Sangali; \*Bharati Vidyapeeth Medical College, Pune, Maharashtra



**Introduction:** The conal coronary is usually the first branch of right coronary artery (RCA) and supplies the infundibulum of the right ventricle. The right conus artery arising separately from the Anterior Aortic Sinus is also called as Third Coronary Artery (TCA). Present study is aimed to note the variations of the conal coronary arteries in detail.

**Materials and Methods:** 150 adult human hearts fixed in 10% formalin were obtained from the cadavers in the department of Anatomy of various Medical Colleges of western Maharashtra without knowing sex, socio-economic status, religion or pathologic basis.

**Results:** In 105 hearts (70%), right conus artery originated as a branch of RCA while in 45 hearts (30%), it was found to have an independent origin from the anterior aortic sinus. In 41 hearts (27.33%) single Third Coronary Artery and in 4 hearts (2.67%) double Third Coronary Arteries were noted. However occurrence of left conus artery was not a constant feature. It was found in 24 cases (16%). Third Coronary Artery (TCA) was larger than RCA in two hearts. Myocardial bridges were observed over right conus branch in 2 hearts (1.33%). The details of observations and clinical applications of such arteries will be discussed during presentation.

**Conclusion:** The conal coronary is an important artery which supplies infundibulum of right ventricle and large conal branches also supply interventricular septum and paraseptal area of right ventricle.

**69. Cadaveric Study of Hip Joint in South Maharashtra**  
**Sarda Swapnilkumar L, M.M. Baig, Selukar Mangesh S, Dope Santoshkumar A**  
Department of Anatomy, Government Medical College, Latur

**Aim of the study:** Yet there is very less study on the cadaveric hip joint. There is some sort of differences seen in dry bone & cadaveric {wet} bone. So, present study aimed to evaluate the effect of environment on dimensions of hip joint.

**Materials & Methods:** 50 cadaveric hip joints with soft tissue in situ from various medical colleges from south Maharashtra region were studied. Dimensions of Acetabulum & Femoral head were obtained with Vernier scale.

**Result:** Dimensions were greater in males as compared to female but difference was statistically insignificant. On the left side parameters measured were greater than those of right side in both genders but of no statistical significance.

**Conclusion:** Present study helps for prosthetics, orthopaedicians & forensic experts as it gives dimensions of the acetabulum & femoral head in present era.

**70. A Study on Palmaris longus in the North Karnataka Region**  
**Amit Magadam, P.S. Jevoor, V.S. Shirol**  
Department of Anatomy, J. N. Medical College, Belgaum

**Aim:** To determine the incidence of unilateral and bilateral absence of Palmaris longus in the forearms of the cadavers in North Karnataka Region. Total of 20 cadavers (40 upper limbs) were studied belonging to North Karnataka region from routine dissection in the Department of Anatomy, J.N. Medical College, Belgaum. In two cadavers Palmaris

longus was absent bilaterally and in one cadaver Palmaris longus was absent on one side (right side). The percentage of bilateral absence of Palmaris longus found to be 10% and unilateral absence of Palmaris longus found to be 5%. Overall absence of Palmaris longus found to be 12.5%. Surgeons agree that the Palmaris longus tendon is the first choice as a donor tendon because it fulfills the necessary requirements of length, diameter and availability, and can be used without producing any functional deformity. Palmaris longus is a dispensable muscle with a long tendon which is very useful in reconstructive surgery mainly in the setting of tendon grafting. Patients who do not have a Palmaris longus may need to use the Plantaris as an alternative donor graft. Accordingly, this study has been taken to analyze the percentage of absence of Palmaris longus muscle for the above said clinical applications. Further details will be discussed during the presentation.

**71. A Cadaveric Study on the Variations in the Origin, Course and Branching Pattern of the Profunda Femoris Artery**

**S. Jessica, Antony Sylvan D'souza, H. Mamatha, S. Suhani**  
Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Introduction:** Surgical and radiological intervention of the profunda femoris requires a proper anatomical knowledge about it and its circumflex branches. The expanding scope of the aforementioned vessels in clinical practice has prompted this study on the variations of the profunda femoris artery.

**Objective:** To study the variations of profunda femoris artery and its branches.

**Material And Method:** Twenty formaldehyde embalmed cadavers were studied at Kasturba Medical College for this study. The femoral sheath was identified and its compartments were dissected to explore the femoral artery. The distance of origin of profunda femoris artery from the mid inguinal point was measured and its branching pattern was studied.

**Results:** The profunda femoris artery origin was located between 20-40 mm in 14-15 cases and in 5-6 cases the origin was lower down. In one case, the ascending branch of lateral circumflex femoral artery was emerging directly from the femoral artery unilaterally. In three cases, the origin of medial circumflex femoral artery was directly from the femoral artery. And in one case the profunda femoris terminated by giving an additional branch on the lateral side. Moreover, detailed results and the importance of all these variations will be dealt during the time of presentation.

**72. A Study on Morphometrical Analysis of Mitral Valve in Human Cadavers in the Region of Maharashtra**  
**Pooja Pant, Haritha Kumari. N, Aruna Mukherjee**  
Lady Harding Medical College, New Delhi

**Aim:** - Morphometrical analysis of mitral valve in human cadavers was conducted in the region of Maharashtra.

**Objective:** - The mitral valve complex includes the left atrioventricular orifices & its annulus, leaflets of the mitral valve, chordae tendinae & papillary muscles. Though many

reports describe the morphometrical values of mitral valve for performing valve replacement surgeries, it is found that they vary from individual to individual. Hence our main objective is to find the normal morphometrical measurements of mitral valve complex in Maharashtra region.

**Materials & Methods:** - Total 30 hearts were included in the present study. These hearts are taken from human cadavers of Anatomy Department, MGM Medical College, Kamothe NaviMumbai. The mitral valve description & measurements are based upon observation made during dissection of cadaveric hearts. The mitral leaflets with the annulus, chordae tendinae & papillary muscles were removed & the valves was flattened out in a single plane by dividing its ring at the lateral commissure & by half splitting the medial papillary muscle mass as described by Louis a. Du plessis & Paul Marchand(1964) with slight modification. The opened out valves were then pinned to white thermacol sheet. Measurements were made with an ordinary metric ruler. The observations were tabulated & statistically analyzed.

**Observation & Result:** - Observations as well as results will be discussed in details at the time of presentation.

### **73. A Study on Variations of Branches of Coeliac Trunk**

**Nandu A. Patil**, P. S. Bhuiyan

Seth G. S. Medical college and K.E.M. Hospital, Mumbai

The Coeliac trunk is the branch of abdominal aorta. It is a short wide vessel arising ventrally from the abdominal aorta immediately below aortic opening of diaphragm at the level of the lower border of T12 vertebra. The coeliac trunk proceeds forwards and to the right and divides into three branches; left gastric, common hepatic and splenic artery. Anatomical variations involving the visceral arteries are common and knowledge of them becomes important in patients undergoing diagnostic angiography for gastrointestinal bleeding or prior to procedures such as laparotomy & laparoscopy. Knowledge of variations also enables Radiologists & Surgeons to distinguish features which merit further investigations or treatment from those which do not. Aim is to study the variations in branches of coeliac trunk in 30 embalmed cadavers. The details of the study will be discussed during conference.

### **74. Morphometric Study of Atlas and Axis Vertebrae**

**Nitin R. Mudiraj**, Uttama U. Joshi

Bharati Vidyapeeth Medical College and Hospital, Sangli

Various surgical techniques such as interlaminar clamp, interspinous wiring, and plate /screw fixation are currently employed to correct the instability of the atlantoaxial complex or occipitocervical junction caused by numerous traumatic and non traumatic conditions. Incorrect insertion of pedicle screw can cause damage to adjacent vital structures such as spinal cord, nerve roots, cranial nerves and vertebral arteries. So, this study was undertaken with following.

- Aims:**
1. To measure various dimensions of atlas vertebra.
  2. To analyze their relationship with vertebral artery groove in atlas.
  3. To measure width of dens on coronal plane.
  4. To determine safe sites for different surgical approaches.

**Material and Methods:** In this study 30 dry vertebrae each of atlas and axis were measured with special emphasis on their relationship with vertebral artery groove.

**Result:** The mean outer groove width was 11.37 mm and inner groove width was 10.97 mm. The mean thickness of the vertebral artery groove at outer edge was 1.73 mm and at inner edge was 2.57 mm. The width of the dens on coronal plane was 9.52 mm. **Conclusion:** The present study revealed the safe zone for posterior approach to atlas for avoiding potential injury to vertebral artery was found 13.9 mm from the midline. Placement of screw is technically difficult if width of dens is less than 5 mm.

### **75. A Morphological Study to Note the Variable Patterns of Cutaneous Innervation on The Dorsum of Foot in South Indian Human Foetuses and It's Clinical Implications**

**Lakshmi Kiruba. N**, Chandni Gupta, Antony Sylvan D'souza, P. Radhakrishnan

Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Objectives:** Cutaneous nerves on the dorsum of foot are at risk for iatrogenic damage while performing arthroscopy, local anesthetic block, surgical approach to the fibula, open reduction and internal fixation of lateral malleolar fractures, application of external fixators, elevation of a fasciocutaneous or fibular flaps for grafting, surgical decompression of neurovascular structures, or miscellaneous surgery on leg, foot and ankle. Hence the present study was undertaken to classify the different patterns of cutaneous innervation on the dorsum of foot of fetuses which will help in minimizing iatrogenic damage to the nerves.

**Materials and methods:** A total of 40 lower limbs from 20 fetuses were dissected and the branching patterns of nerves were noted and specimens were photographed.

**Conclusion:** Variation in the branching pattern and their significance will be discussed. Detailed knowledge about the pattern of cutaneous innervation of dorsum of foot may decrease the damage to these nerves during operative procedures near the foot and ankle.

### **76. Variations In The Formation of Cords of Brachial Plexus and its Relation with Axillary Artery**

**Anjali Gupta**, H.V.Rajasekhar, Pavan P Havaldar

Department of Anatomy, J. J. M. Medical College, Davangere

**Introduction:** Variation in the origin and distribution of branches of brachial plexus are common but variation in roots, trunks and cords are very rare.

**Aim of Study:** To describe brachial plexus variations in the formation of cords and its relation with axillary artery.

**Materials and Methods:** 24 embalmed adult cadavers were dissected and the brachial plexuses were evaluated in the Department of Anatomy, JJMMC, Davangere

**Results:** During routine dissection of 48 upper limbs, we observed the variation in the formation of cords of brachial plexus in 2 cases. We found the brachial plexus with two cords-anterior (upper) and posterior (lower) instead of lateral, medial and posterior cords which were present

lateral to axillary artery. The anterior (upper) cord was giving off the branches of the lateral and medial cord. The posterior (lower) cord was giving off the radial and axillary nerve.

Conclusion: The variations of the cords of brachial plexus and its terminal branches become important during surgical exploration of the axilla to avoid damage to important nerves. The details of the study will be discussed at the time of presentation.

#### **77. Variations In The Origin Of Lingual Artery**

**Ashwin Krishnamurthy**, Hassan Amiralli, Richard Hannah  
Department of Anatomy, American University of Antigua,  
Antigua, Coolidge, West Indies

Aim of the study: To study the variation in the origin of lingual artery.

Materials and method: Nineteen dissected and plastinated head and neck specimen obtained from the Department of Anatomy at the American university of Antigua, Antigua, West Indies, were studied for the origin of lingual artery and were photographed.

Results: The origin of lingual artery was from external carotid artery in the entire specimen observed as mentioned in the literature. The following three anomalies were observed in the origin of lingual artery from the external carotid artery, 1) Thyro- lingual trunk (5.26%), 2) Facio- lingual trunk (10.6%), 3) High origin of lingual artery (5.3%).

Conclusion: The lingual artery provides chief blood supply to the tongue and floor of the mouth. Previous studies have indicated about the variable origin of lingual artery. The presence of three different variations in a limited number of specimens amazed us about the incidence of these anomalies in the human population. The anomalous origin of lingual artery may have implications in radiologic examinations, tracheostomy, surgeries of larynx, pharynx, esophagus, thyroid & parathyroid glands, exploration of neck, etc.

#### **78. Normal and Variant Anatomy of Renal Hilar Structures and Its Clinical Significance**

**Trivedi S**, Athavale SA, Kotgirwar S  
Department of Anatomy, PCMS&RC Bhanpur, Bhopal

Introduction: Advanced imaging techniques have resulted in increasing use of minimally invasive approaches for nephron sparing surgeries of kidney. Need for precise knowledge of normal and variant anatomy of vascular pedicle of kidney is thus justified. Ample of literature is available on the variations in the intrarenal vascular pattern of the kidney, which are seen frequently. But the variation in arrangement of structures at the renal hilum has not gained much interest up till now.

Material and Methods: One hundred (51 right and 49 left) embalmed kidneys were utilized for the present study. Careful dissection of renal hilar structures was carried out to observe antero-posterior relationship of structures at the hilum of the kidney

Results: In majority (73%), the arrangement was not according to the normal textbook description i.e. renal vein,

renal artery and pelvis arranged antero-posteriorly. In 31% anterior division of renal artery was seen in front of renal vein at the hilum, whereas, in 50% cases the pelvis was not the posterior most relation. The variable patterns observed were classified into five types.

Conclusion: In cases of renal hilar tumors Laparoscopic partial nephrectomy is being done with a limited field of vision. Knowledge of these variations is useful for operating surgeons to identify and individually clamp the hilar structures, which is advantageous over en-bloc clamping.

#### **79. Bony and Cadeveric Study of Retromolar Region** **Vijaywargiya M., Athavale S., Deopujari R., Trivedi S., Kotgirwar S., Zargar R.K., Sharma C.P.**

Department of Anatomy, Peoples Medical College and Research Centre, Bhopal, M.P.

Retro molar area in the mandibles is of considerable surgical importance for dental surgeons. The anatomy of this area has not received much attention in standard texts of Anatomy. A variant foramen called retro molar foramen has been described in literature. This foramen transmits a neurovascular bundle. Presence of this neurovascular bundle poses risk in surgical procedures carried out for impacted third molar tooth extraction. The dental surgeons should also be aware of occasional presence of neurovascular bundle in retro molar area while infiltrating local anesthetic agents. The present study was conducted on 71 dry mandibles and 20 sides of 10 cadavers. In dry mandibles the boundaries and dimensions of retro molar trigone were studied. Prevalence of retro molar canals was recorded. The distance of retro molar canal, if present was recorded from posterior border of socket for third molar and second molar teeth respectively. Retro molar areas were dissected and structures related to retro molar area were observed in cadavers. If present the contents of retro molar canal were dissected and observed in cadavers. The findings of the present study shall be presented and the clinical importance of these findings will be discussed at the time of presentation.

#### **80. A Study of the Level of Bifurcation of Common Carotid Artery in Relation to Thyroid Cartilage and Hyoid Bone** **Rupak Jyoti Baishya, Anuradha Baruah, Rubi Saikia, Roonmoni Deka**

Department of Anatomy, Assam Medical College & Hospital, Dibrugarh, Assam

Aim: The right common artery arises from the brachiocephalic trunk and left common carotid artery arises from the arch of aorta. The common carotid artery usually bifurcates at the level of superior border of thyroid cartilage. The level of bifurcation of common carotid artery is important for surgeon during radical neck dissection. Former studies revealed that the variation at the level of bifurcation of common carotid artery is not uncommon. Our aim is to study the level of bifurcation of common carotid artery in relation to thyroid cartilage and hyoid bone.

Materials & methods: For this study 40 formalin preserved human cadavers in the dept. of Anatomy, AMCH, were

dissected and anterior triangle of neck was exposed properly. We have studied the level of bifurcation of common carotid artery in relation to the hyoid bone and thyroid cartilage. Result: During the study we have found variations at the level of bifurcation of common carotid artery. We have found bifurcation above the level of thyroid cartilage. Details of the study will be discussed during presentation

**81. Study of Origin of Medial Circumflex Femoral Artery with Special Reference to Profunda Femoris Artery**

**Dhurjati Das**, Anuradha Baruah, Roonmoni Deka  
Department of Anatomy, Assam Medical College and Hospital, Dibrugarh, Assam

**Aim:** Medial circumflex femoral artery (MCFA) normally originates from profunda femoral artery (PFA). But, it often originates from femoral artery (FA). On review of literature it is found that, MCFA sometimes may be double, one arising from PFA and another from FA.

The aim of this study is to observe the variations in origin of MCFA.

**Material and Methods:** Study was done in the Department of Anatomy, Assam Medical College and Hospital. 60 specimens of perinatal and adult lower limbs were dissected by routine dissection method and studied. The present study is carried out in both adults and perinates of NE region to contribute to the knowledge of origin of MCFA.

**Results:** During the study, it was observed that, MCFA may take origin from-

- Ø Common trunk of origin with PFA
- Ø FA proximal to origin of the PFA
- Ø FA distal to origin of the PFA
- Ø At bifurcation of FA and PFA in trifurcation pattern
- Ø From PFA

**Conclusion:** The knowledge of anatomy of MCFA is essential for performing trochanteric and intertrochanteric osteotomies. It is also helpful to avoid iatrogenic vascular necrosis of head of femur in reconstructive surgery of hip and fixation of acetabular fractures through posterior approach.

**82. Variations in the Branching Pattern of the Arch of Aorta**

**Gautam Shyam**, Roonmoni Deka, Anuradha Baruah, Mukul Sarma  
Department of Anatomy, Assam Medical College, Dibrugarh, Assam

**Aim:** To study the variations in the branching pattern of the arch of aorta.

**Introduction:** Arch of aorta begins at the level of the upper border of the second right sternocostal joint behind the manubrium sterni and continues with the descending aorta at the lower border of the fourth thoracic vertebra. It gives off three branches- the brachiocephalic trunk, the left common carotid artery and the left subclavian artery. Variations in the branching pattern of the arch of aorta are not uncommon. Occasionally the thyroidea ima, left vertebral artery may also arise from it. Although the variations are asymptomatic, they may cause dyspnea, dysphagia, intermittent

claudication, misinterpretation of radiological examination and complications during neck and thoracic surgery.

**Materials and Methods:** The present study was undertaken in the Department of Anatomy, Assam Medical College and Hospital, Dibrugarh on perinatal cadavers of both sexes. The study was done by simple dissection method.

**Results and Conclusions:** The study has shown variations in the branching pattern of the arch of aorta. The details of which will be discussed during the presentation.

**83. Median Nerve In The Arm - A Study**

**Santanu Kumar Sarma**, Anuradha Baruah, Rubi Saikia, Roonmoni Deka  
Department of Anatomy, Assam Medical College & Hospital, Dibrugarh, Assam

**Aim:** Variations of the median nerve are fairly common. In the light of this, the study is undertaken to observe the anatomical variations of the median nerve in the arm.

**Materials & Methods:** The perinatal cadavers from the department of Obstetrics & Gynaecology, AMC, Dibrugarh, and adult cadavers in the dissection hall of Anatomy department were observed thoroughly after simple dissecting procedure.

**Results:** During the routine dissection of 80 numbers of upper limb specimen (done for a period of 14 months), remarkable variations of the median nerve in the arm were noted. Details of those will be discussed at the time of presentation.

**Conclusion:** A detailed knowledge of the variations of the median nerve is of utmost necessity for the anatomists, surgeons, anesthesiologists, radiologists and others in the medical profession to carry out any clinical investigations, surgical interventions involving axilla along with the upper limb. This knowledge will be of great help to understand the effects of a lesion if one does occur. It will also be helpful to explain a particular pattern of paralysis in the event of such a nerve being damaged. Also it may explain affection of surrounding blood vessels.

**84. Study of Anatomical Variations of Middle Nasal Concha and Its Effect on Ventilation of Paranasal Sinuses**

**S. Melani Rajendran**, Ravi Kumar, Roy Santhosam  
Department of Anatomy, Sri Ramachandra Medical College and Research Institute, Sri Ramachandra University, Chennai

A thorough knowledge of the anatomy of lateral walls of the nose especially the nasal conchae and paranasal sinuses are essential for the clinicians. The study population consisted of 50 patients of both sexes. The morphology of middle nasal concha, lateral wall and paranasal sinuses in the patients were studied using dynamic Computerized Tomographic imaging scans. Various anatomic variations of the morphology of the middle nasal concha were observed. Detection of these variations will be helpful to prevent potential hazards and for the endoscopic surgery.

**85. A Study of Morphometry and Variations of Vermiform Appendix in Cadavers**

**Kamal Kant Chhabra, P. S. Bhuiyan, M. Natarajan, L. Rajgopal**  
Seth G. S. Medical College and K.E.M. Hospital, Mumbai

The vermiform appendix is located in the right iliac fossa of abdomen. It is a narrow, worm like tubular diverticulum which arises from the posteromedial caecal wall about 2cms below the ileocaecal junction and is suspended by a peritoneal fold mesoappendix. Appendicitis is one of the most common diseases that need emergency surgery. Variations in its anatomical position cause different clinical presentations and hence can mimic other diseases. The aim of this study is to determine the anatomical variations of its position, length, arterial supply and extent of mesoappendix in cadavers. For the study thirty embalmed cadavers in the department of anatomy of a reputed municipal medical college was used. Further details will be discussed in the conference.

**86. Linear Dimensions of Supratrochlear Foramen of Humerus**

**Mohammed Mustafa Shariff M, Arunkumar R, Sathiya Narayanamurthy S, Sundarapandian S**  
Department of Anatomy, S.R.M. Medical College Hospital & Research Center, SRM Nagar, Potheri, Kattankulathur

The Morphometric study of the supratrochlear foramen in humerus will be useful for pre operative planning of supracondylar fracture of humerus and to perform the ante grade medullary nailing rather than the retrograde nailing. So 200 numbers of dry humeruses of both the sexes and both sides were collected from department of anatomy of various medical colleges in and around Chennai. Out of 200 humeruses, only in 40 humerus we have noticed the supratrochlear foramen. The size, vertical and transverse diameters of the supratrochlear foramen were studied using vernier caliper and geometrical divider. The results were recorded and analysed statistically. This study will be helpful to design medullary nailing to reduce post operative complication.

**87. Nutrient Foramina of the Human Clavicle and Their Clinical Significance**

**Sowmiya.G, Sundarapandian.S, Radhikakrishnan.J**  
Department Of Anatomy, SRM Medical College & Research Centre, Angulathur, TN

To study the neurovascular foramina of the human clavicle and their clinical significance. The study comprised of 110 human clavicles, which were collected from the department of anatomy. Length of the clavicle, location, number and direction of the nutrient foramina of the clavicle were observed macroscopically by using non-stretchable thread, geometrical ruler, needle and hand lens. The foramen index was calculated by applying the Hughes Formula. This study will be of great help for orthopaedic surgeons during bone grafting, coracoclavicular ligament repair, internal fixation to preserve microcirculation and also for biomedical engineer

while designing the clavicle models.

**88. Branching Pattern of Lateral Femoral Cutaneous Nerve and its Clinical Importance in Fetus**

**Ankur Sharma, Antony Sylvan D'souza, Biswabina Ray**  
Department Of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Background & aim of the Study:** The lateral femoral cutaneous nerve(LFCN) is a branch of lumbar plexus formed in the abdomen. The study describes its relationship with anterior superior iliac spine and inguinal ligament and along the ligament as it passes to the thigh, with the sartorius muscle. The mode of branching of LFCN was also noted.

**Materials and methods:** For the study, 10 formalin fixed fetuses were dissected and relationship of LFCN with above mentioned neighbouring structures and its branching pattern was determined.

**Results:** Wide variation in the anatomical relation and branching pattern was noted.

**Conclusion:** Variant relationship of the nerve with inguinal ligament may help the clinicians to understand the aetiology of meralgia paresthetica as well as its surgical management. The branching pattern will help successful planning of surgery.

**89. Study of Formation of Superficial Palmar Arches**

**Sheetal Joshi, P. Vatsalaswamy, Bahetee B. H., Mandke N.D**  
Department Of Anatomy, B.J.Medical College And Sassoon General Hospitals, Pune

Knowledge of the variations in the arterial supply of hand has reached a point of practical importance with the advent of microvascular surgery for revascularization, replantation and composite tissue transfers. Arterial supply of hand is derived from two anastomotic arches, formed between two main arteries of forearm i.e. radial, ulnar and their branches, in the palm.

In the present study we have recorded the formation of superficial palmar arches and their variations from 100 cadaveric hands. According to Adachi's classification the most predominant pattern observed was of Ulnar type arch (68%). According to Coleman and Anson classification 84% showed complete (group I) superficial palmar arches and a very low incidence (16%) of incomplete arches (group II). This suggests that collateral circulation is present in majority of cases. This would result in least number of complications considering radial artery harvesting for coronary bypass. Sub-classification of arches according to Coleman and Anson 1961 indicates that the predominant type in the present study was of Group I (Type B) which is formed entirely by Ulnar Artery (58%). Median artery and ulnar artery forming an incomplete superficial arch under Group II (type C) having an incidence of 2% was recorded. Thus in such cases radial artery harvesting for coronary artery bypass may prove to be less fatal. This study is an effort to provide data about the formation of superficial palmar arches which has been a centre of attraction for most of the surgical procedures and injuries of the hand.

**90. Balanced Circulation or Co-dominance is an Impossible Coronary Arterial Pattern**

**Keshaw Kumar**

Department of Anatomy, M.R.A. Medical College Ambedkar Nagar, U.P.

Dominant coronary artery is that which crosses crux of heart (Schlesinger 1940). Dominant coronary artery not only crosses the crux of heart but also gives posterior interventricular artery and nodal artery (Kumar Keshaw 1978, 1990). Dominant coronary artery is that from which posterior interventricular artery arises (Allwork 1987). Where neither right nor left coronary artery crosses crux of heart and both the coronary arteries before reaching crux of heart continue as right and left posterior ventricular arteries running towards the apex of heart on diaphragmatic surfaces of respective ventricles and posterior interventricular sulcus is devoid of any artery running into it due to absence of posterior interventricular artery the term "Coronary arterial no dominance". (Kumar Keshaw 2008) should be used in place of the term balanced circulation or codominance of coronary arteries. Neither both the coronary arteries can cross the crux of heart nor two posterior interventricular arteries can be present in a posterior interventricular sulcus travelling from crux towards the apical notch. Therefore existence of balanced circulation or codominance of coronary arteries is impossible in nature but in the past various authors (Schlesinger, M.J. 1940, Cavalcanti, 1995, Bezbaruah, N.K., 2003, Kalpana R., 2003 and Hirak Das et al. 2010) have used the term balanced circulation or codominance of coronary arteries which is not correct.

**91. A Morphometrical Study of The Branching Pattern and Anatomical Relationships of The Facial Nerve on the Face**

**Naveen Kumar**, Antony Sylvan D'souza, Biswabina Ray, Harpreet Singh Gulati

Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Background & aim of the Study:** The facial nerve gives off five main terminal branches within the substance of parotid gland. They diverge within the gland and supply the muscles of facial expression. Distinctive anastomotic patterns has been previously studied and reported. These anastomoses have pragmatic significance in surgical terms. The purpose of our study is to review the branching pattern of the facial nerve on the face and evaluate the variant anatomical relationships with adjacent structures.

**Materials & methods:** The study was done at Kasturba Medical College, Manipal. The facial nerve was dissected on twenty cadavers bilaterally (40 sides). The five terminal branches were observed from their point of origin in the parotid gland and traced to their termination. The distances from the neighbouring structures were measured to elucidate anatomical relations further. The results obtained were analyzed and compared with the previous studies.

**Results:** Wide variation in the branching pattern of facial nerve was noted.

**Conclusion:** The knowledge of variant relations of the

facial nerve branches will be of utmost importance for the maxillofacial and plastic surgeons for the preservation of the facial nerve in surgeries like parotidectomy, reconstructive surgeries of the face etc. The variations in the branching pattern can also presumably explain why accidental or deliberate division of a particular branch often fails to result in the anticipated facial nerve weakness.

**92. Posterior Approach to the Dissection of Thoracic and Abdominal Viscera**

**H. A. BUCH**

Department of Human Anatomy, Faculty of Dental Science, Dharmasinh Desai University, Nadiad

The traditional approaches to the dissection of thoracic and abdominal viscera through the antero-lateral wall have much to recommend themselves but have become stereotyped. Posterior approach to the dissection of the same viscera offers a different challenge and perspective. The dissection began with the body prone. Scapulae were used as landmarks initially but subsequently dissected away from the thoracic cage to remove segments of upper ribs. First and the last ribs were kept intact. Vertebral column was removed in segments. Various bone cutting instruments including the micromotor with burs were used. The approach helped in demonstrating vividly how the last rib was related to the pleura. Almost every structure dissectible by the traditional approach was dissectible by this approach, and every organ after studying it in situ could be removed. Relationship of the oesophagus with the oblique sinus of the pericardium and the left atrium, arch of aorta and the left principal bronchus was examined taking note of the oesophageal constrictions. The order of visualization of structures changed but the description almost remained the same! The approach should be a must for the postgraduate students in Anatomy and Surgery. In thorax, ultimately reaching the pre-pleural and pre-pericardial plane is comparable to operating in the pre-peritoneal plane of laparoscopic surgery. Trans-gluteal trans-iliac approach to the ileum explains why harvesting bone from the iliac crest may lead to intestinal herniation as a complication. It reinforces and consolidates the knowledge of anatomy derived from the conventional approaches.

**93. Variability in Variations of Axillary Artery**

**R. R. Fulzele**, G. L. Maske\*

JNMC, Sawangi (Meghe), Wardha; \* VNMC, Yeotmal, Maharashtra

The subclavian & axillary arteries are gaining increasing interest in the cardiac and cardiopulmonary by-pass surgeries. Variations in branching pattern of axillary artery are reported in the past. During routine dissection of upper limb, in middle aged cadavers, variations in the course and branching pattern of axillary artery were observed. However these variations have not been reported frequently.

Presence of a large trunk as a branch of axillary artery is worth considering during reconstructive surgeries of axilla, shoulder joint & humerus after trauma. Knowledge of such variations as anomalous course of axillary artery, unilateral or bilateral and the left subscapular artery to wind around

the radial nerve posterior to it, are imperative for radiology, orthopedic surgery, vascular surgery, neurosurgery and neurology.

**94. Determination of Individual's Height by Post-Cranial Measurements in Rewa Region of Madhyapradesh**

**Meghana Mishra**, D.C.Naik, P.G.Khanwalkar, Bhaskar Reddy, Shyam Shah Medical College & Sanjay Gandhi Hospital, Rewa

Stature estimation of an individual is an important in anthropological research. The identification of isolated extremities is an issue of great significance and plays a vital role in the investigation of the identity of victims of mass disasters and fatal assaults. Present study is carried out in the Shyam Shah Medical College and Sanjay Gandhi Hospital, of Rewa city of Madhyapradesh. For this study, total 313 subjects were selected randomly which includes 194 males and 119 females, age between 22 to 27 years. Stature, shoulder breadth or biacromial breadth (a-a), inter anterior superior iliac spine distance (inter asis distance) were measured using standard anthropometric instruments. Statistical analysis is done by using test of significance correlation. Correlation co-efficient and regression equations for estimation of height is derived for males and females separately.

Results shows that individual's height is showing extremely significant correlation with biacromion breadth in both the sexes ( $p < 0.0001$ ). Details of the study and clinical significance will be discussed during conference session.

**95. Estimation of Stature by Direct and Indirect Length of Distal Phalanx of Thumb**

**Karambelkar R. R.**, More Raghunath S., Umarji B. N., Shewale Avinash D.Krishna  
Institute of Medical Sciences University, Karad

Personal identification is an integral part of the investigation in case of mass disasters where disintegrated body parts are found. Estimation of stature from various parameters of different organs becomes one of the important exercises in these situations. In our study, stature and length of distal phalanx of thumb of both sides is taken. Finger print tip length is taken by inked impression of thumb. It is the indirect length of distal phalanx of thumb. It will help to correlate the stature with finger print in case of robbery, kidnapping, murder etc. The measurements taken and statistically analysed. The details will be discussed during time of presentation.

**96. 2nd To 4th Digit Ratio and Sexual Dimorphism.**

**Karambelkar R. R.**, Shewale Avinash D., Umarji B. N., Mohite S. S., More R. S.  
Krishna Institute of Medical Sciences University, Karad

Hand analysis is an interesting attraction to human beings throughout the history. Its an ancient art and still people are interested to study the pattern of finger along with the palm creases and finger creases and trying to correlate it with either with stature or sexual dimorphism or disease

pattern. So here an attempt is taken to see the correlation of finger pattern and sexual dimorphism along with stature of that person, as it is influenced by sex hormones in male and females. So it will be helpful in forensic medicine and hand surgeries. The details will be discussed during time of presentation.

**97. A Comparison of Facio-Nasal Ratio in Northern and Southern India**

**Karambelkar R. R.**, Shewale Avinash D., Umarji B. N., Mane S. B.  
Krishna Institute of Medical Sciences University, Karad

The morphology of face and nose in the form of various measurements and indices is useful for different facial reconstruction surgeries and medico-legal cases. The morphological pattern is mainly determined genetically and affected by environmental factors. The comparison was done between students staying in northern and southern regions of India. The length and width of face and nose is measured and various indices were calculated. The data is analysed statistically and the ratio of nose to face is estimated; which will be helpful for plastic surgeons and in forensic medicine. The details will be discussed during time of presentation.

**98. Physical Growth Pattern for Girls (9-12 yrs.) from Western Maharashtra**

**Santosh. V.Shinde**, A.D. Kundalkar\*, B.R. Zambare, Sudhir. E.Pawar,  
Department of Anatomy, PDVVPF'S Medical College and Hospital, Ahemednagar; \*Kashibai Navale Dental College, Sihegad, Pune

The aim of the present study was to investigate the growth characteristic and differences in terms of anthropometric parameters, among two contrasting socio-economic categories of school girls living in Pune region of western Maharashtra. A defined group of 622 healthy School girls of 9 -12 years of age from Pune region of Western Maharashtra were taken for this study. The study group is further divided into Higher Income Group (HIG) and Lower Income Group (LIG).The Anthropometric measurements of Body height, weight and sitting height vertex, in each girl were obtained and studied by cross sectional analysis. The mean values for Body height, weight and sitting height vertex increase with the age for both groups (HIG and LIG). From the study, it is observed that values of almost all the parameters were higher in Higher Income Group (HIG) as compared to those of Lower Income Group (LIG) possibly due to lifestyle changes and better nutritional food intake in higher socio-economic group. In this survey there is no any case of menarche.

**99. Head Circumference in Maharashtra School Children and Socio-Economic Status**

**Santosh.V.Shinde**, A.D.Kundalkar\*, B.R.Zambare, Sudhir.E.Pawar  
Department of Anatomy, PDVVPF'S Medical College and Hospital, Ahemednagar; \*Kashibai Navale Dental College, Sihegad, Pune

**Aim:** Head circumference - one of the most significant findings in physical examination and diagnosis of neurological disorders. This parameter is a useful anthropometric tool. Keeping in purview the point that no literature is available regarding Maharashtra population, this study was undertaken where Head circumference was compared with socio-economic status of 9-12 aged school children.

**Material and Method:** A cross-sectional study including 623 subjects (312 male, 311 female) of 9-12 yrs was undertaken. The study group is further divided into high income group (HIG) and low income group (LIG) for which sardar dasture high school, municipal school no. 7, were taken respectively. Anthropometric measurements of Head circumference subjects who are all normal and healthy children, judged by criteria established by Gill et. al., were taken.

**Results:** (1) Values of head circumference are higher in high group as compared to those of low socio-economic group. (2) It is observed that growth spurt in head circumferences is at a latter date between 11-12 yrs in female in both socio-economic groups, while in males; growth spurt is earlier between 10-11 yrs of age. (3) It is observed that all populations in the world are undergoing temporal changes with reference to body measurement. (4) Mean values have shown a drop towards higher income group in some age cohorts. (5) Growth spurt is revealed through data which clearly shows that HIG children attained such spurts much earlier than those of LIG.

**Conclusion:** With latest trend of globalization, world is coming closer and people are travelling far and wide. Although there are few studies on adolescent growth, no serious attempts have been made in respect to population.

#### **100. A Study of Distribution of Hair on the Phalanges of Hand in Andhra Pradesh**

**Muralidhar reddy sangam**, S.sarada devi, K. Krupadanam, K. Anasuya  
NRI Medical College, Chinakakani, Guntur, AP

The aim of the study is to observe the pattern of hair distribution on the phalanges of hand in Andhra Pradesh using a sample population. 700 individuals aged between 18-35 years were randomly selected for the study. The pattern and frequency of hair distribution on the proximal, middle and distal phalanges were studied. Observations were categorized into gender and phalangeal hair patterns. Results showed that the proximal phalangeal hair is present in 99.14% males and 98% females. The most common pattern of hair distribution on proximal phalanges is 1-2-3-4-5. Middle phalangeal hair is present in 46% males and 38.85% females. The most common pattern of hair on middle phalanges is 3-4. Hair is absent on distal phalanges. The study has anthropological significance in dividing the race, nationalism and sex. Hence it has Medico legal importance too.

#### **101. Estimation of Height From the Length of Radius in Western Region of Maharashtra**

**Meenakshi Borkar**, Late P.C. Champaneri\*, S.S. Hattangdi\*\*  
Department Of Anatomy, L.T.M.M.C. & G.H, Mumbai; \*GMC

& Sir J.J. Group Of Hospitals, Mumbai; \*\*L.T.M.M.C. & G. H Mumbai

**Aim and Objective:** To find out correlation and to derive a regression formula between length of radius and height of an individual, in western region of Maharashtra.

**Material and Method:** The material consists of 200 undergraduate and post- graduate medical students. The age was in the range of 20-30 years. The length of radius is measured by asking the subject to flex the elbow joint. The flexor surfaces of arm and forearm made an angle of 90 degree. The two points were marked with skin marking pencil, one on the upper edge of head of the radius and other on the tip of styloid process of radius and the distance between two point was measured by spreading caliper, both side radius length was taken. Height of the subject was measured with standard height measuring instrument in anatomical position. Measurements were taken at fixed time to avoid diurnal variations.

**Result:** The result obtained were analysed and attempt was made to derive a formula between length of radius and total height of an individual. The result shows that there is definite correlation between the two. In spite of the racial and ethnical variation, this formula may be applicable to other regions and races, more or less effectively.

#### **102. Estimation of Height From the Length of Humerus in Western Region of Maharashtra**

**Meenakshi Borkar**, P.C. Champaneri\*, S.S. Hattangdi  
Department Of Anatomy, L.T.M.M.C. & G.H, Mumbai; \*GMC & Sir J.J. Group of Hospitals, Mumbai

**Aim and Objective:** To find out correlation and to derive a regression formula between the length of humerus and height of an individual, in western region of Maharashtra.

**Material and method:** The material consisted of 200 undergraduate and post- graduate medical students of 20 to 30 years from western region of Maharashtra. The length of humerus is measured by asking the subject to flex the elbow joint. The flexor surfaces of arm and forearm made an angle of 90 degree. The lateral epicondyle was felt and marked with skin marking pencil. Acromion point was traced by moving finger over clavicle's lateral end and was marked and the distance between two point was measured by spreading caliper, both side humerus length was taken. The measured length was subtracted by 2.0 mm as the acromion point is 2 to 5 mm above humeral head. Height of the subject was measured with standard height measuring instrument in anatomical position.

**Result:** The result obtained were analysed and attempt was made to derive a formula between length of humerus and total height of an individual. The result shows that there is definite correlation between the two.

#### **103. Facial Morphology & Head Posture in Adults**

**Sudha Chhabra**, Kamal Rajender Sharma  
Department of Anatomy, Pt. B. D. Sharma University of Health Sciences, Rohtak, HR

The purpose of present study was to examine hyoid



morphology & cranio-cervical posture in adult subjects with a complete or nearly complete dentition. The material consisted of lateral head films taken of 191 North-Indian woman aged 20-29, 30-49, and 50-81 years. The cephalometric methods of measurement have previously been a method of study described by Solow & Tallgren, (1976). In the two older age groups the mandibular inclination, the anterior facial heights & the sagittal jaws relation were on average, significance in larger than in the young age group. The head position in relation to the cervical spine and the inclination of the cervical column showed no significant difference between the groups. The mean vertical distances from hyoid to the upper face, the mandible and the cervical column were significantly greater in the older age groups. Correlation analysis further indicated that a large hyo-mandibular distance (Hy to ML) is associated with a large mandibular inclination (NSL/ML). The position of hyoid in relation to the cervical column showed less variability than the hyoid relationship to the maxilla and the mandible.

#### 104. Study of Correlation between Stature and Length of Fingers

D Suseelamma, Gayathri P

Kamineni Institute of Medical Sciences, Nalgonda, AP

Aim: To study correlation stature and lengths of the fingers in an individual and to find out which finger is the best to estimate the stature of an individual.

Materials: Subjects- aged above 16 years all of Indian origin, sample size 200 and Vernier sliding caliper, Anthropometer.

Methods:

1. Stature can be measured as a vertical distance from the vertex to the heel.
2. Fingers length can be measured by using the Vernier calipers the distance
3. between the metacarpophalangeal joint and the tip of the finger.

Results: Regressions equations have been drawn from the data collected. It has been observed that fingers length bears a significant relation to establish the stature and an important tool for stature estimation.

Conclusion: Significant difference in measurement and formulae for males and females were found and which finger is the best to estimate the stature of an individual will be discussed at the time presentation.

#### 105. Evaluation of Lateral Facial Profile

Sanjeev Kumar Jain, Kishore Chandra Thakur

SGRRIM & HS, Dehradun

Aim of study: The aim of present study is to evaluate the different variables of lateral facial profile of chin of Uttarakhand region, using Legan angle, Merrifield- z angle and zero meridian of Gonzalez – ulloa, which would serve as treatment a guide for aesthetic goals.

Materials: The sample consisted of 100 males 25-40 yrs of age belonging to lower middle socio-economic status, pleasing and balanced profile as judged by author and coauthor & without previous orthodontic surgeries. Study conducted in

dept of anatomy SGRRIM & Dehradun.

Methods: It consisted of a tripod supporting 35mm single light reflex camera & photographs were traced by investigators on acetate paper.

Three variables namely Legan angle, Merrifield z angle, Gonzales ulloa meridian were selected for evaluation

Results: Legan angle ranged from 7 to 17 degree with a mean value of 13.6 and SD 1.393

Merrifield z angle from 74 to 85 degree with mean value of 78.9 and SD 1.387

Gonzales ulloa zero meridian- in 81% subjects out of 100 line of zero meridian touched the pogonion, in 100% subjects pogonion was lying 2mm posterior to line and in 9% pogonion was lying 4mm posterior to line.

Conclusion: The profile of patient can be significantly altered with either a chin augmentation or reduction procedure. This in turn has significant effect on overall facial symmetry. Facial plastic surgery requires artistic judgment and subjective evaluation.

#### 106. Those Who Have Ears – Hear

M.Kavimani

Department of Anatomy, Sree Balaji Medical College, Chrompet, Chennai, TN

The present study is to know the normal morphometric measurements of the external ear in Chennai population.

Materials and Methods: This study was conducted with 50 subjects in Chennai. The following parameters were studied.

a. Total ear height; b. Ear width, c. Lobular height, d. Lobular width, e. Ear length above tragus, f. Ear length below tragus, g. Distance from the tragus to the antehelix, h. Distance from the tragus to the helix, i. Distance from the lateral palpebral commissure to both the helical root and insertion of the lobule.

Result: Ear length was larger on the right side both in male and female. Height of pinna larger in men than in women. Average height and weight of the lobule of ears same in men and women. Statistical analysis and relevant clinical correlation will be discussed during presentation.

Conclusion: This study gives dimensional information and the growth pattern of the auricle and therefore may reveal important implications for the adequate timing of the surgical treatment of auricular deformity. This study will have a role in plastic and reconstructive surgery, dysmorphic features in various chromosomal disorders, designing of head phones, ear phones, stethoscopes, otoscopes and various hearing aids. It is the great importance not only to physical anthropologists but also to plastic surgeons, physicians and forensic scientists.

#### 107. A Study of Tibio-Femoral Angle Amongst Healthy Ethnic Maharashtrians

Surajit Ghatak, Olive Singh

Department of Anatomy, Rama Medical College, Hospital & Research Centre, Ghaziabad

Existence of variations in morphological proportions in human beings has led to the development of different

standards for assessing anthropometric baseline data in different populations which is undoubtedly useful in clinical orthopedic surgery. Tibiofemoral angle (TF) or anatomical angle is formed as femur articulates with the tibia at the knee joint to form an obtuse angle, which opens laterally. This angle has been used for correcting varus and valgus deformities at knee in adults in orthopedic clinics. Hence it is important to establish a normal mean and range of TF angle for different populations. This study was conducted on 400 healthy Maharashtrian individuals of different age groups and different regions of Maharashtra, with 200 males and 200 females. A set of eight measurements were taken for each individual; which included right supine TF angle, left supine TF angle, right standing TF angle, left standing TF angle, supine IC and IM distance, standing IC and IM distance. The data was analysed using SPSS. There is significant difference in the tibiofemoral angle for either sex with values being higher for males than for females in healthy Maharashtrian population. Females have more valgus angle than males. Comparison with previous studies in other populations of different countries, few of which shows sexual dimorphism and few doesn't, however, Maharashtrian population shows sexual dimorphism. The data obtained is useful for application in orthopedic surgeries, as important predictor for survivorship of different osteotomies. Major limitation of this study was that sample size according to different age groups and regions of Maharashtra was limited to only four hundred individuals. If a larger survey undertaken using these measurements, interactions between different parameters can be better evaluated.

#### **108. Anthropometric Measurements in Young Adult Unmarried Females of Known Endogamous Groups of Haryana and Punjab and Their Correlation with Blood Pressure**

**Kamaljeet Kaur**, Nidhi Puri, Deepak Puri\*, VVG Patnaik  
Department of Anatomy, MMIMSR Mullana-Ambala, Haryana; \*Department of CTVS, Fortis Hospital, Mohali, Punjab

Overweight and obesity are important determinants of health and lead to adverse metabolic changes including increase in blood pressure. Prevalence of obesity is increasing both in developed and developing countries. The National family health survey showed that obesity and overweight is most prevalent in Delhi followed by Punjab and Haryana ranks third, these three north Indian states, all together comprises 18.5% overweight and 7.2% obese women. Being overweight is associated with two to six-fold increase in the risk of developing hypertension. Present study was undertaken to study correlation of anthropometric measurements with blood pressure and to find out effectiveness of anthropometric indicators as related to different grades of blood pressure. The study was conducted on 600 young adult unmarried females of two ethnic groups from Haryana (jats) and Punjab (jatsikhs). History of high salt & fat intake, sedentary lifestyle and family

history of hypertension, diabetes mellitus and coronary artery disease was taken. Their parameters age, height, weight, waist circumference, hip circumference, abdominal circumference were recorded. From the parameters, the further anthropometric measures body mass index (BMI), waist-hip ratio (WHR) and waist-height ratio (WHtR) were derived. Blood pressure was recorded following the standard guidelines. A positive correlation was found between blood pressure and weight ( $p=0.001$ ), BMI ( $p=0.001$ ), WHR ( $p=0.011$ ), WHtR ( $p=0.0001$ ) and WC ( $p=0.014$ ). Prevalence of hypertension was 12% & 5% in Punjab and Haryana respectively. Prevalence of Overweight & obesity was 12% & 7% in Punjab & 10% & 5% in Haryana.

#### **109. Anthropometric Assessment of Cephalic Index and Nasal Index of Gond Males and Females of Uttar Bastar Kanker, Chhattisgarh**

**Gupta R**, Banerjee C., Chatterjee M.  
Anatomy department, Pt. J.N.M. Medical College, Raipur

Variations in Cephalic indices between and within population have been attributed to a complex interaction between genetic and environmental factors. Internationally accepted techniques of craniometry have promoted a large number of comparable data for male and to a lesser extent to females. Nasal index is an ethnic sensitive anthropometric index. It is an anthropometric parameter for classifying the race and sex of individuals, whose identities were unknown.

This study was carried to demonstrate the anthropometric variation in cephalic index in both sexes of adult Gond of Uttar Bastar district Kanker, Chhattisgarh. Hundred males and hundred females were randomly selected who are residing in different villages of district. The age of subjects were range from 18 to 45 years. Head length and head breadth and nasal height, nasal breadth and nasal depth of these subjects were measured by using a sliding calipers and cephalic index and nasal index were calculated.  $\text{Cephalic index} = \frac{\text{Head breadth}}{\text{Head length}} \times 100$  and  $\text{Nasal index} = \frac{\text{Nasal breadth}}{\text{Nasal length}} \times 100$ . All measured parameters were higher in males than in females, differences are significant except for nasal depth. This study will be useful in anthropometric studies and forensic investigations.

#### **110. A Comparative Cephalometric Study of Orbital Dimensions of Two Races of Rajasthani Male Population**

**Anju Choudhary**, D.S. Chowdhary  
Mahatma Gandhi Medical College and Hospital, Jaipur

Understanding anatomical structure, proportion, and mechanical function of the human body and racial variations in ocular anatomy is vital to clinical assessment and treatment of patients. In this study Orbital dimensions of 100 adult males of two different races of Rajasthani population were measured by radiographs. The orbital parameter determined like orbital breadth, Orbital height and orbital index. Observation suggests that Orbital breadth shows no significant relationship ( $p>0.05$ ) among two groups. Rest of the findings will be discussed at the time of presentation. This study will serve as a guide to surgical management of orbital pathologies as it relates to our environment.

**111. A Study of Placental Histology in Hypertensive Pregnancies and its Correlation With Fetal Outcome**

**Navbir Pasricha, M.S. Siddiqui, Alka Nagar, Antima Gupta**  
Era's Lucknow Medical College, Lucknow

Aim of the study: Hypertensive disorders complicating pregnancies result in large number of maternal and thereof fetal deaths. Conflicting findings have been reported regarding the placental abnormalities, both gross and microscopic in hypertensive pregnancies. A study was undertaken to assess the spectrum of placental changes in hypertension and to correlate these findings with severity of maternal disease and foetal outcome.

Material and Methods: 60 placentae were taken from women delivered in the Department of Obstetrics and Gynaecology. Out of these 30 were normal and 30 were women suffering from eclampsia- pre eclampsia syndrome. Detailed gross and microscopic examination of the placentae was made. Also detailed clinical history of the mother and observations for the child delivered were noted down.

Result and Conclusion: The most striking villous lesions in the study group which correlated well with the severity of disease were: cytotrophoblastic cell proliferation, thickening of basement membrane and deficiency of vasculosyncytial membrane. These placental lesions and their association with foetal complications will be discussed in the presentation.

**112. Anomalies Observed in 50 Term Placentae: A Gross and Histologic Study**

**Srividya Sreenivasan, Satyam Khare, Shilpi Jain**  
Department of Anatomy, Subharti Medical College, Meerut, U.P.

Physicians generally are uncomfortable with the task of examining the placenta. Yet, it is a task they should willingly undertake.....Submitting this organ to a reasonably knowledgeable look and touch can provide much insight into prenatal life, and the results are often helpful in caring for the neonate. Amnion nodosum associated with oligohydramnios is most commonly found in fetuses with renal agenesis. Succenturiate placenta with a reported incidence of 3% can result in troublesome postpartum haemorrhage if the accessory lobe were to be retained in the uterus after expulsion of the main placenta. While the extent of cord coiling and its mode of insertion can influence perinatal outcome, a four vessel cord is of unknown significance.

We studied abnormalities of placentation, fetal membranes and umbilical cord in 50 term placentae collected at random from the department of obstetrics and gynaecology, Subharti Medical College. They were subjected to a thorough gross and histologic examination. From the maternal and fetal surface of the placenta, 2 samples of about 1 cm thickness were taken from near the centre and from the periphery of the disc. Samples were also taken from the umbilical cord and foetal membranes. Gross anomalies like velamentous insertion of cord and succenturiate lobe, and histological confirmation of anomalies of fetal membranes and umbilical cord were observed by us. These will be discussed during the presentation.

**113. Unilateral Cleft Lip With Complete Cleft Palate**

**V.Sailaja, T.K.Rajasree, M.Ravinder, M.Pariplavi**  
Osmania Medical College, Koti, Hyderabad

Cleft Lip and Cleft Palate are birth defects that affect the upper and lower lips and roof of the mouth leading to problems with eating, talking, and ear infections.

Here is a case of unilateral upper right side cleft lip with complete cleft palate in a 6 months old female baby with complaints of deformity of upper lip, flow of milk through nasal passages during feeding and repeated ear infections since birth.

The causes, developmental defects, diagnosis, complications, management, and surgical procedures of this condition will be discussed in detail at the presentation

**114. Morphological Variations in Umbilical Cord of Full Term Foetus**

**Divia Paul Aricatt, Asha Joselet Mathew**  
Department of Anatomy, School of Medicine, Amrita Institute of Medical Sciences, Kochi, Kerala

To contribute to the sparse information on dimensional variations of umbilical cords, 100 placentae with attached umbilical cords were studied. The placentae were obtained from the Department of Obstetrics and Gynecology Amrita medical college, Kochi, Kerala. The parameters were assessed and categorised as umbilical cord parameters, baby parameters and maternal parameters. These quantitative data provide baseline values for further investigation. Out of 100 placentae with umbilical cord fifty three (53%) showed normal central insertion. Eighty nine (89%) showed normal cord length range. Ninety six (96%) showed normal umbilical cord vasculature. Barometry showed seventy (70%) placentas with in normal weight limits. Normal design pattern were observed in thirty seven (37%) umbilical cords while (63%) showed false knots. Baby weights were with in normal limits in eighty nine (89%) cases. Normal head circumference and baby length were seen with in normal limits in ninty six (96%) cases. Correlation between blood groups of mother and insertion of umbilical cord were noted and significant results were obtained. Significance of the above findings will be discussed in detail.

**115. Morphometry of Fetal Femora- An Autopsy Study**

**Vibhu Dhawan, K. Kapoor, M. Sharma, B. Singh\*, A. Sehgal\*\***

Department of Anatomy, Government Medical College & Hospital New Delhi; \* Chattisgarh Ayush & Health Sciences University, Raipur; \*\*Department of Obstetrics & Gynecology, Government Medical College & Hospital, Chandigarh

The study of the various morphometric parameters of the fetal femora carries significance because of its importance in the estimation of fetal gestational age, detection of skeletal growth anomalies including various congenital malformations and also in certain cases of fetal demise associated with medicolegal implications. The present

study was undertaken in the department of Anatomy, Government Medical College and Hospital, Chandigarh with the aim of collecting the morphometric parameters of the fetal femora. The material for the present study consisted of 30 fetuses of different gestational period from 12+1 weeks to 28 weeks. The specimens were provided by the department of Obstetrics and Gynaecology of the same institute. In the present study following morphometric parameters were taken: lengths, diameters of proximal end, mid shaft transverse diameter, greater trochanter to head fovea distance and distal widths of femur. The obtained data were statistically analyzed using ANOVA and Pearson's Correlation Coefficients were assessed. The growth in various dimensions of femur was seen to be proportional to the age group of fetus.

**116. Anatomical Variations of the Lumbar Plexus in Fetus**

**Sushma R.K.**, Biswabina Ray, Antony Sylvan D'souza  
Department of Anatomy, Kasturba Medical College, Manipal, Karnataka

**Background and Aim of the Study:** The lumbar plexus is formed within the psoas major muscle by the union of the ventral rami of the first three lumbar, larger portion of the ventral ramus of the 4th lumbar and the slender branch coming mostly from the 12th thoracic nerves. Although we come across literature concerning the variations in lumbar plexus in adults, there is dearth of the same in fetuses. Moreover, easy availability of fetuses and lack of fat in the field of dissection makes the fetuses convenient to dissect. Aim of the study was to study the variations in lumbar plexus in fetus.

**Materials and Methods:** A study was done bilaterally in 25 formalin-fixed fetuses (10 females, 15 males), age ranging from 20 to 37 weeks of gestation. The formation of lumbar plexus and their branching pattern were observed. The findings were noted and tabulated.

**Results:** We found multiple variations in the formation and branching pattern of lumbar plexus.

**Conclusion:** Anatomical variations found in the present case may be injured during certain surgical procedures, particularly in the lower abdominal region. As a consequence to such operations, several clinical conditions may result such as meralgia paresthetica, groin pain and testicular pain in which the LFCN, ilioinguinal and the genitofemoral nerves are mostly involved. Thus, awareness about the regional anatomy and its variations is essential for preventing postoperative complications.

**117. Effects of Hypertension on Morphometry of Placenta in South Maharashtra**

**Ghodke Sharmishtha**, Kale Naina, Dharwadkar S.V.  
USM-KLEIMP, Kolhapur, Maharashtra

**Aim:** To study the adverse effect of maternal hypertensive disorders on morphometry of placenta and its subsequent influence on neonatal outcome.

**Material and Method:** Weighing Machine, Measuring Jar, and Scalpel with surgical blade. 100 placentae from south Maharashtra were studied. Fifty were from normotensive

and 50 from hypertensive mothers, B.P. > 140/90 mm/Hg. Measurements included weight and volume of placentae at 34 to 40 weeks of gestation. Most of the placentae were from primipara. Volume of placenta was calculated by using Archimedes principle. Baby weight was recorded in each case.

**Results:** The mean placental weight was reduced in hypertensive placentae (320+/- 64.80). Also mean volume was reduced (194.70 +/- 81.49) in them. The mean birth weight of the Babies in hypertensive mother was 2.2 Kg. As compared to other studies morphometry showed gross reduction. Mortality found was less as most of cases were taking antenatal care.

**Conclusion:** Study showed placentae have great potential to provide valuable information in cases of adverse foetal outcome. Placental morphometry is definitely reduced due to hypertension. Method used to calculate Volume in present study is simple, rapid and making it practical for routine postnatal checkup and can be used by midwives without much accessories to know neonatal outcome. As most of placentae were of primipara volume reduction was much compared to other study. Regular monitoring and supervision in hypertensive cases will result in good foetal weight and increased incidence of normal delivery.

**118. Unilateral Cranio-Facial Cleft with Radial Dysplasia**

**M. Pramila Padmini**, B.Narasinga Rao  
Department of Anatomy, Maharajah's Institute of Medical Sciences, Nellimarla, AP

Development of the face and cranium during embryogenesis is a complex and orchestrated process that involves cellular proliferation, differentiation, migration, and selective apoptosis. Facial clefts are deformations of the face and or cranium caused by relative excesses or deficits of tissue along linear anatomic planes. The present case was a stillborn female child of a 31year-old mother by caesarean route at 36 weeks gestation. In the prenatal history, the mother was not exposed to any teratogen such as x-ray, infectious disease, or drug usage. On physical examination facial defect, skeletal defects of skull and limb defects was observed. Facial defects observed are a medial oro-ocular facial cleft was present extending from right angle of the mouth to the medial canthus of the right eye. There is hypertelorism with small palpebral fissures. The right ear is positioned lower than the left one. The left ear is malformed and is positioned close to the left lateral occipital region. Skeletal defects of skull such as a large open encephalocele was present in the squamous part of the frontal bone on the right. Details will be discussed at the time of conference.

**119. Estimation of Gestational Age of the Foetus in the Second Trimester of Pregnancy by Measuring the AC and FL by Ultrasonography**

**R R Desai**, M P Ambali, S D Jadhav, R J Patil, M A Doshi  
Krishna Institute of Medical Sciences (DU), Karad

Foetal growth is a dynamic process that has been monitored over a period of time. It is the time dependent changes in the body dimensions that occur throughout the whole gestation.

Since, foetal growth is so rapid parameters such as Biparital diameter (BPD), Femur length (FL), head circumference (HC) & abdominal circumference (AC) changes significantly with gestational age. Foetal biometry has made it possible to accurately determine the gestational age of the foetus. In this study 420 Indian women in 2nd trimester, who strictly met the selection criteria were scanned using real time Ultrasonography machine and AC, FL were measured between 14 to 27 weeks of gestational age. We also observed the mean growth rate pattern of the foetus for both parameters and established regression equation that will predict value of parameters for a gestational age ranging in 2nd trimester of pregnancy in Western Maharashtra population. The findings will be compared with the studies in the past and results of our study will be discussed at presentation.

#### **120. Study of Congenital Talipes Equinovarus Cases and its Radiological Correlation**

**Prabahita Baruah, K.L.Talukdar**

Department of Anatomy, Gauhati Medical College, Guahati

**Aim:** to study cases of congenital talipes equinovarus (CTEV) attending Gauhati Medical College & Hospital and their radiological correlation. CTEV or club foot is one of the most common congenital orthopaedic anomalies and is increasing day by day with the growing millions of this country. However, it still continues to challenge the skills of the surgeons as it has a notorious tendency to relapse. Part of the reason behind its relapse is the failure to recognize the underlying patho-anatomy. Again the controversy regarding the radiographic parameters which best represents the deformity of club foot still continues. However, the talocalcaneal angle in both AP and lateral view is considered as the best parameter to diagnose a case of CTEV radiographically.

**Materials and methods:** 60 cases of CTEV attending the orthopaedic OPD, Gauhati Medical College were taken for study. Histories, photographs and radiographs (X-rays) of these cases were taken.

**Results and observations:** out of 60, 63.3% cases were male; 43.3% cases were bilateral; 36.04% cases showed the talocalcaneal angle (AP view) ranging between 260 – 300.

**Conclusion:** Details of the study will be discussed in the form of a paper at the conference.

#### **121. High Reserve of Umbilical Cord Jelly Supports the Growth of its Blood Vessels**

**V.S. Malik, S. K. Rathee, S. K. Srivastava, S. Chhabra, V. K. Garsa**

Department of Anatomy, Pt. B.D. Sharma PGIMS, Rohtak, HR

This study was performed at Pt. B. D. Sharma PGIMS, Rohtak on 60 umbilical cords. Aim of study was to see whether there is any difference in the relation between umbilical cord jelly content in appropriately grown foetuses and IUGR foetuses. For this purpose, area of umbilical cord cross-section was measured histomorphometrically. Areas of all the three vessels of umbilical cord were also measured.

Jelly area was calculated by subtracting total blood vessel area from the total umbilical cord area. Various other histomorphometric parameters of the two arteries and one vein of umbilical cord, namely total area, lumen area and wall thickness were also measured. Correlation of Jelly area with these parameters was calculated. It was interesting to find that correlation coefficient of Jelly area with total area of artery-2, was found to be -0.246 whereas in IUGR group it was 0.503. From analysis of results authors concluded that there exists a high reserve of umbilical cord Jelly for growth of blood vessels in control group, whereas it is limited in IUGR group.

#### **122. Gestational Age Estimation from Human Fetal Femur**

**Anandwadikar Suvarna V, Dope Santoshkumar A, Selukar Mangesh S, Diwan CV**  
Department of Anatomy, Government Medical College, Latur

**Aim of the study:** Assessment of fetal femur growth parameters is one of the key - for estimation of fetal gestational age, to rule out skeletal growth disturbances, developmental abnormality, detection of certain fetal congenital anomalies and determination of population growth characteristics.

The present study was to evaluate the relationships between the crown-rump length (CRL) and fetal femur growth parameters and the gestational age during the second and third trimesters.

**Materials & Methods:** Thirty dead normal spontaneously delivered fetuses of second & third trimester of pregnancy were collected from the department of Obstetrics & Gynecology, Government Medical College, Aurangabad.

A total of eight parametric variables were obtained from bilateral femora using a sliding caliper. Obtained data were statistically analyzed by t-test and Pearson correlation coefficients.

**Result:** A significant relationship between the studied fetal growth parameters and the gestational age was found.

**Conclusion:** It appears that fetal CRL and femur growth parameters are accurate for the calculation of gestational age.

#### **123. Incidence of Cryptorchidism in Perinatal Human Cadavers - A Dissection Based Study**

**Rashmi Rekha Bordoloi, Roonmoni Deka, Rubi Saikia, Mukul Sarma**

Department of Anatomy, Assam Medical College & Hospital, Dibrugarh, Assam

**Aim:** To observe the incidence of cryptorchidism in 100 perinatal human cadavers. Cryptorchidism is an important risk factor for seminoma of testes and such a testes fail to produce mature spermatozoa which lead to male infertility. Undescended testes are also at a higher risk of injury.

**Material and methods:** A total of 100 perinatal human cadavers were meticulously dissected. The position and level of testes were noted.

**Results:** The present study revealed that undescended testes occurred in 30% cases. In 50% cases left testis descended earlier than the right. It was also noted that

bilateral undescended testes (70%) was more common than unilateral undescended testis (30%). And unilateral undescended testis was more common on the right side (55.5%).

Conclusion: The primary management of cryptorchidism is surgery called Orchiopexy which is done in infancy. Therefore through appropriate screening programmes if the cryptorchidism cases are diagnosed on time and early surgical interventions are carried out, the undescended testes can be descended into the scrotum which is the prerequisites to ensure optimal fertility in adulthood and a considerable lessened risk of testicular carcinoma.

#### **124. Morphological Effect of Sickle Cell Anaemia in Full Term Placenta in Chhattisgarh Region**

**Praveen Kurrey, Yogesh Sontakke\***, Vijay Nayak, CK Shukla  
Department of Anatomy, Pt. J. N. M. Medical College, Raipur;  
\* Department of Anatomy, SAIMS Medical College and Post-graduate Institute, Indore

The placenta is the most accurate record of infant's prenatal experience. Placental examination reflects prenatal factors and postnatal fetal outcomes. In the present study 100 full term placentae were studied morphologically in which 50 placentae were collected from normal mothers and 50 were from mothers with sickle cell disease. Placentae were examined for shape, weight and volume of placenta with surface area, number of cotyledons and attachment of umbilical cord. No change was observed in cotyledon count in placentas of sickling cases. The most common shape of the placenta was discoidal in both normal cases (68%) and in mothers with sickle cell disease (50%). The second most common shape of the placenta was oval and it was found significantly higher in mothers with sickle cell disease (32%) than in normal cases (22%). Irregular shape was found in only 6% of normal placenta while it was 16% in sickling cases which was significantly higher. Attachment of umbilical cord was found most commonly as central in normal cases (32%) while as near centre in sickling cases (36%). The weight of placenta was significantly lower in cases of sickling (mean 438.08gm) in comparison to normal subjects (mean 468.88gm). The mean volume of placenta was also significantly lower in case of sickling cases (mean 502.06 ml) in comparison to normal subjects (mean 576.44 ml). The placental surface area was also affected by sickle cell anaemia and it was found lower (mean 262.14 cm<sup>2</sup>) than normal subjects (mean 273.12 cm<sup>2</sup>). Thus, the present study indicated that sickling adversely affects gross placental parameters. This might be the probable reason behind worst foetal outcome in mothers with sickle cell disease.

#### **125. A Morphological and Morphometric Study of Placenta with its Clinical Implications**

**Hemant Ashish Harode**, Chandni Gupta, Antony Sylvan D'souza  
Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

Objective: In the idiopathic intrauterine growth restriction where there are no clear maternal or foetal causes, the

placenta might hold the key to its etiology. One-minute examination of the placenta done in the delivery room provides evidence that may be significant to the care of both mother and infant. So, this study was undertaken to look for any placental and umbilical cord abnormalities and to establish the relationship of birth weight to the placental measurements.

Materials and methods: In this study 50 placenta were collected from the obstetrics and gynaecology department. Placenta and umbilical cord were examined to look for any abnormalities in the shape, cord insertion, vessels in the cord; additionally various other measurements were taken (weight, circumference, diameter, volume and thickness at the level of cord insertion). Foetal weight and age, maternal history about diabetes and hypertension were noted down. Statistical analysis of the measurements was done and the relationship between birth weights, placental measurement was investigated.

Results: Results are recorded, tabulated and will be presented.

Conclusion: Placenta is one of the most challenging organs; its functions often hold the key to foetal growth. So, the knowledge of these measurements may be helpful to the paediatrician and obstetrician in clinical practice. This information also be helpful to establish a relationship between foetal weight and placental measurements.

#### **126. Relationship between Size of the Anterior Fontanelle, Head Circumference & BPD with Gestational Age group (32-40 weeks) In Human Foetus in Upper Assam region** **Mousumee Saikia**, Anuradha Boruah, Roonmoni Deka Department of Anatomy, Assam Medical College & Hospital, Dibrugarh, Assam

Introduction: The Anterior fontanelle is the meeting point of two parietal & two frontal bones where sutures are wide. It is the most prominent fontanelle and has importance in the evaluation of cranial development and clinical pathology. Head circumference & Biparietal diameter (BPD) are also important parameters of foetal cranial growth.

Aim of the Study: The study was conducted to find out the relationship between size of anterior fontanelle, Head circumference & BPD with gestational age (32-40weeks) in human foetus in upper Assam region.

Material & Method: The study was conducted in Department of Anatomy, AMCH, Dibrugarh on 60 normal dead fetuses of both sexes. The gestational age was recorded from maternal data. Size of the anterior fontanelle, head circumference, BPD were measured with a measuring tape and compared with the standard value of that age group.

Result & Conclusion: It was found in the study that there is relationship between size of the anterior fontanelle Head circumference & BPD in different gestational age groups of upper Assam region. This correlates with the findings of previous studies and standard values. Details will be discussed at the time of presentation.

#### **127. Comparison of Endometrial Thickness in normal and abnormal Menstrual Cycle**

**Charushila D. Shinde**, Aruna Mukherjee

MGM Medical College, Kamothe, Navi Mumbai, Maharashtra

Endometrium is mucosal layer of uterus. Throughout the reproductive age, it undergoes cyclical changes during each lunar month to prepare uterus for implantation. Endometrium proliferates and regenerates during each menstrual cycle. Dysfunctional uterine bleeding (DUB) is the most common cause of abnormal uterine bleeding or abnormal menstrual cycles. DUB is abnormal bleeding in absences of organic cause and is mainly due to change in hormonal level.

Aim: 1. To compare Endometrial Thickness (ET) in normal and abnormal Menstrual Cycle. 2. To decide line of treatment in DUB patients.

Study group: 51 patients of normal menstrual cycle and 60 patients of abnormal menstrual cycle were selected. Age of patients, Duration of menstrual cycle, Days of menstruation, Phase of menstruation, ET, ET after giving treatment, Difference of ET (in DUB patients) were recorded.

Method: ET is recorded by Ultrasonography.

Conclusion: In Abnormal Uterine Bleeding patients, if ET is < 8 mm 1st medical line of treatment is indicated. If ET is > 8mm line of treatment depends on age and pattern of bleeding.

#### 128. Situs Inversus Totalis – A Case Report

Keisam Anupama Devi, N. Damayanti Devi, L. Chinglensana.

Department of Anatomy, Keisam Anupama Devi, PGT, Department of Anatomy, RIMS, Imphal, Manipur

Human body, like all vertebrates, establishes anatomical left-right asymmetry during embryogenesis. Situs inversus totalis is complete reversal of normal organ position, creating a mirror-image of all asymmetrical structures. We present a case on whom work-up of colicky epigastric pain revealed such a heterotaxy with otherwise no other malformation or external defects. Reported incidence worldwide is 1 in 8000-25,000 live births but in our region it is a rarity. The clinical examination of chest and abdomen of the 50-years old Meitei lady showed apex beat on right thorax and liver dullness on left hypochondrium. Chest radiograph images revealed dextrocardia with transposition of great vessels and gastric fundal shadow on right upper quadrant. Abdominal sonography and MRCP images confirmed the transposition of abdominal viscera with an incidental cholelithiasis. Situs inversus is a variable manifestation of syndromic left-right axis malformation resulting from immotile cilia syndrome and Kartagener syndrome. It is an autosomal recessive condition but may occasionally be X-linked. Evidently, this left-right axis embryogenic malformation exists in local population even though reports are made only when they present with disease complaints.

#### 129. Estimation of Gestational Fetal Age Using Fetal Tibial Length by Real Time Ultrasonography

Vijay Nayak, Praveen Kurrey, J. Kain

Department of Anatomy, Chirayu Medical College and Hospital, Bhopal

Ultrasonography is one of the most commonly used imaging modalities in the assessment of fetal well-being in the modern era. Sound having a frequency of 20000 hertz or more is called 'ultrasound'. Ultrasound is a non-invasive modality having no associated radiation hazard in which the waves from a low power ultrasonic energy source are received back in form of audible or visual signals. Reflection of the waves depends upon the density of tissue being examined. In the present study 400 pregnant women were taken from the department of obstetrics and gynaecology, Chirayu medical college and hospital, Bhopal. Patients were studied radiologically for fetal tibial length along with fetal femur length, biparietal diameter and head circumference using real time ultrasonography. It was found that tibial length is strongly correlated with biparietal diameter, head circumference and femur length for the estimation of gestational age. On the basis of observations made, the result obtained is depicted by the formula  $A = 8.95 + 0.401 \times B$  (A=fetal gestational age, B=measured tibial length by ultrasonography), and  $A = 3.08 + 0.350 \times C$  (C=fetal biparietal diameter) respectively. Therefore it is recommended that the fetal tibial length should be used as a more predictive parameter to estimate the fetal gestational age or on using the multiple parameters the fetal tibial length also is a conformatory measurement so that IUGR can be diagnosed at an early stage for the wellbeing of unborn baby.

#### 130. Differential Diagnosis of A Case of Bilateral Cystic Swelling of Neck In An Aborted Fetus - Anatomical And Radiological Findings with Embryological Explanations.

A. Marutiram, G. Rajasree, S. Babu Rao, V. Subhadra Devi  
Department of Anatomy, Sri Venkateswara Medical College, Tirupati

Aim: To study anatomical and radiological findings observed in a fetus with bilateral cystic swelling of neck.

Material and methods: A total of 30 aborted fetuses were collected from May, 2010 to October 2011 for academic dissection in the department. During routine dissection of a male aborted fetus, a huge swelling in the region of neck was observed. The observations were recorded and photographed and radiographs were taken and photographed and ultrasonographic and CT findings were recorded.

Results: A huge soft and cystic swelling was observed in the region of neck. In radiography, there is a swelling noted on either side of the head and neck. About 1.2cm defect was noted in occipital bone with herniation of echogenic brain contents and hypoechoic collection into the occipital region.

Conclusion: Detailed anatomical, radiological, sonographic and computerized tomographic observations with embryological explanation will be discussed during presentation.

#### 131. Growth Rate of Human Fetal Lung with Increase in Gestational Ayes – A Morphological Study

Rajkumari Ajita

Department of Anatomy, Regional Institute of Medical Sciences, Imphal

**Aim of the Study:** The present study was conducted to find out a relationship of the growth rate of lung at different gestational age of human fetuses. **Materials & Methods:** Sixty three fetuses of different age ranging from 11th to 36th gestational weeks were procured from the Department of Obstetrics and Gynecology of Regional Institute of Medical Sciences, Hospital, Imphal for the study with the permission of the Medical Superintendent. The gross morphological parameters such as weights of the fetus and the lung were observed. The mean  $\pm$  SD values of the fetus and lung weight were measured. The data were statistically and graphically analyzed. **Results:** The growth rate of left and right lung showed a minimal value of about 1.35 gm upto 13th gestational week and thereafter showed a gradual increase from 13th to 20th week and then showed a moderately steep rise and was found to be almost similar upto 24th week showing an average weight of about 18 gm. From 24th week, the growth rate of right lung was found slightly faster than that of left lungs upto the 36th gestational week. The differential growth rate of the lung weight/body weight ratios was observed as follows: a steep fall from 11th to 12th week, then a gradual increase from 12th to 14th week, then a moderately steep fall from 14th to 16th week and then a gradual fall upto 20th week, a gradual increase from 20th to 24th week, then a gradual fall from 24th to 31st week and then remained almost constant upto 36th week. **Conclusion:** The study revealed that the growth rate of both the lung weight increased gradually upto 20th week and then a steep rise from 20th to 24th week. A significant finding was that there was a steep fall in the lung weight/body weight ratio from 11th to 12th week. These findings shall be corroborated and correlated with findings of other workers.

**132. A Study on Congenital Anomalies of the Gallbladder and Associated Structures in A Specific Population**

**Indrajit Gupta**, Sudeshna Majumdar

Department of Anatomy, College of Medicine and Sagore Dutta Hospital, Kolkata & Calcutta National Medical College, Kolkata.

On the undersurface of the liver there is usually a single gallbladder (arising from the cystic bud of hepatic diverticulum). The neck of the gallbladder is continued as a cystic duct which is supplied by a cystic artery – a branch of the right hepatic artery. The cystic duct joins with the common bile duct. But there may be a number of congenital anomalies regarding the number, position, blood supply and other features of these structures. A study was conducted from the year 2006 to 2010 in the Department of Anatomy of Calcutta National Medical College and in other medical colleges of Kolkata to detect the congenital variations of extrahepatic biliary apparatus (with percentage) among the people of Kolkata. 150 cadavers were dissected in this study, structures concerned were observed minutely, coloured and relevant photographs were taken. Main features of the result are: i) Double gallbladders with separate cystic ducts were found in 3 cases (2%). ii) Double cystic ducts were found in 4 cases (2.7%) - 3 double gallbladder cases and

one case of single gallbladder. iii) Single gallbladder with double cystic arteries was found in 18 cases (12%), and double gallbladders with two cystic arteries was found in 3 cases (2%). So in total 21 cases (14%) had double cystic arteries in this study. The knowledge of these variations will help the surgeons to undertake any investigative or surgical procedure in the subhepatic region and will also enhance our knowledge in embryology and in gross anatomy.

**133. Relative Position of Kidney in Developing Foetuses**

**Nirmalya Saha**, N. Damayanti Devi

Department of Anatomy, Regional Institute of Medical Sciences, Imphal

During early development both metanephros are on either side of the lumbar region at 5th week of intrauterine life (IUL). However due to lack of infraumbilical part of abdomen, it is found relatively near the pelvic region. In the following study 50 foetuses have been dissected in the department of Anatomy, Regional Institute of Medical Sciences, Imphal, Manipur to re-evaluate the relative position of kidney of foetuses at different stages of IUL. At 15 weeks of IUL the position of the kidney is just above the pelvic region, at 20 weeks in lower part of lumbar region, at 30 weeks and at term, the kidney position is in lumbar region. However afterwards due to incomplete growth of abdomen and pelvis the kidneys have not attend the position as that of adult. Failure of ascent of kidney, known as pelvic kidney is quite common.

**134. A Study of the age of Onset of Hair Line Recession and its Pattern in Adolescent Population of Vidarbha Region of Maharashtra in Central India.**

**Shrivastava Utkarsh G.**, Sheersagar D.D.

N.K.P. Salve Institute of Medical Sciences, Nagpur.

**Aim:** To know the morphology and latest trends of hairline pattern in adolescent population and study the age of onset of hairline recession.

**Material:** Specially designed measuring spectacle, Measuring tape, Skin marking pencil, Compass divider.

**Method:** Equally represented 350 healthy subjects were examined between 12 to 19 years age. Using Frankfurt's horizontal plane, the hair line drawn was measured from glabella for 0 to 180 degree with measurement of head circumference.

**Results:** Corrected hair line recession in age 14-15 year is higher than other age groups. Four concavities are observed in hair line recession expressed in percentage with uniform status of observed maximum recession for 16-17 & 17-18 years. The Left Gehiemratsacken Angle is deeper and wider than the Right Gehiemratsacken Angle.

**Conclusion:** The age of onset of hair line recession is 14-15 years. The hair line recession in the subsequent ages become most marked as found in 16-17 years and 17-18 years. The highest recession is seen at the Left Gehiemratsacken Angle. As the specific findings of hair line pattern and the age of its onset are found out, it can be of great use for prevention of Androgenetic Alopecia through observance of timely intervention, treatment, care and precautions by vulnerable



adolescents.

**135. Anteroposterior Thigh Diameter of Fetus in Estimation of Gestational Age**

Shivi Goel, V.V.G. Patnaik

Department of Anatomy, Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, Ambala

The present study comprises of sonographic measurement of anteroposterior thigh diameter (APTD) of fetus and assessing its reliability in estimation of gestational age. APTD of fetus may be particularly useful when other parameters are unable to predict fetal age, e.g., in hydrocephalus. Little published research exists in the area of fetal thigh biometry, especially in the use of anteroposterior thigh diameter. A continuing review of existing practices needs to be coupled with evaluation of alternate or additional methodology. Prior consent for this study was obtained from the subjects and the APTD of fetus was measured in 238 normal 18-28 weeks singleton intrauterine pregnancies using two dimensional sonography. Significant positive correlation was found between APTD and fetal age ( $r = 0.997, p < 0.001$ ). Further results will be exhibited during the course of the conference.

**136. Histomorphometric Effects of Zoledronate, A Third Generation Bisphosphonate on the Trabeculae of Growing Bone of Tibia in Albino Rats - A Short-Term Study.**

Ralte S, Khatri K, Nagar M

North-Eastern IGRI of Health and Medical Sciences, Shillong, Meghalaya

Bisphosphonates are synthetic analogues of the naturally occurring pyrophosphate molecule and are powerful inhibitors of osteoclastic bone resorption. Zoledronate, a recent third generation bisphosphonate, is highly effective in the treatment and prevention of skeletal complications of malignancy, Paget's disease and postmenopausal osteoporosis.

In the present study, twenty days old male albino rats were randomly divided into two groups. The experimental group I (n= 7 animals) were given 2.8µg/kg body weight of zoledronate subcutaneous, daily for eleven days. Control treated group II (n= 8 animals) were given equal volume of normal saline according to body weight. Animals were sacrificed on 31st day by perfusion with formal saline. Tibiae were dissected out, decalcified in EDTA and processed for paraffin sectioning. Seven µm thick paraffin sections were stained with haematoxylin and eosin and Masson's trichrome stains and examined under Zeiss light microscope and Image Pro-Express Analyzer. The length and width of metaphysis; the width, number and area of trabeculae; area of marrow spaces and relative proportion of trabeculae to marrow spaces; and the number of osteoclasts were studied in the metaphysis of proximal end of tibia. The width of trabeculae, area of trabeculae, and area of marrow spaces were computed with the help of an Image Pro-Express Analysis System. The findings of the control and experimental group were statistically analyzed using Mann-

Whitney's test.

A significant increase ( $p < 0.001$ ) in the length and width of metaphysis, area, number, and width of trabeculae, relative proportion of trabeculae to marrow spaces along with a significant increase in number of the osteoclasts was observed in zoledronate treated rats. However, the marked increase in the number of osteoclasts appeared to be a paradox against the antiresorptive effect of zoledronate, indicating that the osteoclast is the site of the action of bisphosphonate.

**137. Statistical Analysis of Femur Length and Abdominal Circumference with Gestational Age and Variation with Placental Thickness**

Jaideo Manohar Ughade, Sudhir V. Pandit, \* L. S. Khanzode

Department of Anatomy, S.V.N.Gmc, Yavatmal; \*I.G. GMC, Nagpur

Today ultrasonography is important tool in determining foetal well being. The femur length is considered as one of the important parameter in determining the foetal age along with abdominal circumference. This was a cross sectional study done on 600 normal subjects having singleton pregnancy in second and third trimester of pregnancy. The gestational age was determined by the last menstrual period. Along with routine foetal parameters, placental thickness was measured at the level of insertion of umbilical cord. It was concluded at the end of the study that there was statistically positive and strong association between menstrual age with foetal and placental parameters in second and third trimester. Based on observation regression equation, menstrual age =  $-7.59 + 3.02 \times$  placental thickness for second and menstrual age =  $24.97 + 2.48 \times$  placental thickness was derived separately for third trimester. It was also observed that placental thickness had positive correlation with foetal parameters, femur growth and abdominal circumference in second and third trimester of pregnancy and will be discussed during presentation.

**138. The Assessment of Trimestral Variations in Morphology and Histogenesis of Human Foetal Suprarenal Gland**

S.Sathiya, Vathsala Venkatesan, W.M.S Johnson

Department of Anatomy, Sree Balaji Medical College & Hospital, Chennai

**Aim:** The aim of the study was to analyse the morphology and histogenesis of human suprarenal gland during their prenatal period.

**Materials and Methods:** After obtaining ethical clearance and consent 18 fetuses (6 fetuses per each trimester) were collected and both right and left suprarenal glands were dissected and studied. The gland was studied for its location, shape and size were measured using digital vernier caliper and weight was measured using digital weighing balance. Then the gland was subjected to routine histological processing and stained by haematoxylin and eosin.

**Result & Conclusion:** The shape of right and left suprarenal glands varies with each trimester and the weight of left suprarenal glands were found to be heavier than the right in

all the three trimesters. The ratio of weight of suprarenal to kidney was found to be 1:1 in I trimester, 1:2 in II trimester, 1:3 in III trimester. Histological findings in I-trimester showed two zones superficial darker and deeper lighter zone, in II-trimester all the three zones of cortex were not well differentiated and in III-trimester outer cortex showed three zones and the medulla characterized by centrally located space.

### 139. A Morphometric Study of Lumbar Pedicle In North West India

**Mahesh Sharma**, Kunal Chawla, Avinash Abhaya, Suman Kochhar

Department of Anatomy, Government Medical College, Chandigarh

Any structural deviation of the pedicle may result in interference of the weight transmission mechanism and compression of neural structures. This comprehensive anatomical study was conducted on 30 dry L3 lumbar vertebrae and 10 adult male cadavers obtained from Department of Anatomy, Govt. Medical College Hospital, Chandigarh. The specimens belonged to North West Indian population. In the present study following measurements were taken with the help of vernier caliper: vertical height (h) and pedicle width (w) in dry L3 lumbar vertebrae; Interpedicular distance (GH) in dry L3 lumbar vertebrae and cadaveric specimens of all lumbar vertebra; Interpedicular distance between adjacent lumbar vertebrae in cadaveric specimen. In the dry bone specimen (L3) the mean height of the pedicle was  $14.0 \pm 1.1$  mm on right side and on left side mean was  $14.1 \pm 1.0$  mm. The mean width of the pedicle was  $8.7 \pm 1.4$  mm on right and on left side mean was  $8.7 \pm 1.7$  mm. The mean interpedicular distance between medial surface of right & left pedicle of same vertebra was  $20.5 \pm 1.3$  mm. Where as, in the cadaveric specimen (L3) the mean value was  $22.7 \pm 1.73$  mm. and the distance increases from L1 ( $21.6 \text{ mm} \pm 1.69$ ) to L5 ( $25.4 \text{ mm} \pm 3.19$ ). However, there was increase in the interpedicular distance between adjacent lumbar vertebrae from L1-L2 to L2-L3 levels and thereafter a decrease from L3-L4 to L4-L5 levels on right side. On left side similar trend was seen except L2-L3 and L3-L4 had similar means. This study will provide a data from Indian population for orthopaedic procedures.

### 140. Persistence of Left Superior Vena Cava with Left Azygous Vein and Coronary Sinus Dilatation

**M. Sobana**, T. Malarvani, S.Sundarapandian, Arudyuti Chowdhury

Department of Anatomy, SRM Medical College Hospital and Research Centre, Kattankolathur, Tamilnadu.

Persistent left superior vena cava is the most common form of anomalous venous drainage of thorax involving the superior vena cava and represents persistence of the left horn of embryonic sinus venosus which normally involutes during normal development to become coronary sinus.

In this case report of a male cadaver, we describe a persistent left superior vena cava and left azygous vein with coronary sinus dilatation under the following headings : embryologic

basis, clinical implications, sonographic pitfalls, associated congenital cardiac anomalies and other complications, giving special importance to problems associated with pacemaker implantation, central venous catheterization, retrograde cardioplegia and resynchronization therapy.

Awareness of PLSVC with dilated coronary sinus is important for the sonologists, physicians and also ICU staff because it can complicate central venous catheterization.

### 141. The Study of the Obliquity of shaft of femur and Bicondylar angle in the Population of Western Rajasthan.

**Pushpa Potaliya**, D.S. Chowdhary, Sushma Kataria, Abhilasha Dadhich

DR.S.N.Medical College, Jodhpur, Rajasthan

**Aim:** The aim of the study was to examine various femora for the obliquity of their shaft and bicondylar angle.

**Material and Method:** 300 adult femora were studied out of which 205 were of males and 95 of females. For measurement, method used was given by Heiple and Lovejoy which will be discussed.

**Results:** The average angle in females was larger than in males. Values were compared with other populations also and significant difference was observed.

**Conclusion:** Role of angulation is extremely considerable in biomechanics and in bipedal gait. Details will be discussed in the session.

### 142. Study of Dry Hip Bones of Dwarfs

**Navneet Kumar**, Rakesh Kumar Verma, Anita Rani, Jyoti Chopra, Arvind Kumar Pankaj & A.K. Srivastava.

Department of Anatomy, C.S.M. Medical University, Lucknow.

The skeleton of the dwarf has bony deformities because of various reasons. The hip bone is the main juncture which can be affected by acquired factors apart from pathological. Most of the hip bone deformities have been studied radiologically. Very few observations are available on dry skeleton of dwarf.

In duration of five years, three pairs of hip bones of dwarfs were collected from the Department of Anatomy, Chatrapati Sahuji Maharaj Medical University Lucknow (U.P) India. All the hip bones were of adult male dwarfs of unknown identities.

All the hip bones were short. All hip bones showed some special, unique features which were different from normal adult male hip bones. The iliac crest was deeply curved and iliac fossa was highly concave. The iliac tuberosity was separated from auricular surface by a smooth area. The auricular surface was not complete. It was divided into a large and small area. The Ischial spine was thick, broad and prominent. The acetabulum was shallow in two bones only, rest possessed normal depth. The margin of acetabulum was irregular in all bones. The angulation between ilium and pubis was more than normal. It was observed that smaller hip bones have more angulations (up to 90°) between ilium and pubic bone while larger hip bones have more curved ilium.

We predict that not only growth factors but the mechanical

traction and pressure stress can also affect the shape of bone.

**143. Supraorbital Foramen in North Indian Population - Anthropometric Measurements And Their Clinical Relevance**

**Arpita Bajpai**, Pramod Kumar, R.J.Thomas\*, Vinod Kumar\*\*

Department of Anatomy,\*G.S.V.M. Medical College, Kanpur ; \*M.L.B. Medical College, Jhansi ; \*\*R.I.M.S. Saifai

The Aim of this study is to know various combinations and incidence of Supraorbital foramen on right and left sides of north Indian skulls. Supraorbital foramen is an osseous opening present in norma frontalis which lies in vertical line that passes between premolar teeth sagittally on both sides. It transmits Supraorbital nerve and vessels. The study of location of Supraorbital foramen is important when Supraorbital block is given. This block is carried out in treatment of migraine and chronic paroxysmal hemicrania. Supraorbital foramen is also a convenient land mark for probing procedure in cases of closed nasolacrimal duct. In forehead, coronal and brow lifting procedure exact localization of Supraorbital nerve emergence avoids transection of this nerve.

**Materials And Methods:** A total of 500 dry skulls were taken from Anthropology museum, Dept. of Anatomy, G.S.V.M. Medical College Kanpur. The above skulls were examined for various combinations of Supraorbital foramina. Their number and percentages were recorded and compared with other workers.

**Result and Conclusion:** The work is still being carried out so the details of this study will be discussed during the presentation in the conference.

**144. Linear and Angular Parameters of Proximal Femur in Relation to Prosthesis**

**Nirmala.P**, Sundarapandian.S, Niladrikumarmahato, Radhikakrishnan. J, Sathiyarayanamurthy.S

SRM Medical College Hospital & Research Centre, SRM Nagar, Potheri,

The prosthesis presently used for the hip replacement is exclusively designed for the western dimensions. The usage of these prosthesis increases the chance of postoperative complication in south Indian population. Need of this study is to predetermine the prosthetic size according to the linear and angular parameters of proximal femur in south Indian population. 150 human femora collected from the department of anatomy. The femoral head circumference, horizontal & vertical length of the head, femoral neck circumference and its anterior, posterior, superior and inferior length, length and width of the greater trochanter, intertrochanteric length, the neck-shaft angle and femoral anteversion were studied using vernier caliper and goniometer. The results were recorded and analyzed statistically. This study will be helpful to design prosthesis suitable for south Indian population, to reduce postoperative complication.

**145. Biometric Study of Hip Bone and Its Application for Sex Determination**

**Nithya.V**, Sundarapandian.S

Department of Anatomy, SRM Medical College & Research Centre, Kattangulathur

The sex determination of individual is greatly useful in anatomy, archaeology and forensic departments. Hip bone is the reliable bone to determine the sex. A biometric study of anterior and posterior border of hundred adult human hip bones was done in which the sex was determined using Bruzek's criteria. Various parameters were measured with the use of stainless steel caliper, inextensible thread, geometrical ruler and protractor. This study is to compare the biometry of both anterior and posterior border of hip bone to determine the sex of the individual. The results were recorded and analyzed statistically. This study is useful for carrying out medico legal examination of bones, cephalopelvic proportions in obstetric cases, for academic studies in anatomy and for anthropological examination of skeleton, radiological study of pelvis and for archeological examination of skeleton

**146. Radiological Study of Arterial Pattern of Vermiform Appendix**

**Shahidha Bhanu.Y**, Ganesh.E, Sundarapandian.S

SRM Medical College & Hospital Research Centre, Kattankolathur, Tamilnadu

**Introduction:** In the view of unanimity in literature about the vascularization of vermiform appendix, the radiological study of arterial supply of the Vermiform appendix is to determine the origin, branching pattern and anastomosis of the appendicular artery.

**Aim:** The aim of the present study is to determine the origin, branching pattern and anastomosis of the appendicular artery.

**Materials & Methods:** The radiological study of arterial supply of the Vermiform appendix, carried out in 25 adult cadavers. The cadavers are dissected and the superior mesenteric artery was freed in front of the third part of duodenum. A milky suspension of 500gms of barium sulphate in 500ml of tap water was obtained by mechanical mixing with a blender. Between the 10-30 ml of this mixture was injected by gentle manual pressure, occasionally assisted by milking along the ileocolic artery.

**Conclusion:** The present work gives the detailed knowledge about the arterial supply of the vermiform appendix. The importance of the knowledge about the arterial supply of Vermiform appendix is to identify the different types of the appendix for free transfer in microsurgery and to provide the maximum knowledge about vascularization of Vermiform appendix for maintaining the complete hemostats during the appendectomy.

**147. Arthritis of the Subtalar Joint Associated with Sustentaculular Tali Facet Configuration**

**K. S. Nemade**, M.M. Meshram

Department of Anatomy, Govt. Medical College, Nagpur.

The articular facets of the sustentaculum tali have a variety of configurations that are generally viewed as nonmetric traits of little functional significance. Bruckner (1987), in contrast, has hypothesised that sustentaculum tali facet variations are functionally important because they influence subtalar joint stability. To test this hypothesis, 220 calcanei were analysed for correlations between sustentaculum tali facet morphology and osteoarthritis of the subtalar joint. Calcanei with 2 separate sustentaculum tali facets had a lower frequency of arthritic changes associated with joint instability than calcanei with other facet configurations. This finding supports Bruckner's hypothesis that subtalar joint facet configuration is a factor in foot mobility.

#### **148. Metopic Suture**

**Avinash Abhaya**, Kanchan Kapoor

Department of Anatomy, Government Medical College & Hospital, Chandigarh

The frontal suture divides the two halves of frontal bone and usually disappears by the age of six with their fusion. The suture can persist (totally or partly) as a metopic suture. The clinical significance of metopic suture is that they can be mistaken for a cranial fracture. In a study of metopic sutures of 184 adult dry skull from the bone bank of GMCH revealed the presence in 3.26 % (6/184) cases of complete metopic suture (from nasion to bregma), while 11.96 % (22/184) of incomplete metopic sutures. The majority of complete sutures were of 12 cms length while the length of the incomplete variety vary from 0.6 mm to 26 mm. All observed metopic sutures were of linear variety but with variability in their serration exocranially & endocranially. The details about their morphology will be presented and discussed in light of available literature.

#### **149. Incidence of Ossification of Transverse Scapular Ligament in the Population of Assam**

**Chiman Kumari**, H Bayan

Department of Anatomy, Gauhati Medical College, Guahati

**Aim:** The present study aims at determination of incidence of ossification of transverse scapular ligament in the population of Assam. The suprascapular notch is frequently bridged by bony rather than a ligament converting it into a foramen in some animals. But in humans, the conversion of the notch into a foramen as a result of ossification of the transverse ligament is not commonly found. **Materials and methods:** The study was conducted on 80 scapulae collected from the first MBBS students and from osteology laboratory in the Department of Anatomy, Gauhati Medical College. The bones were examined for the presence of the suprascapular foramen due to the ossification of the transverse scapular ligament. **Observation:** Out of the 80 scapulae observed, we found 4 scapulae with ossification of the said ligament. The foramen were examined, photographed and dimensions taken. **Conclusion:** Knowledge of this type of variation is of great importance to the anatomists, anthropologists and surgeons. Ossification of the transverse scapular ligament constitute a potential predisposing factor to suprascapular

nerve entrapment.

#### **150. A Morphometry Study of Laryngo-tracheal Cartilages in Fetus**

**Shivhare G**, Sharma MK, Kapoor K

Department of Anatomy, Govt. Medical College, Chandigarh

**Aim:** The increased incidence of premature births has led to increase incidence of respiratory disorders and the need of intubation has also augmented. The aim of this study was to provide detailed morphometric data of the laryngotracheal cartilages in fetus of different gestational periods from 14th to 32nd weeks and correlate them to crown rump length.

**Materials and Methods:** Thirty laryngotracheal cartilages were obtained from 30 fetuses of different gestation period from 14th to 32nd weeks. Morphological measurements of larynx and trachea were taken with the help of a precision vernier caliper, precision divider & micrometry.

**Results:** Tracheal length, median anterior thyroid height and thyroid alar height showed a plateau between 20-25 weeks to 25-30 weeks of gestation. Glottis length and inter arytenoid distance showed plateau between 25-30weeks to >30weeks of gestation; and a period of growth spurt between 20-25 weeks to 25-30 weeks of gestation. Anterior cricoid arch height showed growth spurt between <15 weeks to 15-20 weeks of gestation and median anterior thyroid height showed growth spurt between 25-30 weeks to >30weeks of gestation.

**Conclusion:** All the laryngotracheal parameters increased from approximately two to more than two times from the end of 1st trimester to the beginning of 3rd trimester. Almost all the parameters correlated positively with crown rump length as well as grow linearly with gestational age.

#### **151. Morphological Variations of Forearm Muscles**

**Pushpa Burute**, Sujata Jog, Savita Gaikwad

Department of Anatomy, MIMER Medical College, Pune

**Introduction:** Variations of forearm muscles are common, particularly of origin, insertion, size of the belly and sometimes additional muscle bellies are also found. Awareness of variations is essential for anatomist, surgeons and clinicians for proper diagnosis of various clinical conditions.

**Materials and Methods:** 52 upper extremities are dissected and studied for variations of forearm muscles. Study is carried under two major groups: Flexor group and Extensor group. Following details are observed: Origin, Insertion, Size of the belly, Accessory belly, Important relations.

**Observations:** Variations of Palmaris longus, flexor carpi ulnaris are observed. Accessory belly for flexor pollicis longus, extensor carpi radialis brevis, abductor pollicis longus (with additional tendons of insertion) are observed.

#### **152. Branching Pattern of the Axillary Artery - Clinical Implications & Embryological Significance**

**Shilpi Agarwal**, Rekha Lalwani, C.S.Ramesh Babu

Department of Anatomy, L.L.R.M. Medical College, Meerut

Knowledge of neurovascular variations is important for

vascular radiologist, surgeons and also for anesthetists for diagnostic interpretation and effective management. Axillary artery is the direct continuation of the subclavian artery from the outer border of the first rib. The course of the axillary artery is anatomically divided into three parts by the pectoralis minor muscle. The present study was conducted in the Department of Anatomy at LLRM Medical College on 12 formalin fixed cadavers of adult age group i.e. 24 upper limbs. Axilla was carefully dissected, axillary artery & its branches were cleared & documented. Variations were found in 5 cadavers unilaterally i.e. in 5 upper limbs. In the first case, two superior thoracic arteries arose from the first part. From the third part of axillary artery arose a large lateral trunk which in turn branched into anterior and posterior circumflex humeral, subscapular, radial collateral, middle collateral and superior ulnar collateral arteries. In the second case, profunda brachii with posterior circumflex humeral artery took origin from 3rd part of axillary artery. In the third case, superficial radial artery was arising from 3rd part of axillary artery. In the rest two cases, there was common trunk from 3rd part which branched into subscapular artery & posterior circumflex humeral. Subscapular artery further gave circumflex scapular & continued itself as thoracodorsal artery. The clinical & embryological significance of these anomalies will be further discussed.

**153. Morphological Analysis Of Renal Hilar Extraparenchymal Structures In Adult Human Cadavers  
Rekha Lalwani**

Department of Anatomy, LLRM Medical College, Meerut

Knowledge concerning the variations in renal hilar anatomy has assumed increased importance as renal transplantation, renovascular hypertension, and vascular reconstruction for both congenital and acquired lesions, and reconstructive surgery for abdominal aortic aneurysms have become more commonplace in clinical surgical practice. Numerous reports have appeared in the literature describing variations in renal hilar anatomy. An awareness of the incidence of these variants in the general population is necessary for adequate surgical management in the aforementioned specialties. The present study was conducted in Department of Anatomy, LLRM Medical College, Meerut on 30 cadavers for a period of four years. The topographic analysis of hilar structures disposition was made at a distance of approximately 0.5 cm from the anterior border of the renal hilum, conserving the antero-posterior distribution. Only the renal artery, renal vein and renal pelvis were considered. The data is proposed to remove the lacuna of information of Indian ethnic group. The parameters obtained will be analyzed, correlated with other established indices and will be further discussed.

**154. Estimation of Stature from Cephalo-Facial Anthropometry in 200 Haryanvi Adults**

**Mahesh Kumar, Patnaik VV Gopichand**

Department of Anatomy, MM Institute of Medical Sciences & Research, Mullana, (Ambala) Haryana

Estimation of stature is an important tool in forensic examination especially in unknown, highly decomposed,

fragmentary and mutilated human remains. In such cases, while conducting a medico-legal autopsy, forensic pathologist is often asked to opine about identity of the deceased. Stature being one of the criteria of personal identification. The study is aimed at modeling the stature on the basis of cephalo-facial dimensions. The study was conducted in Department of anatomy, MM institute of medical sciences & research Mullana (Ambala), on 200 Haryanvi adults comprising of 140 males and 60 females. Prior informed written consent was obtained from subjects. Inclusion and exclusion criteria for the study were predefined. The measurements were taken by using standard anthropometric instruments. The purpose of study was to access the head length, head breadth, horizontal circumference of head, facial length, bigonial diameter, stature and to find out the correlation of these parameters with stature. The data so obtained was compiled and analyzed statistically and regression formula was derived to reach best possible estimate of stature. The results & conclusion shall be discussed at the time of presentation.

**155. Incidence of Meningo-orbital Foramen in North Indian Population and its Clinical Relevance**

**Arvind Kumar Pankaj, Navneet Kumar, Anita Rani, Archana Rani, Jyoti Chopra, Rakesh Kumar Verma, AK Srivastava, PK Sharma**

Department of Anatomy, C. S. M. Medical University Lucknow (U.P)

Meningo-orbital foramen creates an additional link between the orbit and the cranial cavity. Whenever this foramen is present it lodges a branch from middle meningeal artery which provides an accessory blood supply to the orbit. There is controversy about the incidence of this foramen in various populations so we planned to conduct a study to observe the incidence of meningo orbital foramen in North Indian population. The frequency of meningo orbital foramen is variable in different studies. The study material was from the anthropology lab of Anatomy department of CSM Medical University Lucknow. The foramen was studied in 68 (136 orbits) adult dry human skulls. The presence of meningo orbital foramen was found in 49 orbits. The foramen was bilateral in 28 orbits and unilateral in 21 orbits (10 on right side and 11 on left side). The single foramen was present in 41 orbits and remaining 8 orbits have multiple foramina. The knowledge of this foramen and structures related with it has a great significance for ophthalmologist and neurosurgeons.

**156. Branching Pattern of Internal Iliac Artery - An Anatomical Variations**

**Hemalatha Bangera, Mamatha.H, A.S.D'souza**

Department of Anatomy, KMC, Manipal

Normally internal iliac artery arises from the common iliac artery opposite to the lumbosacral articular disc and in front of the sacroiliac joint. The artery consists of trunk, anterior & posterior divisions. From anterior division it gives Superior vesicle, Obturator middle rectal, Inferior vesicle, Inferior gluteal, Internal pudendal. In females Inferior vesicle artery

replaced by vaginal artery, and also gives uterine artery. Branches of posterior division are Iliolumbar, Lateral sacral, Superior gluteal arteries. The accidental haemorrhage is common due to erroneous interpretation of variant arteries during surgical procedures, hence the present study has been undertaken with reference to its clinical significance. **Method:** The study included 50 human bisected pelvises irrespective of their side and sex. Formalin fixed specimens were taken from anatomy laboratory and the branching patterns of internal iliac artery were studied. Length of the artery is measured using the inch tape. The level of origin, length and the branching pattern of the internal iliac artery were examined

**157. Arcuate foramen: its incidence and clinical significance**

**Hiroli. W. F, kulkarni. P. R, Jadhav. A. S.**

Department of Anatomy, V M Government Medical College, Solapur, Maharashtra.

**Aim of Study :** In human atlas vertebra, immediately behind the superior articular process, a groove is present which transmits the vertebral artery and first spinal nerve. This groove is sometimes converted into a foramen by bony spiculum, which arches backward from posterior end of the superior articular process. This may be associated with basilar artery stroke and migraine. So, the aim of present study is to explore the presence of this anomaly.

**Material and method :** A total of 140 complete, undamaged, dry human atlas vertebrae of known sex were studied from collection in the department of Anatomy, Dr. Vaishampayan Memorial Medical College, Solapur, Maharashtra. These vertebrae were examined for evidence of exostosis from the posterior margin of superior articular facet. The specimens exhibiting such bony outgrowths were classified as having either partial or a complete left and or right arcuate foramen. Measurements were taken of the maximum dimensions of the arcuate foramen in both ventro dorsal (length) and rostro caudal planes (height).

**Result :** Total six vertebrae showed the presence of bony spiculum from posterior margin of superior articular facet. Out of them, two vertebrae were having complete bilateral foramina and one was having complete unilateral left sided foramen. Incomplete arcuate foramina were found in three vertebrae.

**Conclusion :** The knowledge of arcuate foramen is important as there is causal association between arcuate foramen, tethering of vertebral artery in the foramen and dissection from repetitive trauma with movement of neck.

**158. Variant Branching Pattern Of The Aortic Arch**

**Ajit Kumar, Antony Sylvan D'souza, Mamatha H, Suhani S, Vrinda Hari**

Department Of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Introduction:** The arch of the aorta usually gives three branches they are brachiocephalic trunk, left common

carotid and left subclavian arteries.

**Aim:** The aim of the present study is to determine of the frequency of the aortic arch variations, in order to provide useful data to the anatomists, radiologists, vascular, neck and thoracic surgeons. Additionally, literature has been reviewed in order to compare the results of the present study with the previous and to analyze the clinical implications of the variations found

**Materials and Methods:** The study was carried out in 30 cadavers of both the sexes, aging between 35 to 65 years, in KMC Manipal, Manipal University, Karnataka, over a period of two years. Photographs of the variant anatomy of the aortic arch were taken and documented.

**Results:** The result and the conclusion of the present study will be discussed or presented in the conference.

**159. Internal Architecture of Acetabulum**

**Kishve P S, \*Joshi S D, \* Joshi S S**

Department of Anatomy, Rural Medical College, PIMS, Loni; \*Department of Anatomy, Sri Aurobindo Institute Medical Sciences, Indore

It is generally believed that bony trabeculae in the cancellous tissue are laid down along the principle lines of stress and strain thrown on that bone. The human hip is subjected to several hundred million loading cycles during a lifetime. The hip joint is a multiaxial ball and socket joint where the acetabulum in place of being directed laterally is set at an inclined plane facing downwards, forwards and laterally. Also there is a constant interaction of various muscles on this bony pelvis. The interplay of these variables makes every hip a unique structural and stress environment. The trabecular architecture of upper end of femur, tibia, vertebrae and calcaneus has been studied in great details but there is paucity of literature on the architecture of acetabulum of hip bone. In the present study, attempt has been made to study the internal architecture of acetabulum on 25 pairs of hip bone. The bones were sectioned in three planes; vertical, horizontal and along the proposed lines of weight transmission. Each section was carefully studied for presence of different types of trabeculae, their arrangement and orientation. In the present study two sets of trabeculae were seen extending towards the upper part of acetabulum, one from the cortex of the ilium and the other from the arcuate line of ilium. Other findings and their functional correlation will be discussed and presented.

**160. Morphometric Study of the Menisci of the Knee Joints in Human Fetuses**

**Vineet Kumar Gohiya, Raj Pandey**

Index Medical College Hospital and Research Centre, Indore

**The aim of the study:** To evaluate the morphometric aspects of the menisci of the knee joints of human fetuses, such as: distance between anterior and posterior horns, peripheral and inner border lengths, external circumferential thickness and width.

**Materials and Methods:** This study was done on 54 knee joints from 27 human fetal cadavers of Malwa region of the

Madhya Pradesh, available in the Department of Anatomy, Index Medical College Hospital and Research Centre, Indore. The male and female ratio was approximately 1:1 and the gestational age was ranging from 21 weeks to 37 weeks. All the fetuses were preserved in 10 % formalin solution and had no gross musculoskeletal system anomalies. The thickness and width were evaluated at three different points: anterior 1/3rd, middle 1/3rd and posterior 1/3rd parts and values were compared between medial and lateral menisci, between right and left joints and also between male and female fetuses. A non elastic cotton thread and a digital Vernier caliper of 0.02 mm accuracy were used for the measurement

Results and conclusions: The study shows statistically significant morphological differences between medial and lateral menisci, right and left joint and also between joints of male and female fetuses. The detail morphometric data, analysis and clinical implications of studied parameters will be presented and discussed.

#### 161. Morphometric Analysis of the Hand

David Anand Kumar.P, B.R. Potturi

Department of Anatomy, Mediciti Institute of Medical Sciences, Ghanpur, Hyderabad

Study of the morphometry of the hand is useful in understanding the function of the hand and some characters of genetic nature represented in the dimensions. Hence anthropometric survey of hand was performed on 63 men and 61 women of aged between 21 and 41 years, from Medchal town. Such a study was never conducted in this region. The results indicated that there is a sexual dimorphism in length of the hand, span, width of the palm and fingers. Males constantly had higher values. There was some bilateral variation in some males and females. Digit ratio between 2nd and 4th digit was analyzed and the findings indicated that digit ratio was constantly lower in females as described in the literature. This ratio is supposed to be governed by hormonal factors. Further results will be presented and discussed.

#### 162. The Foramen Meningo-orbital in Indian Dry Skulls

Priya P Roy, Surekha D Jadhav\*, Megha A Doshi<sup>1</sup>, R J Patil, M P Ambali, R R Desai

Krishna Institute of Medical Sciences (DU), Karad Dist- Satara ; \*Padmashri Dr. Vithalrao Vikhe Patil Medical College, Ahmednagar

The foramen meningo-orbital is present in the greater wing of the sphenoid bone close to superior orbital fissure. It links the interior of orbit with the middle cranial fossa which provide route for an anastomosis between the orbital branch of the middle meningeal artery and recurrent meningeal branch of ophthalmic artery. It is not described as a constant feature of the human skull in anatomical textbooks so the incident of this variant has not been addressed. But some recent studies indicate a more frequent incidence of this which shows side and gender variation.

One hundred and fifty dried human skulls (M-100; F-50) of known sex were studied. The incidence of meningo-

orbital foramen in the specimen as whole was 44.33%; the male skull was observed to be 37.5% and in female it was 58%. The average distance between lateral end of superior orbital fissure and meningo-orbital foramen was 6.22 mm. This anatomical variation may be of surgical significance to ophthalmologist and neurosurgeons operating in orbital, pterional and subfrontal areas. Also knowledge of foramen is important for radiologist because it masquerading as an intraocular foreign body. We compared our study with other studies and details will be presented in conference.

#### 163. Sex and Side Determination of the Human Hip Bones by Using Different Parameters

Sarita R Margam; Megha A Doshi\*, Surekha D Jadhav\*\*, S D Desai

Shri B M Patil Medical College, Bijapur, Karnataka; \*Krishna Institute of Medical Sciences (DU), Karad; \*\*Padmashri Dr.Vithalrao Vikhe Patil Medical College, Ahmednagar Maharashtra

Identification of sex from skeletal remains is of medico-legal and anthropological importance for forensic experts, anthropologists and anatomists. Hip bone is the single bone valuable in sex determination. Aim of present study was to determine the sex and side of the human hip bones by using different parameters. In present study, 200 (100 males and 100 females) dried adult human hip bones of known sex were collected. Two parameters- i. maximum width of posterior border notch and ii- distance from the posterior inferior iliac spine (PIIS) to ischial tuberosity (IT) were studied and statistically analyzed.

We observed that in males, distance from the posterior superior iliac spine (PSIS) to the superior border of ischial tuberosity (IT) was the discriminant criteria to sex the hip bones while in females, it was distance between the posterior inferior iliac spine (PIIS) to ischial tuberosity (IT). Statistically significant difference between the mean related to side were seen in both the variables. Details of our study will be presented during the paper presentation.

#### 164. Anatomical Variations in Shape of Suprascapular Notch of Dry Scapulae

M A Doshi, S D Jadhav\*, M P Ambali, R J Patil, Priya P Roy, R R Desai

Krishna Institute of Medical Sciences (DU), Karad Dist- Satara; \*Padmashri Dr. Vithalrao Vikhe Patil Medical College, Ahmednagar

The suprascapular notch is located at the superior margin of the scapula, just medial to the base of the coracoid process. The superior transverse scapular ligament joins the two superior corners of the notch. The suprascapular nerve passes below the ligament, through the suprascapular notch which supplies motor branches to the supraspinatus, infraspinatus, and sensory branches to the rotator cuff muscles, the ligaments of the shoulder and acromioclavicular joint. The suprascapular notch is a potential site of

compression of the suprascapular nerve as it shows wide range of variability in its shape and size. Injury to the nerve may result in significant rotator cuff dysfunction. The aim of present study was to classify the shapes of supra scapular notch by gross examination. Three hundred and eighty two dried scapulae were studied to see the variations of shape of notch. We classified all the notches into six varieties by gross examination only. We observed Type II (U shaped) notches in 136 (35.60%); Type III (J shaped) in 86 (22.51%); type V (C shaped) in 22 (5.75%). This simple method of classification of notch by gross examination study will be helpful to clinician and will be able to define easily and quickly the notch type on plain radiograph and perhaps is able to correlate suprascapular nerve entrapment with a specific type of suprascapular notch.

**165. Internal Architecture of Distal Row of Tarsal Bones: Correlations with Mid-Foot Fractures**

**Atahavale SA, Joshi SD\*, Joshi SS\***

Department of Anatomy,\*PCMS & RC Bhanpur Bhopal; \* Sri Aurobindo Institute of Medical Sciences and Post-Graduate Institute, Indore

**Background:** Every bone achieves its external shape and internal architecture best adapted to its function. There are very few studies on internal architecture of distal row of tarsal bone. The available literature is ambiguous on the orientation of lamellae and does not account for its role in transmission of various forces and formation of fracture lines.

**Method:** To study the internal architecture of talus 25 pairs of dry adult human tarsal bones were sectioned in various planes and dissected grossly. The internal architecture was correlated with the fracture lines in these bones.

**Results and conclusion:** In navicular antero-posteriorly running tubes were seen which were closely packed together, mostly running from the upper part of proximal articular surface for talus to the distal articular surface for cuneiforms. Horizontally arranged plates were observed in cuboid which extended from proximal articular facet upto the distal articular facets for fourth and fifth metatarsal. The medial cuneiform showed sagittally oriented plates from the proximal to the distal articular area. In intermediate and lateral cuneiform the trabeculae were arranged as very slightly curved horizontally stacked plates in the upper part of the bone. The arrangement of these plates was such that they were better defined between lateral and medial articular facets.

**Clinical relevance:** The findings of the present work should help in properly appreciating the architecture of tarsal bones which in turn should lead to a better understanding of the mechanics of foot, transmission of forces and formation of fracture lines.

**166. Study on Direction & Arrangement of Muscle Pattern in Cadaveric Hearts**

**Tinku K. Pandit, Haritha Kumari.N, Aruna Mukherjee**

Topiwala National Medical College, Mumbai. Maharashtra

**Aim:** To study the orientation & arrangement of muscle

pattern in cadaveric hearts.

**Objectives:** Knowledge of the muscle pattern in the heart is important to understand cardiac contraction & propagation of the electrical stimulus. Since, the knowledge about arrangement of cardiac muscle is very less in the available literature; our main objective is to study the orientation of cardiac muscle clearly by gross dissection.

**Material & Methods:** A total 25 hearts were collected from embalmed cadavers during routine dissection hours. The hearts were properly cleared by blunt dissection removing the fats on the wall of each heart. With the help of hand lens the pattern of arrangement of cardiac muscle is observed in each chamber on both surfaces. The direction of fibers of each heart are noted & analyzed.

**Observation & Results:** The details of observation will be discussed during the time of presentation.

**167. Morphometrical Analysis of Aortic Valve & Coronary Ostia in Cadaveric Hearts.**

**Rajeev Mukhia, Haritha Kumari. N., Aruna Mukherjee, Kishwor Bhandari**

Topiwala National Medical College, Mumbai. Maharashtra

**Aim:** Morphometrical analysis of aortic valve & coronary Ostia in cadaveric hearts was carried out.

**Objective:** The aortic valve of heart shows 3 cusps with the annulus. There have been variable report of annular circumference & depth of the cusps of aortic valve in the literature. Above each cusp the ascending aorta presents a dilatation known as the aortic sinus of Valsalva. Anterior aortic sinus provides origin to the right coronary artery, & the left posterior aortic sinus gives origin to the left coronary artery. Though many reports suggest the morphometrical analysis of aortic valve for performing valve replacement surgeries, it is found that they vary considerably from individual to individual. Hence, our main objective is to find out the normal morphometrical measurement of aortic valves as well as number of Ostia present in each cusp in Maharashtra region.

**Materials & Methods:** Total 25 Hearts were included in present study. These hearts are taken from human cadavers available in the Anatomy Department, MGM Medical College, Kamothe, Navi Mumbai. The aortic valve description, measurement & analysis of Ostia are based upon observation made during dissection of cadaveric hearts. The aortic valve with 3 cusps & annulus was flattened out in a single plane & its ring is divided from one point. The open out valves were then pinned to white thermacol sheet. Measurements were made with ordinary metric ruler. **Observation & Result:** The total observation as well as result will be discussed in details during the time of presentation.

**168. A Study of Anatomical Basis of Coraco-acromial Arch Impingement**

**Sunita S Wasavade, M. G. Savagoankar**

Department Of Anatomy, BharatiVidyapeeth University Medical College, Sangli

Many clinical conditions like Chronic tendinitis, rotator cuff tears and frozen shoulders are closely associated with



variations of anatomy of Coraco-acromial arch (C-A arch). Hence this region is of immense importance to orthopedic surgeons, as no satisfactory reason is attributed to these lesions.

**Aims:** 1. To study variations in morphology of C-A arch on dry scapulae; 2. To study anatomical role of C-A arch as mechanical causative factor in Coraco-acromial impingement syndrome leading to rotator cuff tear; 3. To compare the results with other workers.

**Materials:** 100 dry scapulae, sliding Vernier caliper, Photographs of lateral view of scapulae, semi rigid model wax to simulate C-A arch.

**Methods:** Length, thickness, width of acromial process C-A arch distance, Height of coracoids were measured. Presence of degenerative changes like spurs, pseudo-articular facet were noted. Slope of acromian, Y1 angle, Y2 angle, were measured on photograph.

**Results & conclusion:** The length & slope of acromian showed correlation with degenerative changes. It indicates that acromian acts as a mechanical factor causing coracoacromial impingement. The significant observation was 50% of cobra type acromian showed degenerative changes. Hence it is concluded that acromian acts as a mechanical factor to cause rotator cuff tear. Clinical importance will be discussed during presentation.

#### **169. The Peroneus Quartus Muscle: Clinical Correlation with Evolutionary Importance**

**Gupta V, Athavale Sa, Kotgirwar S, Singh V \***  
Department Of Anatomy, PCMS & R C Bhanpur, Bhopal ; \*  
Government Medical College , Jammu

Peroneus quartus is an accessory muscle of the peroneal / lateral compartment of the leg. The muscle has often been implicated as a cause of pain in the lateral ankle region, subluxation or attrition of the peroneal tendons. The present study is aimed at observing the prevalence and morphology of this muscle in human cadavers. Ninety two embalmed lower limbs were dissected for this study. Peroneus quartus muscle was found in 21% of the limbs. In all the limbs it originated from lower part of the lateral surface of fibula, undersurface of peroneus brevis and the posterior intermuscular septum. In majority of limbs the insertion was on the retrotrochlear eminence of the calcaneus. Taking into account the possibility of this muscle being a cause of lateral ankle pathology, the present study attempts to correlate the findings with the anatomy of the surrounding region. The frequent occurrence of this muscle in humans is suggestive of a progressive evolutionary change to evert the foot in order to assume a bipedal gait.

#### **170. Morphometric Analysis of Anatomical Relationships of the Stylomastoid Foramen**

**Salma M, Biswabina Ray, Antony Sylvan D'souza**  
Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Background & aim of the study:** The facial nerve exits the skull base through the stylomastoid foramen and then passes through the parotid gland and divides into the

temporofacial and cervicofacial divisions. Identification of the key anatomic landmarks around the stylomastoid foramen is of paramount importance for safe and effective surgical intervention in this region. Many landmarks have been suggested by previous investigators; however, there is much debate about the safety and reliability of each of these landmarks. Aim of the study was to provide quantitative data about reliable bony landmarks which facilitate identification of facial nerve at its exit point and prevent damage to it.

**Materials & methods:** The study was conducted on 30 dry skulls in the Department of Anatomy, Kasturba Medical College, Manipal. First, the four anatomical landmarks were identified and marked. Distances from all the four points to the stylomastoid foramen were measured. Statistical analysis and digital photographic documentation was done.

**Results:** Although proportion of noted distances between specific bony landmarks showed a constant relationship notable variation in the distances were detected.

**Conclusion:** Identification of the main trunk of the facial nerve is a crucial step to avoid injury during surgery involving middle ear, mastoid, styloid process, parotid region, angle of mandible. The anatomical landmarks put forward in our study make facial surgery speedy and safe.

#### **171. Effect of Hand Preference on Second to Fourth Digit (2d:4d) Ratio and its Role in Sexual Dimorphism: A Study in 300 Haryanvi Brahmins and 300 Kashmiri Pandits**

**Shveta Swami, Tarsem Kumar, VVG Patnaik**  
Department of Anatomy, M. M. Institute Of Medical Sciences And Research; Maharishi Markandeshwar University, Mullana, Ambala

**Introduction:** The 2nd to 4th digit ratio (2D:4D) is a sexually dimorphic biometric marker, related to prenatal estrogen and testosterone levels in utero and determined genetically by HOX genes. The prenatal effects of testosterone on development of brain hemispheres are considered as a key factor in etiology of left handedness. Besides sexual dimorphism, 2D:4D ratio shows significant ethnic and population differences.

**Aim:** The aim of the study is to provide authentic database on right and left 2D:4D ratios in two different ethnic groups of a particular age and sex and study its correlation with handedness and sexual dimorphism.

**Material and methods:** The study was conducted on 300 Haryanvi Brahmins (150 of either sex) and 300 Kashmiri Pandits (150 of either sex) of age group of 18 years and above. The values for 2D:4D ratio was calculated for both the hands. Hand preference was established according to Edinburgh Inventory and five hand preference determination groups were constituted after calculation of laterality score. The results were tabulated and subjected to statistical analysis.

**Results and Conclusion:** Mean values for 2D:4D ratio in both the ethnic groups was found to be more in females as compared to males. When the values of 2D:4D ratio were assessed by sex, the values were found to be statistically significant ( $p < 0.001$ ). When relationship between laterality score (indicator of hand preference) and 2D:4D were examined, the values were found to be significant only in

Haryanvi Brahmins (males) on the right side.

**172. The Peroneus Quartus Muscle: Clinical Correlation with Evolutionary Importance**

**Gupta V**, Athavale Sa, Kotgirwar S, Singh V \*  
Department Of Anatomy, PCMS & R C Bhanpur, Bhopal ; \*  
Government Medical College , Jammu

Peroneus quartus is an accessory muscle of the peroneal / lateral compartment of the leg. The muscle has often been implicated as a cause of pain in the lateral ankle region, subluxation or attrition of the peroneal tendons. The present study is aimed at observing the prevalence and morphology of this muscle in human cadavers. Ninety two embalmed lower limbs were dissected for this study. Peroneus quartus muscle was found in 21% of the limbs. In all the limbs it originated from lower part of the lateral surface of fibula, undersurface of peroneus brevis and the posterior intermuscular septum. In majority of limbs the insertion was on the retrotrochlear eminence of the calcaneus. Taking into account the possibility of this muscle being a cause of lateral ankle pathology, the present study attempts to correlate the findings with the anatomy of the surrounding region. The frequent occurrence of this muscle in humans is suggestive of a progressive evolutionary change to evert the foot in order to assume a bipedal gait.

**173. Morphometric Analysis of Anatomical Relationships of the Stylomastoid Foramen**

**Salma M**, Biswabina Ray, Antony Sylvan D'souza  
Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Background & aim of the study:** The facial nerve exits the skull base through the stylomastoid foramen and then passes through the parotid gland and divides into the temporofacial and cervicofacial divisions. Identification of the key anatomic landmarks around the stylomastoid foramen is of paramount importance for safe and effective surgical intervention in this region. Many landmarks have been suggested by previous investigators; however, there is much debate about the safety and reliability of each of these landmarks. Aim of the study was to provide quantitative data about reliable bony landmarks which facilitate identification of facial nerve at its exit point and prevent damage to it.

**Materials & methods:** The study was conducted on 30 dry skulls in the Department of Anatomy, Kasturba Medical College, Manipal. First, the four anatomical landmarks were identified and marked. Distances from all the four points to the stylomastoid foramen were measured. Statistical analysis and digital photographic documentation was done.

**Results:** Although proportion of noted distances between specific bony landmarks showed a constant relationship notable variation in the distances were detected.

**Conclusion:** Identification of the main trunk of the facial nerve is a crucial step to avoid injury during surgery involving middle ear, mastoid, styloid process, parotid region, angle of mandible. The anatomical landmarks put forward in our study make facial surgery speedy and safe.

**174. Effect of Hand Preference on Second to Fourth Digit (2d:4d) Ratio and its Role in Sexual Dimorphism: A Study in 300 Haryanvi Brahmins and 300 Kashmiri Pandits**

**Shveta Swami, Tarsem Kumar, VVG Patnaik**  
Department of Anatomy, M. M. Institute Of Medical Sciences And Research; Maharishi Markandeshwar University, Mullana, Ambala

**Introduction:** The 2nd to 4th digit ratio (2D:4D) is a sexually dimorphic biometric marker, related to prenatal estrogen and testosterone levels in utero and determined genetically by HOX genes. The prenatal effects of testosterone on development of brain hemispheres are considered as a key factor in etiology of left handedness. Besides sexual dimorphism, 2D:4D ratio shows significant ethnic and population differences.

**Aim:** The aim of the study is to provide authentic database on right and left 2D:4D ratios in two different ethnic groups of a particular age and sex and study its correlation with handedness and sexual dimorphism.

**Material and methods:** The study was conducted on 300 Haryanvi Brahmins (150 of either sex) and 300 Kashmiri Pandits (150 of either sex) of age group of 18 years and above. The values for 2D:4D ratio was calculated for both the hands. Hand preference was established according to Edinburgh Inventory and five hand preference determination groups were constituted after calculation of laterality score. The results were tabulated and subjected to statistical analysis.

**Results and Conclusion:** Mean values for 2D:4D ratio in both the ethnic groups was found to be more in females as compared to males. When the values of 2D:4D ratio were assessed by sex, the values were found to be statistically significant ( $p < 0.001$ ). When relationship between laterality score (indicator of hand preference) and 2D:4D were examined, the values were found to be significant only in Haryanvi Brahmins (males) on the right side.

**175. Variations in the Branching Pattern of Renal Artery and its Clinical Implications**

**Trivedi S, Dixit A\***, Kotgirwar S, Athavale Sa, Gupta V, Deopujari R.

Department of Anatomy, PCMS & RC Bhanpur Bhopal, \*Gandhi Medical College, Bhopal

**Introduction:** Renal artery arises from the aorta and divides into an anterior and posterior divisions. The anterior division further divides into 4 segmental arteries: apical, superior anterior, middle anterior and lower. The posterior division continues as posterior segmental artery. These segmental arteries serve as end arteries and supply a specified segment of the kidney.

**Material and methods:** In the present study, variations in the branching pattern of the renal artery and vascular segmentation of the kidney was studied by dissection, corrosion cast and radiographic methods in 72 kidneys obtained from post-mortem cases of Forensic department. **Results:** Five vascular segments were observed in all the kidneys studied. The anterior division of the renal artery showed considerable variations in giving segmental

branches on the basis of which it was classified into 6 types; most common being anterior division dividing into an upper and a lower branch. The upper branch further divided into an apical and an upper segmental artery and the lower branch divided into middle and a lower segmental artery (29.19%). Conclusion: Knowledge of branching pattern of the renal artery is very important for the proper interpretation of radiographic interpretation of renal vasculature and planning surgical procedures in cases of renal trauma, renal transplantation, and partial nephrectomy.

#### **176. A Quantitative Analysis of Atlas Vertebrae and Its Abnormalities**

**PRadhakrishnan**, Chandni Gupta, Antony Sylvan D'souza  
Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Objective:** The anatomy of the atlas vertebra reveals complex, three-dimensional structures, showing wide variability in morphology. Features of the atlas vertebra must be well-known before any spinal surgeries such as transpedicular screw fixation, transarticular screw fixation, interspinous wiring, and interlaminar clamp. So, this study was undertaken to assess the various dimensions of the first cervical vertebra and evaluate their relationship with the vertebral artery foramen, and also to determine the safe sites for different surgical approaches.

**Materials and methods:** In this study, thirty five dried specimens of atlas vertebrae were examined. Various dimensions of the vertebrae were measured, using vernier calliper and any abnormalities present in it were noted down and photographed. Statistical analysis of the measurements was done.

**Results:** Results are recorded, tabulated and will be presented.

**Conclusion:** The knowledge of these measurements and the variations present may be of importance to orthopaedic surgeons, neurosurgeons, radiologists and anthropologists. This information may also be helpful in avoiding and minimizing complications such as vertebral artery injury, spinal cord injury during spine surgeries.

#### **177. Unilateral Agenesis of Left Lung - A Rare Presentation**

**Gourav D. Thakre**, Vaishali V. Inamdar  
Department Of Anatomy, Shankarrao Chavan Government Medical College, Nanded

During routine evaluation of 45 yrs old female patient presented to chest OPD with complains of fever, cough and expectoration was evaluated with X-ray chest showing left sided homogenous opacity. Further evaluation with CT scan shows collapse of entire left lung with mediastinal shift to left. On further investigation, bronchoscopy reveals very short left bronchus ending in a blind pouch with absent lung. On other side anatomy of right lung and right bronchus is abnormal. Such unilateral agenesis of left lung is rare. Incidence rate is 0.0034 to 0.0097 % Clinical and embryological details will be discussed at the time of conference.

#### **178. Morphological Study of Caudate Lobe of Liver**

**Chavan N**, Wabale RN

Department of Anatomy, Rural Medical College, PIMS, Loni

Caudate lobe (Spigelian lobe) or Couinaud's segment I, is a single anatomic segment of liver, which has independent vascularization, defined by presence of portal venous and hepatic arterial branches. Taking into consideration clinical importance of this lobe in metastasis, cirrhosis, hepatic resections, a morphological study was carried out on caudate lobe. The study was done in 30 liver specimens obtained during routine dissection. The different parameters studied were shape, size, presence of papillary process, surface area, weight, presence of notch at caudal end of lobe, transverse width and biliary and portal drainage. The shape of caudate lobe varied from rectangular in 19/30 (63.3%), pear shaped in 6/30(20%), triangular in 2/30(6.7%), to square, inverted flask shape, oval in 1/30(3.3%) Length ranged from 4-9.3 cm (mean 6.06cm) and width from 2.5-4.2 cm(mean 3.4cm).Papillary process was almost absent in all cases. External notch at caudal end was present in 14/30 (46.7%) cases. area of caudate lobe varied in the range of 35-100 sq.cm, right lobe varied in the range of 347-627 sq. cm and ratio of two ranged in between 0.08 to 0.23. Weight of the caudate lobe varied in the range of 11-45 gm, of liver in 545 - 1165gm and the ratio of both ranged in between 0.02 to 0.05. width of caudate lobe ranged from 2.5-4.2 cm, of right lobe ranged from 6.7 - 9.7 cm and the ratio is 0.32 to 0.52 Biliary drainage to the left hepatic duct only is in 19/30 (63.3%), to only right hepatic duct in 3/30 ( 10%) and to both in 1/30 (3.3%), from junction of left and right hepatic duct in 7/30 (23.3%). The of branches varied from one to three. Portal venous supply only from left portal vein is in 12/30 (40 %), none from only right portal vein, from both is in 17/30(56.7%) and from main portal trunk in 1/30(3.3%). The number of branches varied from one to four. The findings were compared with those of previous workers and will be discussed in detail at the time of presentation.

#### **179. Accessory Leaflets in Right Atrioventricular Valve of Hearts in Adult Human Population of Haryana**

**Aarti\***, Sudha Chhabra\*, Basant Lal Sirohiwal\*\*

\*Department of Anatomy, \*\* Department of Forensic medicine, Pt B.D.S. Post-Graduate Institute of Medical Sciences, Rohtak

The morphology of tricuspid valve was studied by dissection method during postmortem examination in 52 adult human hearts. Gross examination of the human tricuspid valve showed that it possessed a triangular orifice bounded by the free margins of three leaflets: anterior, posterior and septal. The clefts and commissures were grossly identified by the attachment of the fan-shaped ramification of the cleft and commissural chordae tendineae. Three commissures were observed to intervene between the three leaflets of the human tricuspid valve. Two hearts of adult females showed accessory leaflets. One heart of a 19 yr old female, who died from a non-cardiac cause of death showed 5 leaflets of right atrioventricular valve. Along with the supernumerary cusps,

there were 3 large papillary muscles, two anterior and one posterior with 3 heads. There were chordae tendinae which were seen to arise from ventricular wall also. No septal papillary muscle was present. Another heart of a 22 year old female, who also died of non-cardiac cause of death, possessed 6 leaflets in right atrio-ventricular orifice. There were 2 papillary muscles present, one papillary muscle with 3 heads and one septal papillary muscle. Most of chordae tendinae arose directly from the wall of ventricle. Acquaintance with the variations of this valve of heart is extremely important for radiologists while interpretation of ECHO and MRI; for physicians as it may remain asymptomatic throughout life; and may be associated with severe cardiac malformations, as well as for surgeons performing reconstructive procedures.

**180. Fusion Variations in Sacrum: Frequency, Type and Relevance.**

**V.K.Garsa,** Sudha Chhabra, S.K.Srivastava, S.K.Rathee, V.S.Malik.

Assistant Professor, Department of Anatomy, Pt. B. D. Sharma University of Health Sciences, Rohtak (Haryana)

This study was performed on hundred dry sacra on anatomical collection in department of anatomy, Pt. B. D. Sharma, PGIMS, Rohtak. The study was performed with an objective to characterize anatomical variations in number of pieces constituting sacrum and other relevant features. Out of hundred a total of 30 sacra were found to be formed either by six pieces or less than five pieces which are atypical. Out of these atypical sacra 26 (76.9%) sacra had six pieces. These had either unilateral or bilateral six pelvic sacral foramina as well as dorsal sacral foramina. Bilateral pelvic sacral foramina were 13 (50%). Two unilateral right pelvic sacral foramina were seen in 3 sacra whereas unilateral left pelvic sacral foramina were seen in 2 sacra only. Distribution of dorsal sacral foramina was identical to pelvic sacral foramina. In 11% cases six piece sacra were formed due to sacralisation of fifth lumbar vertebra and 15% cases it was formed due to fusion of first piece of coccyx. Two sacra were found to be formed of just three pieces of bone and two sacra were found to be formed of just three pieces. These sacra showed significant difference in character of their sacral hiatus from normal.

**181. Morphological study of Human Placenta**

**SD Lele,** A S Sabnis

Department of Anatomy, K J Somaiya Medical College, SION Trombay Highway, SION, Mumbai

Introduction: Placenta is an important component which connects mother to foetus. It functions as respiratory, excretory and nutritive organ between mother and fetus. A project was undertaken on morphology of human placenta in K.J.Somaiya Hospital.

Aims: To study morphology of placenta.

Material and methods: Total numbers of 75 human fresh placentae were obtained from labour room in K.J.Somaiya Hospital. The history of patient and baby was obtained from labour ward. They were washed under running tap water and

put in 10% formalin. After 24 hours they were studied under different parameters like diameter, shape, cord attachment and thickness and cotyledons. Results were recorded and documented.

Results: Out of 75 placenta,

1. 50 placenta were circular, 15 were oval, 1 was triangular, 7 were lobed, and 1 was placenta succenturiata, 1 was under miscellaneous group

2. Cord thickness was ranging from 5-22 mm

3. In 10, cord was attached centrally, in 7 it was marginal and in remaining it was between centre and margin.

4. In 4 placentae umbilical cord was of furcate type.

Conclusion: Morphological study of placenta is important and valuable information. It can be analyzed to co-relate with clinical history.

**182. Anatomy of the Retrohepatic Segment of the Inferior Vena Cava and the Ostia Venae Hepaticae With Its Clinical Significance**

**Sanjib Kumar Ghosh,** Shipra Paul

Department of Anatomy, Lady Hardinge Medical College, New Delhi

Aim of the study: The present study was undertaken to provide morphological data regarding Retrohepatic segment of inferior vena cava (RHIVC) and ostia venae hepaticae with an emphasis on the clinical significance of the observations made.

Materials: This was an observational study conducted on 160 apparently healthy, randomly selected, cadaveric adult human livers fixed in 10% formalin.

Methods: The distribution of the hepatic venous openings was studied by dividing the interior of the RHIVC into 16 quadrants. These openings were classified as large, medium, small and very small openings based on their diameter and were also classified as single/double/triple/quadruple according to the number of veins opening into them.

Results: The RHIVC had an average length of 7.3 cm (range 6.2 – 8.4 cm; interquartile range 1.1 cm) and was directed obliquely with respect to the vertical axis of the liver in 92.5% of cases. Total of 1376 ostia venae hepaticae were observed, averaging 8.6 openings per liver. Right hepatic vein had a single opening in 156(97.5%) and Left & Middle hepatic veins had a common opening in 144(90%) cases. A longitudinal area on the anterior wall of the RHIVC (quadrants 7, 11, 15) was relatively avascular with 10.2% of the venous openings, of which 70% were single openings of the Right dorsal vein having a small diameter.

Conclusion: The observations made regarding avascular area of the RHIVC could be clinically relevant in liver hanging maneuver and details on major hepatic veins could be useful in liver transplantation using piggy back technique.

**183. Morphometric Variations of Calcaneus and Their Importance in Surgical Procedures**

**Saravana Kumar, S,** Sathiyanyanamurthy, S, Sundarapndian, S

Department Of Anatomy, SRM Medical College & Research Centre, Kattangulathur

Calcaneus is the largest tarsal bone that supports talus and is frequently involved in fractures. The relation between talus and calcaneus is distorted in some disorders such as pes-equinovarus or pes-plano valgus. A thorough knowledge of the anatomical variations of anterior and middle facets, sustentaculum tali and the sulcus in between them is essential in order to keep the osteotomy extra articularly.

**Aim:** To describe detailed Morphometry of Calcaneum.

**Materials & methods:** 150 dried calcaneum was collected from Department of Anatomy in various medical college in and around Chennai, which were measured for its morphology using vernier caliper and image J software.

**Results:** Morphometric analysis of the calcaneum has been done and statistical data will be discussed on the scientific session.

**Conclusion:** We believe that the results of this study are important for orthopedic surgeons who perform extra articular osteotomy at distal calcaneus or deal with calcaneal fractures.

#### **184. Study of Mitral Valve Complex in Human Cadaveric Hearts**

**Gunnal S A, Wabale R N**

Department of Anatomy, Rural Medical College, Pravara Institute of Medical Sciences, Loni, Maharashtra

**Objectives:** A large population of the humans suffer from valvular incompetence of heart leading to increased morbidity and mortality. The congestive cardiac failure is mostly because of dysfunction of the papillary muscles and chordae more so on left side due greater pressure gradient across left AV valve complex. Multiple operative procedures of papillary muscles like resection, repositioning and realignment are carried out to restore normal physiological function. To restore normal physiology, it is imperative to know normal anatomy of structure and its variants.

**Methods:** This study was carried out on 108 human cadaveric hearts. Heart was opened along the left border through the atrioventricular valve (AV valve) to view the mitral valve complex. Constituents of AV valve complex were dissected, circumference of annulus was measured and numbers of valve leaflets were observed. The number, position and pattern of papillary muscles were seen and structure of chordae tendinae was noted.

**Results:** Mean circumference of mitral valve annulus was 95 mm. Accessory cusps were present in 73.5 % cases. We have found multi-apical and multi-segmental papillary muscles. These were present in groups. Variations and atypical forms of papillary muscles were present in 64.5% cases. Three types of chordae were found; in 80% cases these were tendinous, in 14% membranous and muscular in 6% cases.

**Conclusions:** Present study suggests considerable variations in the number, pattern and position of the papillary muscles and cusps. This knowledge will be useful for cardiothoracic surgeons in surgical repair of the mitral valve especially in patients from this region.

#### **185. A Study on Morphometric Analysis of Tibial Insertion of Anterior Cruciate Ligament**

**Hemant Saini, Biswabina Ray, A.S.D'souza, Keerthana Prasad, Harpreet Gulati**

Department Of Anatomy, Kasturba Medical College, Manipal University, Manipal

**Background & aim of the study:** The anterior cruciate ligament (ACL) is attached to the anterior intercondylar area of the tibia, just anterior and slightly lateral to the medial tibial eminence. The ACL play significant role in knee joint kinematics. This site of attachment is crucial in reconstruction surgeries of ACL. The purpose of the study was to quantify the tibial insertion area of ACL by the morphometric analysis.

**Materials & methods:** The study was done at Kasturba Medical College, Manipal. We took 40 dry adult human tibia and measured the area of ACL attachment using digital image analysis system. Result was statistically analyzed and comparison between sides was also performed.

**Results:** The results revealed that attaching fibres of ACL covered most of the anterior intercondylar area between anterior end of medial and lateral meniscii.

**Conclusion:** Results of this study may act as a valuable guide to orthopaedic surgeons operating on ACL, especially arthroscopic repairs & single bundle bone tunnel drilling because the size of the available area for reconstruction is crucial.

#### **186. Variations of Superficial Palmar Arch - A Study**

**Vidhya. R, Aruna. S**

Department of Anatomy, Chettinad Hospital and Research Institute, Rajiv Gandhi Salai, Kelambakkam

**Introduction:** Hands are the chief organs for physically manipulating the environment, used for both gross and fine motor skills. In order to perform its various functions, it is richly supplied with blood vessels and nerves. The radial and ulnar arteries through the superficial and deep palmar arches are the chief source of blood supply to the hand. Median artery or the anterior interosseous artery may provide additional source of blood supply to the hand. The superficial palmar arch, medially formed by the superficial branch of ulnar artery and laterally completed either by the superficial branch of radial artery, princeps pollicis artery or radialis indicis artery. **Objective:** The frequent anatomic variations encountered in the formation of the superficial palmar arch and the recent use of radial artery as a coronary artery bypass graft in myocardial revascularization prompted in checking its incidence of variation. **Materials and Methods:** The current observations are based on a study conducted on 60 formalin fixed hands in the department of anatomy, Chettinad Hospital and Research Institute. The hands were dissected, variations studied, classified on the basis of Coleman and Anson classification and statistically compared with the work of previous authors. **Results:** Among the 60 hands, normal arch was seen in 52(86.6%) hands. The arch was incomplete in 7(11.6%) hands. A rare variation not cited in the literature is described in the present study.

**187. Study of Nutrient Foramina in Metacarpal Bones**

**Kumari Sandhya**, Namita Lugun, Camellia Chanda, R Prasad  
RIMS, Ranchi, Jharkhand

**Aim of study:** The metacarpal bones are frequently being used along with interossei muscle for construction of split metacarpal musculo-osseous flap, in the reconstruction surgery of hand. For this purpose vascular anatomy of metacarpal bones and interossei muscle needs to be explored thoroughly. Present study of diaphyseal artery, is one step in this direction.

**Material & Methods:** 165 metacarpal bones available in department of anatomy were included in the study. Foramina for the nutrient artery were looked for on the shaft with help of hand lens. Length of metacarpal bone and distance of foramen from base were measured with help of slide calipers and foramina index were calculated using Hughes formula. Statistical analysis of indices was done and data were pooled in a tabular fashion.

**Result & Conclusion:** Location of nutrient foramen was on palmer medial aspect of first and second metacarpal bones while on palmer lateral aspect of third, fourth and fifth metacarpals in majority. But in first metacarpal few cases showed it on dorsal aspect also. Maximum no of foramen were located in middle third of metacarpal bone and their direction was following the rule of being away from growing end. Variability in Foramen index was found to be small in all five metacarpal bones

**188. A Study of Coronary Dominance**

**V.K.Bharambe**, Vasanti Arole  
DR.D.Y.Patil Medical College Pimpri, Pune

**Aim Of study:** To study the Coronary artery Dominance

**Materials and Methods:** A total of 50 hearts irrespective of sex procured from dissection room cadavers from Department of Anatomy were preserved in 10% formalin. The origin of posterior interventricular artery from right or left coronary artery was dissected and photographed.

**Observation:** In 44 hearts posterior interventricular artery was found to be a branch of right coronary artery. In 5 of these hearts posterior interventricular artery was also a branch of left coronary artery. In 39 hearts the posterior interventricular artery was exclusively a branch of right coronary artery. A 78% incidence of right coronary artery dominance was observed which is the highest incidence reported. Left coronary artery dominance was observed in 12% hearts and codominance was seen in 10% hearts. Detailed of discussion will be explained during presentation

**189. Morphometric Evaluation of Acromion Process of Scapula in Indian Population**

**Susmita Saha**, Neelam Vasudeva; Shipra Paul\*, V. K.Gautam  
Department of Anatomy, Maulana Azad Medical College, New Delhi; \*Lady Hardinge Medical College, New Delhi

**Aim of the study:** The acromion process project forwards almost at right angles from the lateral end of the spine of

scapula. It is one of the components of the coracoacromial arch which forms the superior boundary of the subacromial space. Any abnormality that disturbs the relationship of the subacromial structures may lead to impingement syndrome. Surgical procedures such as acromioplasty or acromionectomy are used for the treatment of impingement syndrome, hence detailed anatomy and morphometric dimensions of acromion process are very important factors which should be taken into consideration.

**Materials and Methods:** Two hundred adult dry scapulae from osteology museum of Maulana Azad Medical College, New Delhi, were obtained for evaluation of various measurements of acromion process. The Antero-posterior (A-P) length, Medio-lateral (M-L) length, thickness of acromion process, coraco-acromial (C-A) distance and Acromio-glenoid distance were measured.

**Results:** The mean value of each measurements were: A-P length: 41.007 mm; M-L length: 21.82 mm; Thickness: 6.58 mm; C-A distance: 28.43 mm; and Acromio glenoid length: 26.21mm.

**Conclusions:** It is expected that various dimensions of adult acromion process in Indian population will serve as a reference base and will assist the surgeon in the approach to be used and precision of the operative technique. So the study will provide a vital support for planning and executing acromioplasty in the treatment of impingement syndrome.

**190. Study of Nutrient Foramina in Human Long Bones of Upper Limb in Rajasthan Region.**

**Anju Choudhary**, D.S.Chowdhary, Abhilasha Dadhich, Pushpa Potaliya  
Mahatma Gandhi Medical College, Jaipur, Rajasthan

The aim of this study was to study the number and position of nutrient foramina in human long bones of upper limb in Rajasthan region. The study comprised 300 long bones which included humerus, radius, and ulna. Bones were examined for the presence of nutrient foramina as regards their number and position on the shaft. The results were tabulated in the form of percentage for each feature. Result showed that number of foramina varied in all bones from one to three. This study provides ethnic data and important information about the location and number of nutrient foramina in the long bones of upper limb in the western Rajasthani population. It may used in surgical procedures in orthopedic procedures.

**191. Quadriceps Angle In North Indians - A Demographic Study**

**Sanna Mahmood**, Minu Bedi, Samit Grover  
M.M.Institute of Medical Sciences & Research, Mullana Ambala, Haryana

Quadriceps (Q) angle is an important indicator of biomechanical function of the lower extremity. It varies dynamically, decreasing with knee flexion and increasing with knee extension, owing to the external rotation of tibia during screw-home mechanism through full extension at knee. According to Western literature, normal Q-angle is 13° in males and 18° in females. Increased values in

females have been attributed to wider pelvis, increased femoral anteversion and relative knee valgus. The accurate measurement of Q-angle is required when designing prosthesis for the knee. There is still a paucity of literature regarding normal Q-angles in the Indian population. We conducted a study of 500 normal individuals (250 males and 250 females) in the age group of 18 – 50 years and compared Q-angles on dominant and non-dominant sides. Mean Q-angle in males was  $21.33^\circ \pm 4.983^\circ$  and in females  $25.72^\circ \pm 5.326^\circ$ . In males, there was a statistically significant difference in Q-angles on both the sides ( $p < 0.001$ ), whereas in females this difference was not significant ( $p = 0.071$ ). These values are significantly higher than depicted in the Western literature ( $p < 0.001$ ). This mandates a requirement of change in the design of total knee arthroplasty prostheses for the Indian population. This difference in values may be due to social habits of sitting cross-legged, which is very common in our country. Since the present study was done on 500 people from North India, further multi-centric studies all over the country must be conducted to validate our results for entire Indian population. This would prove to be a boon for patients undergoing knee arthroplasty, as biomechanics of newer prostheses designed according to the Indian data, would mimic the natural biomechanics of knees of Indian population more closely.

### 192. Morphometric Study of Tibial Plateau Area and Its Clinical Applications

Ankit Srivastav, B.V. Murlimanju, Latha V. Prabhu, Prashanth K.U.

Department of Anatomy, Manipal University, Kasturba Medical College, Centre for Basic Sciences, Bejai, Mangalore, Karnataka

Objectives: To study the morphometry of tibial plateau area and to discuss its clinical applications.

Methods: The study was performed by using 77 dry cadaveric tibiae (34 right side and 43 left sides). The length and breadth of medial and lateral tibial plateau area were measured. The data were statistically analyzed and compared between right and left sides, medial and lateral compartments.

Results: The average length and breadth of medial tibial plateau area was 36.3 mms and 22.8 mms respectively. The same parameters for the lateral tibial plateau area were 28.8 mms and 20.6 mms.

Conclusion: The morphometric data of tibial plateau area is important in meniscal transplantation procedure. It was reported that parameters differ from medial and lateral compartments. So this study has reported the morphometry of tibial plateau area and compared them statistically. We believe that the data might be of use to the clinicians who are involved in the diagnosis and management of knee problems.

### 193. Morphological Variation and Dimorphic Patterns of Hyoid Bone in North Indians

Agnihotri G, Mahajan D

Department of Anatomy, Government Medical College, Patiala; Department of Anatomy, Dr H.S. Judge Institute of Dental Sciences, Chandigarh

The human hyoid bone is a part of viscerocranium placed between tongue root and thyroid cartilage. It is a part of both digestive and respiratory tracts. The hyoid bone is of considerable interest owing to its susceptibility to fracture during manual strangulation. A hyoid bone's shape may influence its susceptibility to fracture and these are frequently confused with normal variation in clinical and forensic settings. In spite of the importance, few systemic studies of hyoid bone morphology have been conducted. As such a study was conducted in which measurements were taken on 500 hyoid bones of North Indian subjects with a special emphasis on sexual dimorphism (Male Female ratio 1:1). The results indicate-

(1) Most hyoid dimensions are significantly larger in men, and some more sexually dimorphic ( $p < 0.01$ ) than others ( $p < 0.05$ ). Lengths are more dimorphic than widths.

(2) The study does not support hypothesis that female hyoids have long, thin dorsal segments. The authors postulate that female hyoids fracture more often due to behavioral differences in assailants of men and women.

(3) Length from midpoint of distance between greater cornua to midpoint of posterior aspect of body emerged as most dimorphic parameter (115%). Min. diameter of distal ends of right / left greater cornua was least dimorphic (99.3%).

(4) Our experience indicates that pattern of classifying hyoid bones as hyperbolic or parabolic is subjective and such a bipolar system complicates the morphological profile of hyoid bone.

### 194. An Anatomical Study of Intercondylar Notch of Femur and Its Clinical Implications

Ameet Kumar Jha, B.V. Murlimanju, Latha V. Prabhu, Prashanth K.U.

Department of Anatomy, Manipal University, Kasturba Medical College, Centre for Basic Sciences, Bejai

Objectives: To study the morphology and morphometry of femoral intercondylar notch in cadaver dry bones.

Methods: The study was performed by using 97 dry femora (45 right side and 52 left sides). The parameters like intercondylar notch width, notch depth, condylar width and condylar depth were measured. The shapes of intercondylar notch were also analyzed. The notch width index and notch depth index were calculated by using the measured parameters.

Results: The intercondylar notch was having 'U' shape in 70 specimens (72.2%) and it was 'V' shaped in 27 (27.8%) cases. The average notch width, notch depth, condylar width and condylar depth were 15.2 mm, 26.6 mm, 73.8 mm and 62.5 mms respectively. The notch width index and notch depth index were 0.4 and 0.7 respectively.

Conclusion: It was reported that the morphometric and morphological parameters of intercondylar notch are important to orthopedic surgeons. The present study has provided additional information on the intercondylar notch morphology and morphometry. We believe that the data might be of use to the clinicians who are involved in the diagnosis and management of knee problems.

#### 195. Brachial Plexus in Fetus

Thonthon Daimej, Damayanti N

Regional Institute Of Medical Sciences, Imphal, Manipur

Brachial plexus is the most important plexus supplying the upper limb and adjoining area. Invariably few medical institutes and colleges are facing acute scarcity of cadavers, thereby limiting to only theoretical knowledge. So, we, the present authors have decided to study in fetuses from 13th weeks to term fetuses. This study found out that brachial plexus of all the dissected foetuses were seen to be fully developed like that of adult brachial plexus in all the age groups. The photographs of the dissected brachial plexus of different age group were taken and carefully observed. Brachial plexus of the foetuses showing the roots, trunks, divisions, cords and its terminal branches were taken and photographed. Even post graduate students can also study brachial plexus in foetuses. Thereby, we conclude that foetuses can be an alternative choice for the study of brachial plexus when cadavers for study are limited in the department. The details of the study will be discussed during the presentation.

#### 196. Difference between the Left and Right Ventricular Thickness in Fetal Human Heart

Thonthon Daimej, Prof. Damayanti N

Regional Institute of Medical Sciences, Imphal, Manipur

The difference in the size of two ventricles in adult is well known and the ratio being left ventricle to right ventricle is 3:1, the reason being the difference in the resistance of two circulation i.e. Systemic and pulmonary circulation. But in fetal life the difference in ventricular size remains unknown. Hence, this study is taken up. The fetal heart of different age group was selected from 15 weeks to 35 weeks. The hearts were isolated and sectioned horizontally just below the coronary sulcus. The thickness of the right and left ventricular wall as well as ventricular septum were measured accurately by using calipers and charted out. The difference between the two ventricular wall thicknesses is very minimal and negligible. The right ventricular wall was slightly thicker than the left ventricular wall. The shape of the ventricular cavity also looked different as the right cavity is oval while the left looks rounded. The ventricular septum is also mildly convex towards right side. On the contrary to the finding in adult as 3: 1 ratio in terms of ventricular size thickness the fetal ventricular size remains almost the same. This could be due to either absence of pressure difference between the pulmonary and systemic fetal circulation or immature development of these two important circulation during fetal period the photographs of horizontal sections just below the coronary sulcus is serially presented and the increasing size as age advances is presented in detail. The findings as described above is illustrated.

#### 197. Study of Variations in Termination of Popliteal Artery

Deepali D Deshatty

Department of Anatomy, Vydehi Medical College & Research Centre, Bangalore

Aim of the study: Popliteal artery (PA) continuation of femoral artery terminates at the lower border of popliteus muscle into anterior tibial (ATA) and posterior tibial artery (PTA). A good knowledge of variations and their incidence become essential during infrapopliteal vascular surgeries. The objectives of the present study are to note the level and mode of termination of popliteal artery & their variations.

Materials and Methods: The study sample comprised of 100 embalmed lower extremities (50 right, 50 left). The specimens were studied by dissection method at the Department of Anatomy, KIMS, Bangalore and other medical colleges in & around Bangalore. The parameters were noted meticulously and the data processed.

Results: Following variations in termination of PA were noted- 3% high termination, 1% mid termination & 1% trifurcation. In another 1% of specimens, early origin of peroneal artery was noted. Among the 3% of high termination of PA, in 1% of cases, the ATA coursed distally anterior to PM.

Conclusion: The results of study show that the presence of variations of the popliteal artery and its termination were rare, but their occurrence in the small population which the author studied, adds its significance.

#### 198. Anatomical Variation and Morphometric Analysis of the Tentorial Notch

Pushpa Potaliya, D.S. Chowdhary, Sushma Kataria, Abhilasha Dadhich, Anju Choudhary  
DR.S.N. Medical College, Jodhpur, Rajasthan

Aim: Variations in the structure of the tentorial notch may influence the degree of brainstem distortion as herniation etc. So, the study was done to observe anatomical variation and morphometric analysis of tentorial notch.

Material and Method: The study was done on 50 human cadavers preserved at Dr. S. N. Medical College, Jodhpur. With each case, shape and structures passing through it were noted. A-P distance, max. transverse distance, elevation of post. end from the horizontal plain of notch, depth (post. free spaces), post. interclinoid distance etc. have been measured.

Results and Conclusion: The third cranial nerve was constant structure that passed through notch in all the studied cases, while pons (56.2%), midbrain (43.8%) were others to pass through it. The details will be discussed during session.

#### 199. Bony ponticles and bridges on the posterior arch of the atlas vertebra: their phylogeny, developmental basis and clinical significance.

Yogesh Yadav, Jasbir Kaur\*, Sneha Agarwal\*\*

Department of Anatomy, Rama Medical College, Hospital & Research Centre, Ghaziabad; \*ESIC Dental College, Rohini, \*\*L.H.M.C. New Delhi

Objective: To observe and report bony ponticles and bridges on the posterior arch of the atlas vertebra: An embryological insight, their phylogeny, and clinical significance are elucidated.

Material and Methods: Sixty-seven dried, atlas vertebrae of Indian origin were examined for the presence of different



types (lateral, posterior and complete) of bridging. Results It was observed in twenty (29.85%) vertebrae. Partial posterior bridging was present in nine (13.43%) and complete posterior in seven (10.44%) of them. The incidence of complete lateral bridging was lower (2.98%). Combined (complete posterior and lateral) bridging, was also present in two (2.98%) of them. The bridging exhibited side dimorphism, the incidence was three times higher on the left side (14.92%) when compared to the right (5.91%). Conclusion: These bridges and ponticles occurred normally in monkeys and other lower animals. In quadrupeds, the superior margin of the posterior bridge provides greater surface area for the attachment of posterior atlanto-occipital membrane thus helping to support the weight of head. In humans this weight is received by the superior articular facets of the atlas vertebra, thus the bridge has disappeared. These anatomical variations, if present may cause disturbances in the normal functioning of the vertebral artery (as it passes along the posterior arch of the atlas vertebra) during extreme rotational movements of head and neck. The patient may present with the symptoms of headache, retro-orbital pain, and vasomotor disturbances of face due to alteration of blood flow in the artery and associated disturbance of the peri-arterial nerve plexus. The clinical significance and surgical correction of such bridging is discussed in the present study.

#### **200. A Quantitative Study of Variations in the Articular Surface of Sigmoid Notch of Dry Adult Radius**

**Kaur K, Tuli A, Paul S, Kaur S, Raheja S, Agarwal S, Kohli M**  
Department of Anatomy, Lady Hardinge Medical College & Associated Hospitals, New Delhi

An anatomic quantitative study of 100 adult human radius of Indian origin was done to define the shape of ulnar notch of radius and its relation with long and short axis.

Anteroposterior and transverse diameter of ulnar notch of radius was measured. The Ulnar notch is a narrow, oblong, articular depression on the medial side of the lower end of radius. It receives the circumferential articular surface of the head of the ulna. It is concave from before backward and its prominent extremities serves attachments of articular disc. The facets are obliquely oriented forming depressions for ulnar head. The total area of articulation were measured in 100 adult radius. The facets were classified according to the shape and the articular area of ulnar notch into four different types. The range of maximum and minimum area was calculated. The measurements are of clinical importance in designing the prostheses of ulnar head. The size of the articular surface can be used as a guide when implanting the prostheses in dysplasias of lower radius.

#### **201. Variation of extra-hepatic arterial anatomy in congenital Hepatobiliary disorders and its clinical importance**

**Eti Sthapak Vijai, D Upadhyaya, U.L. Gajbe**  
Department of Anatomy, JNMC, Sawangi, Wardha, Maharashtra

Background: The common hepatic artery usually arises

from the celiac trunk (85% of cases), but may also arise directly from the aorta or from the left gastric, superior mesenteric (3% of cases), gastroduodenal, right renal or splenic artery. Aberrant hepatic arteries are of two types, replacing and accessory. An aberrant replacing hepatic artery is a substitute for the normal (usual) hepatic artery which is absent. An aberrant (a variable) accessory hepatic appears in addition to one that is normally (usually) present. Some sort of aberrant (variable) hepatic artery, either replacing or accessory, occurs in approximately 40%- 42% of individuals. In present series we are presenting variation of extrahepatic aberrant hepatic artery in patients with congenital hepatobiliary disorder

**Material and Methods:** All cases of congenital hepatobiliary disorder operated in last one year were included in the study. Proper dissection of the common hepatic artery and its branch was done. The extrahepatic course of the hepatic artery proper and its variants was delineated.

**Result:** A total of 19 cases of choledochal cyst and extra-hepatic biliary atresia were operated in last one year and aberrant hepatic artery was seen in 52% (10) cases. Accessory right hepatic artery was observed in 26% cases; left accessory artery was seen in 15% cases and replaced right hepatic artery 10.5% cases. In 26% cases the right hepatic artery was crossing the common hepatic duct anteriorly. Middle hepatic artery was observed in 26% cases.

**Conclusion:** The variation in extrahepatic arterial anatomy is more common in congenital hepatobiliary disorder in comparison of normal anatomical variation. The knowledge is important because in these case the hepatic function is compromised and any small insult to liver due to damage of aberrant vessel may further compromise the liver.

#### **202. Level of Division of Sciatic Nerve - A Cadaveric Study**

**Manirul Islam, N. Damayanti Devi**  
Department of Anatomy, RIMS, Imphal

The sciatic nerve is the largest nerve, with a long course in the inferior extremity. Its division into the tibial and common personal nerves can occur at any level from the sacral plexus to the inferior part of the popliteal space. These anatomical variations may contribute to clinical conditions such as piriformis syndrome, sciatica and coccygodynia. This study was performed on cadavers in order to study the level of sciatic nerve division. The inferior extremities of 15 cadavers were studied. The highest incidence of sciatic nerve division was observed in the lower part of the posterior compartment of the thigh. In few of the specimens, the sciatic nerve was divided into tibial and common peroneal nerves in the popliteal fossa. In some cases of extremities showed sciatic nerve division proximal to its entrance in the gluteal region. In sciatic nerve neuropathies, the extent of neurological deficits depends on the level of sciatic nerve division. Sciatic nerve division into tibial and common personal components at a higher level can result in the involvement of only one out of the two divisions from sciatic neuropathy. It can also result in a failure of the sciatic nerve block while performing popliteal block anaesthesia.

**203. Effect of Gentamicin on Glomeruli of Kidney in Developing Chicks**

**Ritu Singroha, S.K. Srivastava, Pankaj Chhikara\***

Department of Anatomy, Pt. B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana; \*Maharshi Markandeshwar Institute Of Medical Science and Research, Mullana, Ambala, Haryana

Gentamicin is one of the most extensively used aminoglycoside antibiotic. The study was planned to study any teratogenic effect of Gentamicin as a result of single dose injection given therapeutically or accidentally. Sixty fertilized eggs of white leghorn species were incubated for 20 days and divided into treated (n=30) and control (n=30) groups. Eggs of treated and control groups were injected with 0.2mg of Gentamicin sulphate and 'Sterilized water for injection' respectively on the 4th day of incubation. On the 20th day, the chick embryos were extracted and then dissected to remove the kidneys. No effect of Gentamicin was found on either the mortality of chick embryos or the gross appearance of the newborn chicks and kidney as compared to the control group. The mean weight of both right and left kidneys was found less in treated group, though not statistically significant. On light microscopy, various glomerular changes were noticed in both the groups which included glomerular enlargement and hypercellularity, glomerular congestion and mesangial proliferation. Statistical analyses showed that glomerular enlargement, hypercellularity and mesangial proliferation were significantly higher in left kidney of treated group in comparison to control group. It was concluded that Gentamicin has teratogenic effect on glomeruli of kidney even if administered in a single dose during the development of an embryo.

**204. Study of Various Types of Polydactyly of the Extremities**

**Arun Kumar, S. Bilodi, M.R. Gangadhar\***

Department of Anatomy, Mahatma Gandhi Medical College & Research Institute, Piliyarkuppam, Puducherry; \*Department of Anthropology Manasa Gangotri, Mysore University, Mysore

2500 patients were screened for the presence of various types of polydactyly in district of Bangalore. Present study was concentrated for the study of different types of polydactyly of extremities in subjects ranging from new born to adult age group. Associated anomalies were also observed & noted down. Proper maternal history of drug intake, infection in the 1st trimester, family history of systemic diseases were taken any anomalies in previous pregnancies were also noted down. Bad obstetrics histories like repeated abortion, still birth, any history of hydramnios were also observed. There were sixteen subjects showing six varieties of polydactyly between age group of new born to adult age groups. Males were showing higher incidences of polydactyly. Out of 16 subjects studied, there were equal incidences of bilateral & unilateral polydactyly of upper limb (25.0%). There were bilateral extra digits both in upper & lower limbs in a male aged about 51 years. There was also a family history of extra

digits in this elderly subject but details were not known. He was having a total number of 12 fingers & 12 toes. Study showed associated anomalies of spine & foot. Sessile polydactyly of thumb & Pedunculated polydactyly of thumb were also observed. The present study was later carefully compared & correlated with available literatures.

**205. Effect of Quinine on Liver in Developing Chicks**

**Pooja Yadav, S.K. Rathee, Sunita Phogat\***

Department of Anatomy, \* Department of Pathology PGIMS, Rohtak

Quinine is levorotatory alkaloid obtained from cinchona bark. Quinine is a well known antimalarial drug which is widely used since 1633. The resurgence of interest in quinine is due to the fact that most chloroquine and multidrug resistant strains of Plasmodium falciparum are still sensitive to quinine. Since liver plays an important role in the metabolism of quinine, which leads to various disturbances in liver enzymes. The present work was conducted to study gross and microscopic changes in the liver produced by quinine. Sixty successfully fertilized eggs of White leghorn species of hen were taken. Thirty eggs of experimental group were injected on the 4th day of incubation with a single dose of 30-35mg/kg body wt. of quinine dihydrochloride and 30 eggs of control group were injected with equal amount of sterile water. Chicks were taken out on 20th day of incubation and dissected to take out the liver. Any types of gross malformations were not found either in chicks or their liver. The mean weight of liver in test group showed a significant decrease as compared to controls. Microscopically, architecture of liver was distorted in some cases, central veins and sinusoids were dilated and congested significantly in experimental group. Signs of liver damage like hepatocellular infiltration, hepatocellular degeneration/necrosis, kupffer cell hyperplasia and granuloma formation were seen in experimental group. The findings were highly conclusive of toxic hepatitis.

**206. Quantitative Biochemical Studies on the Effects of Neomycin on Central Nervous System - An Experimental Study in Albino Rats**

**Faruqi N.A., Ghaus F., Salahuddin M., Kirmani F.**

Department of Anatomy, J.N. Medical College, Aligarh Muslim University

Aminoglycoside antibiotics are the drug of choice for the treatment of tuberculosis and resistant cases of septicemia. But they are used selectively because of their known toxicities and there is paucity of literature regarding the mechanism of toxicity. The study was planned to know the effects of neomycin on the biochemical parameters in the central nervous system of albino rats. The present study was carried on 12 healthy, adult rats of either sex weighing 180±10gm. Neomycin 100mg/kg body weight was given intramuscularly, every day for 10 days to the experimental animals and equal volume of distilled water to the control animals. The animals were decapitated on 10th day. The cerebrum, cerebellum, brain stem and spinal cord were separated and weighed. Tissue samples were homogenized and digested in concentrated nitric acid (100mg/ml). The

supernatant solution was used for estimation of sodium, potassium, calcium, zinc and copper levels. It was found that all the three cations i.e. sodium, potassium and calcium showed an increment in different regions of CNS and a zone of inhibition was observed after overnight incubation of CNS homogenate. Although there was a uniform response of different regions of CNS for potassium concentration, the sodium showed an increase in the cerebrum, cerebellum and brain-stem while calcium was only increased in spinal cord. It was concluded that neomycin penetrates the central nervous tissue and a central cause of muscular weakness after neomycin intoxication cannot be ruled out.

**207. Teratogenicity of the Anticonvulsant Lamotrigine: A Study on Pregnant Mice**

**Prakash, T Rajini, Varsha Mokhasi, Sivacharan P V, Aga Ammar Murthuza, Athul Antony Simon**  
Department of Anatomy, Vydehi Institute of Medical Sciences & Research Centre, Bangalore

Present work was undertaken to study the anticonvulsant lamotrigine caused teratogenic effects at different dose levels in pregnant mice. A total of 64 pregnant mice, divided into 16 groups of 4 mice each, were exposed to lamotrigine in four different doses of 0 (control), 25, 40, or 50 mg/kg body weight equivalent to 0, 197, 315, or 388 mg respectively of adult human dose in 0.5 ml saline per 20 g body weight was administered at four different gestational stages including early gestation (1-4 days), early middle gestation (5-8 days), late middle gestation (9-12 days) and late gestation (13-16). The fetuses were collected from uterus of pregnant mice on day 17 of gestation and were observed for teratogenic manifestations. Lamotrigine administration in early gestation (1-4 days) resulted in fetal resorptions in all treated groups. Various gross malformations were observed with all the three doses (25, 40, or 50 mg/kg body weight per day) when lamotrigine was administered at early mid gestation (4-8 days). Whereas stunting in size and growth retardation of live fetuses was observed in all the late middle gestation (9-12 days) treated groups. No significant teratogenic effects were observed when lamotrigine was administered during late gestation (13-16 days) in pregnant mice. Similar trends were confirmed by gross and microscopic examinations of brain. Lamotrigine should only be prescribed during pregnancy after complete weighing of all the chances of risks and benefits, as no therapeutic dose of lamotrigine is safe during aforementioned periods as far as fetal well-being is considered.

**208. A Study of Craniofacial Congenital Anomalies in Malwa Region (M.P)**

**Seema Garg, S. Shrivastava, S.K. Wankhede**  
Department of Anatomy, MGM Medical College, Indore

Development of foetus is a complex chain of events, millions of factors affect it. The rapid decline in the infant mortality & morbidity in the developed countries has focused the attention of pediatricians on the problems of congenital malformations. It is impossible to know all the factors at this juncture. But so far we have come to know some factors responsible for these congenital malformations. A

study was done to detect various craniofacial congenital anomalies in Malwa region (M.P) with the aim to know various etiological factors and to emphasize importance of early treatment to prevent disfigurement and functional defects. 120 patients with craniofacial congenital anomalies attending government and private hospitals of the Indore city during the period of 1/06/2009 to 31/12/2010 were taken for the study. These patients were examined for different craniofacial congenital anomalies. A detailed History and examination was carried out to evaluate relationship of sex, religion, socioeconomic status, environmental factors, maternal age, parity, occupation of parents with various craniofacial anomalies. We detected various craniofacial congenital anomalies ranging from cleft lip and palate, ear deformities, macrostoma, nose deformities, ptosis, facial nerve paralysis and vascular malformations. Most common anomaly was cleft lip and palate followed by haemangioma, hairy naevus, ear deformities and ptosis. These anomalies were significantly high in children belonging to low socioeconomic group. Exposure of pregnant mothers to agricultural chemicals and smoking were other significant factors. This study also shows that incidence of cleft lip and palate was relatively high in children who were born to mothers having age less than 20 years.

**209. External Malformations Induced by Doxorubicin on Developing Mice Embryo.**

**Yogendra Singh, G.L. Shah**  
Department of Anatomy, Institute of Medical Sciences, Banaras Hindu University, Varanasi, U.P.

The aim of study is to observe the teratogenic effects of doxorubicin on developing mice embryo.

The Doxorubicin is an anthracycline, antineoplastic drug which has been widely used in the treatment of many malignancies including haematological, soft tissues sarcomas, breast carcinomas and neuroblastoma etc. The drug was injected intraperitoneally in a dose of 3mg/kg body wt of treated pregnant albino mice on 8th day of gestation. The control pregnant mice were injected with normal saline of same dose and route as the treated mice. The foetuses were collected on 19th day of gestation by caesarean section. Uterine horns were inspected and observed 10.5% resorption/dead foetuses in treated group. After drying on blotting paper, weight and CR length of all the foetuses were recorded. The weight and CR length of control foetuses were compared to treated foetuses and it was observed that there is marked reduction in weight and CR length of treated foetuses. On naked eye examination of treated foetuses a large no. (106) 49.5% external malformations were observed out of 214 treated foetuses. These were haemorrhages (44.24%), limb deformities (25.47%), placental anomalies (11.32%), tail deformities (6.6%), exophthalmos (8.49%), and neck bending (3.77%) in treated foetuses, while there was no external malformation in control foetuses.

**210. Teratogenicity Of Leflunomide On Developing Mice**

**Krishna Pandey, C Mohanty, S. N Shamal**  
Institute of Medical Sciences, Banaras Hindu University Varanasi

Leflunomide is a new disease modifying antirheumatic drug, it has recently been approved for the treatment of Rheumatoid arthritis. In order to evaluate the teratogenic effect of leflunomide pregnant female mice were placed in the treated and control groups. Treated groups were divided into continuous and single dose treated group and exposed to both low(15 mg/kg) and high(50 mg/kg) doses of leflunomide in continuous and single dose treated group respectively. Drug was given during 6-11 Gestation day. The control group animals received equal volume of normal saline. Pregnant females were sacrificed on 19th Gestation day. We observed various gross anomalies in single dose treated group and total fetal resorption in continuous dose treated group. These findings indicate that, leflunomide has high teratogenic potential and should not be given during pregnancy.

### 211. Whole Body Donation - Attitude and Perception in North Maharashtra

**Bhusari Prashant Amanrao**, Kathe Dinesh P  
Department of Anatomy, MVP'S Dr. Vasant Rao Pawar M.C., Nashik

Body donation is defined as act of giving one's body after death for Medical research and education. Learning of anatomy without dissection on human body is never considered perfect. There is Bombay Anatomy Act under which dead bodies are provided to medical and teaching institutes. We have started whole Body donation awareness programme by various ways. Aim of our study is to analyze the collected data of male & female donated bodies, to compare the awareness among rural & urban population, to study the body donation of most common age group and to study the effect of body donation awareness programme in North Maharashtra. Details of this study will be discussed later in conference.

### 212. Attitude of Healthcare Professionals, Toward Organ And Cadaver Donation

**Bhaskar Reddy**, D.C.Naik, P.G.Khanwalkar, Meghana Mishra  
Shyam Shah Medical College & Sanjay Gandhi Hospital, Rewa (M.P)

Every day, there are countless numbers of people waiting for an organ transplant around the world. Some wait for a cornea so that they can see again. Some others, a kidney, so that they are no longer dependent on the dialysis machine. Yet others hope for organ transplant. In reality, many of these people die before it gets to their turn for an organ transplant. At the same time, there is an insufficient number of cadavers in anatomy education in India. This is because of decreased number of unclaimed bodies and very few cadaver donations possibly due to taboos and superstitions in the society related to organ and cadaver donation. Increasing the number of cadaver donation is one of the probable solutions. Being in healthcare profession, health care workers witness these problems quite often. What is the attitude of health care workers, if it is their turn to

donate organ or body? Keeping the above issues in mind, this research is aimed to identify the attitude of healthcare professionals, toward organ and cadaver donation. Present study is conducted on healthcare professionals in Shyam Shah Medical College & Sanjay Gandhi Hospital, Rewa. A list of Questionnaire is made and opinions were taken. The results will be discussed in conference session.

### 213. Embalmed Cadavers - Are They Infective?

**Swayamjothi Seberleing**, Sai Suheethra, D, Sree Lekha D.Karthika Jayakumarshri  
Sathya Sai Medical College & Research Institute, Nellikuppam, Kanchipuram

Aim: To study whether the embalmed cadavers are infective

Materials & Methods: The body fluids from the twenty three embalmed cadavers of 6 months duration were used for the study. About 1c.c fluid was collected from abdominal cavity, thoracic cavity and through the orbit from cranial cavity. These fluids were tested for staphylococci and HIV, Hepatitis B viruses.

Observations: Staphylococcus was grown on culture in 1 cadaver

Hepatitis B : -ve

HIV: Not informative (as control & tests were not reacting) in six specimens. In thirteen specimens responded to control but test was negative. In two cadavers we got a false positive. In two we got positive results.

Discussion:- A Wound infection by Staphylococcus is possible hence care to be taken.

Hepatitis B : Negative and hence no danger

HIV: Not responding to the control in six cadavers and hence difficult to interpret the data and in the other thirteen cadavers it responded to the control and was negative for the test and hence not infective. In two cadavers we got a false positive. In two we got positive results. These tests have to be repeated to rule out infective nature

### 214. A Comparative Study Of The Lumbar Disc Degeneration In Subjects Of Different Occupational Groups - A Radiological Study

**Mrinalini S.Gaikwad**, Haritha Kumari, Nbhagirath, B.K.Mathur, Aruna Mukerjee  
Topiwala National Medical College, Mumbai. Maharashtra.

Aim: The present aim of our study is to compare the lumbar disc degeneration in subjects of different occupations by using MRI of lower lumbar region.

Objective: Lumbar disc degeneration is commonly seen in the elderly. Literature on degeneration of the disc in different occupational groups is lacking and so our objective was to study the lumbar disc degeneration and compare according to occupation such as sedentary workers, laborers carrying heavy weights and farmers working with maximum flexibility of the spine with the normal subjects.

Materials and Methods: MRI of 60 elderly subjects with the age group 35-65 were taken according to above mentioned occupational groups along with normal group. The lumbar disc degeneration was graded according to severity as

below,

0-Normal: Normal disc

1-Mild: Dehydration of disc

2-Moderate: Partial dessication of disc

3-Severe: Complete dessication.

Observations and Results: Further results will be discussed at the time of presentation.

### **215. Ossification Center of Distal Femoral, Proximal Tibia and Proximal Humerus as A Tool For Evolution of Gestational age of the Fetus - An Ultrasonographic Study**

**Reenu Kumari, Haritha Kumari. N, Rajni, B.K.Mathur, Aruna Mukerjee**

Topiwala National Medical College, Mumbai. Maharashtra

**Aim:** This study was conducted to see if the identification of distal femoral, proximal tibial and proximal humeral ossification centers on ultrasonography could be a useful tool for estimating the gestational age of the fetus.

**Objective:** The main ossification centers appear ultrasonographically as egg-shaped echo rich areas. The ossification centre of the distal femoral epiphysis, proximal tibial epiphysis and proximal humeral epiphysis can be seen at the knee level and shoulder level respectively. Though there was more work done on several other parameters relating to the gestational age, the literature on the use of ossification centers as a parameter to identify the gestational age of the fetus is lacking. Hence, our main objective is to use these ossification centers as a tool for evaluation of gestational age.

**Materials and methods:** The study was done in 50 normal pregnant women with different gestational ages carrying singleton pregnancies, who had come for routine ultrasonographic checkup in MGM Medical College Hospital, Navi Mumbai. During their normal ultrasonographical checkup, the ossification centers of distal femur, proximal tibia and proximal humerus were identified and their diameters were measured at different gestational ages. All this observations were noted and statistically analyzed.

**Result:** Gestational age correlated well with the diameter of distal femoral and proximal tibial ossification centers. Further details of this study will be discussed during the time of presentation

### **216. Anatomical Landmarks for Identification of the Foramen Ovale during Radio-frequency Ablation**

**Tulika Gupta, Sunil Kumar Gupta\***

Department of Anatomy, Institute of Dental Sciences & Hospital, Panjab University, Chandigarh; \*Department of Neurosurgery, Post Graduate Institute of Medical Education & Research, Chandigarh

**Aim:** Radiofrequency lesioning is one of the frequently used modalities for the treatment of trigeminal neuralgia. Easily identifiable radiological landmarks are necessary for correct intra-operative localization of foramen ovale.

**Methods:** One hundred and seventy sides of dry skulls were studied for the following measurements. D-1: the transverse distance between the apex of the petrous temporal and the centre of the foramen ovale. D-2: the transverse distance

from the midline to the centre of the foramen ovale. The distances between the centre of the foramen ovale and, D-3: the anterior margin of mandibular fossa, D-4: centre of the mandibular fossa and D-5: point at the junction of posterior margin and floor of the sella. D-6: the vertical distance between the centre of the foramen ovale and point at the junction of posterior margin and floor of the sella.

**Results:** The mean values measured were D-1: 13.9mm, D-2: 24.5mm, D-3: 3.1mm, D-4: 11.4mm, D-5: 0.75 and D-6: 12.42mm. In majority of cases the centre of foramen was around 25mm from midline. Additionally the centre of the foramen was at the level of the junction of the posterior wall and floor of sella or within 2mm of this point in the antero-posterior direction. In most (81%) cases the vertical displacement of the foramen was 1-1.5 cm inferior to this point.

**Conclusion:** During intra-operative imaging, the midline of the skull and the junction of the posterior wall and floor of the sella can be used as reliable landmarks for the identification of foramen ovale.

### **217. Age Estimation by Using First Trimester Parameters – To Derive Regression Equation and To Demonstrate Correlation between Parameters.**

**Bhusari Prashant Amanrao, Khairnar Karan B MVP'S VPMC, Nashik**

The present study aims at deriving normal values of fetal growth Parameters for ready references, in order to determine correct gestational age and to compare the study to demonstrate the variation if any. The Study also aims at deriving the regression equation and to demonstrate correlation between parameters. The study was carried out in 200 pregnant women in the Department of Radiology and ultrasonic equipment used was "Real Time Ultrasonography". First trimester parameters like Gestational Sac Diameter (GSD) and Crown Rump Length (CRL) were used. Both the parameters show linear growth as gestational age advances, they are strongly correlated with each other. Present study is comparable to other studies and there is no variation. Regression equation for GSD is  $y = 0.76x - 2.94$  & for CRL is  $y = 0.69x - 3.61$ .

### **218. Biparietal Diameter Correlates with Gestational age and Maternal Height**

**Jyoti P. Narkhede, K. Shymkishore**

Department of Anatomy, Seth G.S.M.C & K.E.M.H. Parel, Mumbai

**Aims and Objectives:**

1. To measure the BPD (biparietal diameter) of fetuses from 12-36 wks of gestation.
2. To assess the gestational age with this parameter.
3. To correlate BPD with maternal height.
4. To correlate the BPD with G.A. (gestational age) calculated from LMP (last menstrual period) given by mother.

**Materials and Methods:** A prospective cross-sectional study was undertaken ultrasonographically. For this study, patient with known LMP were selected and patient with medical problem were not considered in this study. The study data were obtained from 100 pregnant women routinely examined in obstetric clinic after permission from ethics

committee.

Results: We found that BPD was a reliable indicator for assessment of the gestational age and positively associated with maternal height in third trimester.

**219. A Study to Assess the Incidence of Lumbar Stenosis in Population of Lower Assam with Low Back Ache.**

**Santosh Kumar Sahu**, K.L.Talukdar, H. Bayan, J. Sarma, Sudipto Pal, Malovika Debi, Prashant Sarada, Akshay B, Pradipta Ray Choudhury, Chandan Bongshiyari.  
Gauhati Medical College, Gauhati Assam

Aim of the study: Low back ache is frequent complaints of the people of lower Assam. The study is carried out at Gauhati Medical College, Assam to find out the incidence of lumbar stenosis in the people of lower Assam with low back ache.

Materials & methods: The normal dimensions of lumbar canal is found out by MRI of 20 normal individuals and also by dissecting 5 cadavers. Our study will take into account the following parameters: most common age of presentation(our study include age between 40 – 60 years), sex specificity, work specificity, any other associated complaints etc. Till now 42 cases of low back ache with their MRI reports have been studied and compared with the normal value to find out the incidence of lumbar stenosis.

Result & conclusion: Till now in our study the incidence rate is 7% approximately. The study is still being continued. Further result and observation related to the study will be opened at the time of conference.

**220. MRI Evaluation of Temporomandibular Joints for Internal Derangement and its Correlation with Clinical Findings**

**Shivlal.M.Rawlani**, Shobha.S.Rawlani\*

Department of Oral Medicine & Radiology, DMIMSU, SPDC, Sawangi (M), Wardha; \*Department of Anatomy, Dr PDMMC Amravati

Aims and Objective: To evaluate the position of the articular disc by MRI and correlate it with the clinical signs and symptoms.

Material and Methods: The study was based on bilateral temporomandibular joint Magnetic Resonance Images of 30 patients with clinical signs and symptoms of TMJ disorders suggestive of internal derangement, with age range of 20-49yrs with a mean age of 31.39yrs ± 9.82yrs, Out of 30 patients 16 were female and 14 were male. All these patients were subjected for MRI of the right and left TMJ with a 0.2 tesla scanner. Sagittal and coronal sections were planned by using axial plane. The interpretation of the resultant images were carried out by experienced senior radiologist.

Results: Out of 30 patients 19 patients were clinically diagnosed as anterior disc displacement with reduction and 11 patients were diagnosed as anterior disc displacement without reduction. Total sixty (60) Joints were examined in 30 patients. Out of these 31 joints were Painful (51.6%), Fifty two(52) joints exhibited Clicking (85%).Thirty one(31) joints exhibited Tenderness (51.6%) and Ten(10) joints exhibited Deviation (16.6%).On Magnetic resonance imaging out

of 60 joints ,34joints shows positive findings. Out of 34 joints 19(55.88%) showed anterior disc displacement with reduction, 11 joints (32.35%) showed anterior disc displacement without reduction, 4 joints (11.76%) showed posterior disc displacement and 26 joints (43.33%) showed normal disc position.

Conclusion: Internal derangement of TMJ can be diagnosed clinically, but type of disc displacement can not be diagnosed clinically. This suggests that clinical diagnosis is highly unreliable in estimating the disc position.

**221. Morphometric Analysis of Pedicle Morphology of Thoracic and Lumbar Spine and Anatomic Basis of Anterior and Posterior Instrumentation by Computerised Tomography**

**Geeta**

Department of Anatomy, S.P. Medical College, Bikaner.

Introduction: The pedicle screw and hook have become popular instrument in treating spinal deformity and disease. Detailed knowledge of the spinal morphometry is important for proper instrumentation. Understanding the morphometry of the pedicle and the anatomy of adjacent neural structure should help decrease the risk of postoperative complications.

Aim: This study aims to suggest dimensions for anterior and posterior spinal implant and to improve instrumentation technique, to avoid postoperative complication.

Material And Method: The pedicle parameters of thoracic and lumbar spine were measured by computerised tomography scan method. Pedicle length , pedicle width, transverse pedicle angle , sagittal pedicle angle ,anterior disc height ,posterior disc height.

Conclusion: In this study we found that individual morphometric differences of same parameters in the same subgroup. These result emphasize the importance of preoperative computed tomography of each patient in planning a surgical procedure and selecting the appropriate size of the instrument , thus avoiding postoperative complication.

**222. Study of the Normal Branching Pattern of Coeliac Trunk and Its Variations Using CT Angiography**

**S.Lakshana, S.Indumathi**, P.Saraswathi

Saveetha Medical College, Thandalam, Chennai

Aim: To identify and evaluate the branching pattern of Coeliac trunk and its variations using CT angiography

Introduction: Past research has shown that the anatomy of coeliac trunk is not identical for all human beings but displays significant variations from the typical branching pattern. Data derived from the earlier research has been consolidated to give an account of the major variations found in the anatomy of celiac trunk. But to put forward some theories for the cause of such variations, it is crucial to achieve full comprehension of this topic. Because of the development of interventional techniques to manage hepatic tumours and liver transplantation, the accurate depiction and definition of the celiac trunk and its branches have important clinical implications. With the recent advancement in the field of

radiology, CT angiographs has become a valuable tool for the visualization of the celiac trunk and its branches.

Materials: 25 CT angiographs

Conclusion: The branching pattern of Coeliac trunk was evaluated based on Adachi's classification and a sizeable variation was observed will be discussed in detail during the presentation.

### **223. Constructing Motor Homunculus by Functional Magnetic Resonance Imaging**

**K.Balaji, P. Saraswathi**

Saveetha Medical College, Hospital, Chennai

Introduction: Over yonk's motor cortex were studied by stimulatory method. The advent of new functional MRI technique has created a new road map in studying motor cortex and made medicine an eye-catching avatar.

Aim: To compare the normal functional representation of the motor cortex using functional MRI technique.

Materials: Normal individuals, MRI scanner, Post processing work station.

Methods and Result: Instructions were given to the normal individuals to perform various paradigms involving different parts of the body and the corresponding cortex of the brain are represented as glowing areas. By this method the motor homunculus are constructed using functional MRI and compared with the conventional motor homunculus.

Conclusion: The amount of motor cortex involved is directly proportional to the density of innervation and not the area of the body surface.

### **224. MDCT Coronary Angiographic Evaluation Of Coronary Artery Anomalies – A Preliminary Study**

**C.S.Ramesh Babu, O.P.Gupta, Sanjeev Saxena, Sathyam Khare \*, A.K.Asthana \***

Department of Anatomy, L.L.R.M. Medical College, Meerut;

\*Department of Anatomy, Subharti Medical College, Meerut

Coronary artery blood flow is very critical for normal development and function of the heart. The spectrum of 'normal' coronary anatomy includes observed variations in the coronary anatomy present in more than 1% of population and coronary anomalies are defined as anatomic features that are present in less than 1% of population. (Angelini, 1989, 2002). The aim of the present study is to evaluate variant and anomalous coronary arteries in subjects undergoing multidetector computed tomography (MDCT) coronary angiography. The evaluation was done on 21 subjects, 14 males and 7 females who came for MDCT coronary angiography. Volume rendered three dimensional images were analyzed for variant and anomalous coronary arteries.

Right dominant coronary arterial pattern was observed in 17 cases (10 males, 7 females), left dominant pattern in 3 cases (all males) and in one case superdominant right coronary arterial pattern was seen. Interestingly all females exhibited right dominant coronary circulation. In one case left anterior descending (LAD) and circumflex (LCX) branches of left main coronary artery originated separately from the

left coronary aortic sinus. The reported incidence of this anomaly is 0.41% (Yilmaz-Cankaya et al 2009, Tedeschi et al 2009). Bifurcation of left main coronary artery was observed in 12 cases and trifurcation in 9 cases. In trifurcation pattern the left coronary artery divides into LAD, LCX and ramus intermedius / medianus / intermediate branch. In 2 cases we have observed anomalous "malignant" right coronary artery (RCA) arising from left coronary aortic sinus and coursing between aortic root and pulmonary trunk. The reported incidence of this anomaly is 0.2% to 0.5% (Hague et al, 2004). Such an anomalous interarterial course of RCA is susceptible to compression by expansion of the two great arteries especially during exercise.

### **225. Superior mesenteric artery syndrome - a radiological study**

**G. Supriya, D. Suseelamma S. Saritha, Anil sherke**

Department of Anatomy, Kamineni Institute of Medical Sciences, Sreepuram, Narketpally, Nalgonda

The knowledge of anatomical variations in Superior Mesenteric Artery are of importance to surgeons and radiologists while performing complicated procedures. Superior Mesenteric Artery Syndrome is a rarest life threatening Gastro-vascular disorder characterized by a compression of the third part of Duodenum by Abdominal Aorta and the overlying Superior Mesenteric artery. The incidence is 0.013-0.3% of the upper Gastro intestinal disorders. The normal range of angle between Abdominal Aorta and Superior Mesenteric Artery is 38-56 and Aorto mesenteric distance is 10-20mm. Superior Mesenteric Artery Syndrome is triggered when there is narrowing of the mesenteric angle and shortening of the distance. Superior Mesenteric Artery Syndrome was first described in 1861 by Carl Freiherr Von Rokitansky and was first published in 1927 by Wilkie. During routine Radiological Vascular studies in the Dept of Radiology, KIMS, Narketpally, a CT Scan Abdomen of a 13 year old male who presented with the symptoms of Gastrointestinal obstruction, showed the presence of Superior Mesenteric Artery Syndrome. Incidence, cause, symptoms, investigations, and management will be discussed in detail at the time of presentation.

### **226. The Morphometric Study of Third Ventricle and Diencephalon By Computerised Tomography**

**Pritee Meshram, Shanta Hattangadi**

Department of Anatomy, LTMMC & GH, Sion, Mumbai, Maharashtra

Aims: To analyze the size of third ventricle in relation to the dimension of diencephalon in humans. In this study ventricular size of males and females was compared. Changes in normal ventricular size with the corresponding changes in the dimension of diencephalon during ageing was also studied and statistically analyzed.

Materials and Method: This was the prospective study of 12 month duration in which CT images of 112 adult individuals (Age Group 21-60) and 88 ageing individuals (Age above 61) of either sex attending department of radiodiagnosis for brain CT was studied. The CT scanner used in the study

was "SIEMENS SOMATOM VOLUME ZOOM MULTI SLICE (4 SLICE) MULTI DETECTOR SPIRAL CT SCANNER" with a scan time of 1-10 sec and slice thickness of 4mm. Measurement of third ventricle and diencephalon (thalamus) were made. The measurement taken includes mean greatest height in cms, greatest anterior-posterior extent in cms, mean greatest transverse diameter in cms.

**Results & Conclusions:** After statistical analysis it was found that the dimensions of third ventricle increases with age except the height in both males and females. The increase was more in individuals (age above 60 years) than individuals (age 20-60 years) and more in males than in female. The dimensions of diencephalon decreases with age in both males and females. The decrease was more in individuals (age above 60 years) than individuals (age 20-60 years) and more in males than in females

**227. Masseter and Temporalis Muscles in a Family of Treacher Collins - Franceschetti Syndrome: 3-D Reconstruction of CT scan and Ultrasonic Studies.**

**Mahdi Hasan, Gyan P. Singh\*, Nasim Jamal\*\***

Department of Anatomy, \*Department of Orthodontics, \*\*Department of Radiotherapy, C.S.M. Medical University, Lucknow

Father and son of a family, exhibiting typical clinical features of Treacher Collins – Franceschetti Syndrome, were investigated, inter alia, using 64 – slice 3-Dimensional Computerized Reconstruction of Tomographic Scan of head and ultrasonic imaging of muscles. Developmentally, temporalis and masseter differentiate from a mesenchymal anlage of the first visceral arch. The cranialward growth of mandibular ramus cleaves the masseter from temporalis, the former, running superficial and the latter deep to developing zygomatic arch. In both cases of Treacher Collins Franceschetti Syndrome, the aplasia of zygomatic arch leads to persistence of conjoint temporo - masseter anlagen. The present cases exhibit origin of masseter from the surface of temporalis which also extends anteriorly to the lower border of dysplastic zygomatic bone.

Masseter and temporalis muscle thickness was measured by ultrasound, both in relaxed and contracted states. Also, the bite force, anterior, posterior left and posterior right was evaluated in both the cases and compared with the non-afflicted members of the family. The mean thickness of masseter and temporalis muscles of the afflicted father and son were compared with the values obtained from the unaffected siblings. There was significant reduction of masseter and temporalis muscle thickness in the afflicted cases. Their bite force was also decreased correspondingly.

**228. Advancements in methods for preservation of dead bodies**

**Sandeep madaan, K.I. Talukdar, H. Bayan**

Department Of Anatomy, Gauhati Medical College, Guwahati

Preservation of Cadavers has been carried out since ancient ages & is being continued till date. There has been great

advancements over the years, in the different methods. Basic difference being that the methods used years ago were crude and have been refined with advancement or discoveries of other scientific aids. We have tried to cover the whole topic under following headings: 1. History of Embalming, 2. Modern Embalming, 3. Plastination & other advancements. All the aspects regarding this topic will be discussed in details during presentation.

**229. Making of Models in Anatomy**

**Anuradha Baruah, Dilip Bordoloi**

Department of Anatomy, Assam Medical College, Dibrugarh

Models of anatomy are part and parcel of teaching of anatomy to students.

**Aim of the study:** Various materials are used for making of models in anatomy. In the department of anatomy, assam medical college, dibrugarh. The modeller has found out a low cost easily available raw material to make models.

**Materials and methods:** By using saw dust mixed with fevicol models are made.

**Conclusion:** These models are light weight, long lasting and unbreakable.

**230. Anatomy Museum - For Students or Inspectors? Feedback Study From Recently Passed First Year Students**

**Pawar Sudhir E, Zambare B.R, Shinde S.V, Mithil P**

Department of Anatomy, PDVVPF Medical college, Ahmednagar, Maharashtra

As we all being Anatomist know that Anatomy is a volatile subject. We came to know this as we enter in first year MBBS and we are explaining repeatedly to newly admitted first year students as a teacher. To come out of this one has to revise topics again and again with the help of bones, models and specimens etc. Not only reading but discussion also. So that we are developing Museums, which contain all this material arranged systematically like bones, models ( gross and embryological ), specimens, a x-rays and informative charts. The purpose behind developing museums is that students should use all this facilities conveniently at any time in the department for better understanding. Even MCI specify particular area for 100 admissions with adequate specimens with catalogues. MCI inspectors strictly visit Museum to check all these things. But with my last 10 year experience it is seen that students interest towards museum is drastically reduced. They are not turning towards museum to see all this! so question is coming in mind are these museums only for Inspectors to fulfil MCI criteria? so we have done feedback study from recently passed first year students to know their difficulties. All possible reasons behind this with possible suggestions will be discussed in detail at the time of presentation.

**231. A New Technique of Casting the Life Size – Membranous Labyrinth, 7th & 8th Cranial Nerves**

**M. Gopalan, Unnikrishna Menon\***

Medical Illustrations, \* Department of ENT; School of



Medicine, Amrita Institute of Medical Sciences, Kochi

The anatomical understanding of petrous - temporal bone, it's dissection to reveal the cavities and structures inside i.e., the inner ear, the 7th & 8th cranial nerves, still remain a Herculean task for the students, teachers, the surgeons & radiologists alike. A-3D orientation of the membranous labyrinth, vestibule-cochlear nerve & the most tortuous facial nerve, it's relations is quite essential for an ENT/ Neurosurgeon to save the patient from facial nerve injuries – These are made possible by making an actual cast of the cavities inside the bone extending from internal acoustic meatus to the stylomastoid foramen, by using the Anabond - Silicon sealant. This unique technique of injecting the silicon into the cavities and removing the bone by maceration has brought out the actual size - cast that is more flexible & durable. The course of the facial and vestibule cochlear nerves can be demonstrated more easily by bending the overlying structures, specially the attachments of cochlear nerve, vestibular nerves, the various segments of facial nerve (labyrinthine, tympanic, mastoid), the geniculate ganglion, first and second genu. The length, diameter & the anatomical positions of various segments of facial nerve, semi-circular canals & cochlea came out exactly as mentioned in textbooks. It can be used as one of a set of teaching aids for the undergraduate, postgraduate students and surgeons alike. The simplest method of preparing the actual size cast at negligible cost, will be discussed in the conference.

### 232. Dermatoglyphics Study in Diabetes Mellitus

B.K.Dutta, S.Rath, B.N.Roul

M.K.C.G.Medical College, Berhanpur, Odisha

Aim of the study - An attempt is made to create a database of dermatoglyphics pattern of diabetics of southern Orissa which may become helpful for early prediction of the disease & thus prevent its complications.

Material & methods – study was undertaken to in MKCG Medical College. Finger prints & palm prints of 300 people are taken, out of which 150 are known diabetic (both type I & II) & 150 are normal persons. Materials used are – a rubber roller, a sun mica slab, black printers ink & JK bond paper, finger prints & palm prints are taken & studied.

Results & conclusion - It was observed that TRC is higher in both males & females, a-d distance is also more in both males & females, atd angle is more in diabetics, more nos. of t" & t' found in diabetics.

### 233. Asphyxiating Thoracic Dystrophy: Rare Case of a Recessive Autosomal Disorder

Minnie Pillay, Sheela N Nampootheri\*

Department of Anatomy; \*Department of Paediatric Genetics, Amrita School of Medicine, Amrita Institute of Medical Sciences-Kochi, Kerala.

Jeune syndrome otherwise known as asphyxiating thoracic dystrophy is a potentially lethal congenital dwarfism. It is an extremely rare autosomal recessive disorder characterized by typical skeletal dysplasias, such as a narrow thorax

and micromelia, with respiratory and renal manifestations. Respiratory symptoms vary widely from respiratory failure and infantile death to latent phenotype without respiratory symptoms! In this context we report a case of Jeune syndrome highlighting the anatomical, pathological and prenatal sonographic features. The etiopathogenesis and characteristic features of this rare syndrome are discussed!

### 234. Dermatoglyphic Patterns and Karyotype Analysis in Primary Amenorrhoea

S. Talhar, B. R. Sontakke, A.M. Tarnekar & M. R. Shende  
Department of Anatomy, M.G.I.M.S. Sevagram, Wardha, M. S.

Dermatoglyphics is the scientific study of the skin ridge patterns on the fingers, toes, palms of the hands and soles of feet. Dermatoglyphics is in use as a supportive diagnostic tool in genetic or chromosomal disorders as well as in clinical conditions with genetic etiology. Primary amenorrhoea and Dermatoglyphics, both have the suspected multifactorial (genetic and environmental) etiology. To study dermatoglyphics in primary amenorrhoea, a study was conducted on 30 subjects with primary amenorrhoea: (as cases) and compared it with equal number of age matched normal female population (as control). We studied fingertip patterns and 'atd' angle in all the subjects enrolled. Simultaneously we have assessed the Karyotype of primary amenorrhoea cases. 3 subjects in experimental group have shown abnormalities in Karyotype. The details of dermatoglyphic patterns and Karyotype will be presented along with review of relevant literature.

### 235. Study of Dermatoglyphics in Hands of Patients with Pulmonary Tuberculosis

Karan Khairnar, Prashant Bhusari, Kushal Shukla, Dinesh Kate

MVP VPM Medical College, Nashik, Maharashtra

Dermatoglyphics is scientific study of epidermal ridges and their configuration on palmar and plantar region. Functional mutants of mannose binding protein are associated with pulmonary tuberculosis, which plays important role in inheritance. Epidermal ridge pattern is also determined by genetics. Aims & objectives: To find out various dermatoglyphic features in patients of pulmonary tuberculosis, to compare dermatoglyphic features in normal and patients of pulmonary tuberculosis and to study statistical significance of the difference found in patients and normal individuals. Materials and methods: Anatomical study was undertaken of both palms from the age group between 20-45, one with 100 patients (72-males, 28-females) having pulmonary tuberculosis and the other with 100 healthy adult (72-males, 28-females). Results: Decrease in 'atd' angle in both hands of male & female patients as compared to controls. Increase in number of Whorls in Male Patients as compared to controls. Conclusion: Dermatoglyphic analysis has proven advantage as a diagnostic tool in certain diseases including pulmonary tuberculosis. It can be used as screening tool for pulmonary tuberculosis

### 236. Comparison of Dermatoglyphic Studies

**Vasanti Arole**, P. Vatsalawamy, Satyajit Saha, Pushpa Burute, Jasbir Kaur, Aaditi, Shah  
Department of Anatomy, Dr. D. Y. Patil Medical College, Pimpri, Pune

In the Department of Anatomy, Dr. D. Y. Patil Medical College, Pimpri, Pune, we have studied Dermatoglyphic patterns in different diseases during last 7 years. Dermatoglyphic patterns included study of digital, thenar & Hypothenar patterns so also 'atd' angle. Diseases studied were Atopic Asthma, Rheumatoid arthritis, congenital cataract, Diabetes mellitus, Carcinoma Breast, Primary infertility in males & females. Similarities & differences in these conditions are being compared. Only those findings have been selected for comparisons which are statistically significant.

### 237. Study of Sexual dimorphism of 2D:4D (2nd to 4th digit) in different age groups

**Geetha.K.N.**, Aruna Mukherjee  
MGM Medical College, Navi Mumbai

Sexual dimorphism in digit ratio was first reported by Ecker in 1875. This observation was reestablished by a number of researchers later on. But most of these studies are conducted in adult age group. Aim of this study is to establish the presence of sexual dimorphism in all age groups.

Objectives:

1. To find out whether 2D:4D shows sexual dimorphism both in right and left digit ratios using both anatomical as well as dermatoglyphic method.
2. To find out whether sexual dimorphic pattern of 2D:4D is present in all age groups.

Design: A transverse study

Study group: Considered 3 sample groups:

- I. 64 children (34 boys and 30 girls) in 3-16 yrs. group
- II. 100 students (50 boys and 50 girls) in 17-21 yrs. group
- III. 100 subjects (50 males and 50 females) in >25 yrs. group

Method: Dermatoglyphic and anatomical length of 2nd and 4th digits of both hands were taken and their ratios calculated.

Conclusion: This study clearly showed the presence of sexual dimorphism in 2D:4D. It is more significant in right hand 2D:4D as compared to left hand 2D:4D.

### 238. Hutchinson-Gilford Progeria Syndrome (HGPS )

**Ravi Jain**, Manish Patil, Jitendra Gupta, Sangeeta S.Babu, Amit Jain, Rajiv Ranjan, Manish Chaturvedi  
Department of Anatomy, R. D. Gardi Medical College, Ujjain, M.P.

We reported a rare case of Progeria in our institution. Progeria is a progressive disorder that causes children to age rapidly beginning in two years of life. The children with Progeria generally appear normal at birth. It is a rare disorder with a reported incidence of one in 8 millions births. It occurs sporadically and is believed to follow an autosomal

recessive inheritance. Though the clinical presentation is usually typical, conventional radiological and biochemical investigations help in confirming the diagnosis. This review summarizes the clinical characteristics and the underlying mutation in the Lamin A gene. The purpose is to describe the rare condition of HGPS, along with its many manifestations in the head and neck region and to postulate that HGPS individuals might not only have the appearance of an aged person, but also might actually undergo true physical aging, which would enable researchers to gain valuable information into the treatment of ailments commonly associated with the natural process of aging.

### 239. Comparative Study of Sperm Motility in Fertile and Infertile Males

**Joy Ajoykumar Ghoshal, V.G. Sawant, P. H. Shingare Padmashree Dr. D.Y.** Patil Medical College, Hospital and Research Centre, Navi-Mumbai, Maharashtra

Aim: To study sperm motility in fertile and infertile males, analyze and correlate.

Materials and Methods: Total 100 semen samples were studied in each of the experimental and control groups. Smear slides were stained by modified Papanicolaou method for spermatozoa. All the slides were examined under the binocular research microscope, having photo micrographic attachment.

Results: When a-grade motility ( $20 \pm 9.36$ ) in experimental group was compared with that of the control ( $28.55 \pm 97.4$ ) the difference was statistically highly significant. The difference in the b-grade motility between the experimental ( $32 \pm 99.74$ ) and control ( $29.1 \pm 98.05$ ) was also statistically significant. When the c-grade motility in experimental group ( $27 \pm 910.1$ ) was compared with that of the control ( $22.45 \pm 99.49$ ) the difference was statistically highly significant. As for the d-grade motility the difference in the experimental ( $21 \pm 13.52$ ) and the control group ( $19.9 \pm 9.67$ ) was not significant.

Conclusion: Sperm motility was highly significantly more in semen samples of fertile males than those of infertile males.

### 240. The Study of Age Related Changes in Coronary Arteries and Its Relevance to the Atherosclerosis.

**Deopujari R, Dixit A\***

Department Of Anatomy, PCMS&RC Bhanpur Bhopal; \*Gandhi Medical College Bhopal

The study of coronary artery disease has always been a topic of special interest to the physicians. Several studies have been focused on coronary arteries but limited have been addressed to the histological changes on coronary arteries with increase in age leading to the development of atherosclerosis. The histomorphometric study was carried on coronaries of autopsied heart specimens from fifty males and thirty females between the age group of ten to sixty years. The thickness of tunica intima, tunica media and tunica adventitia and diameter of coronary arteries were measured using ocular micrometer. Verhoeff's stained sections were used to study changes in internal elastic lamina. With increase

in age there was increase in thickness of tunica intima up to fourth decade through the growth of subendothelial tissue from the undifferentiated smooth muscle cells of the media. The thickness of tunica media was observed to increase up to fourth decade due to medial fibrosis. After fourth decade thickness of both tunica intima and media registered a gradual fall. The increase in thickness of tunica intima was found to be the basic pathological change which ultimately progressed to atherosclerosis. Intimal thickness was found to be more in males as compared to the females. Internal elastic lamina showed splitting, fraying, fragmentation and reduplication in various age groups.

#### **241. Alterations of Notch-3 protein in Invasive squamous carcinoma of human cervix**

**Gayatri Rath, Richa Tripathi\***, Poonam Jawanjai, Mausumi Bhardwaj

Department of Anatomy, VMMC & Safdarjang Hospital ;  
\*Division of Molecular Genetics & Biochemistry, Institute of Cytology and Preventive Oncology (ICPO), Noida

**Introduction:** Invasive squamous carcinoma of cervix (ISCC) is one of the most common cancer and a leading cause of death among women worldwide especially in developing countries like India. Very limited reports are available for Notch-3 protein in cervical carcinoma which belongs to a family of conserved transmembrane receptor playing fundamental role in cell proliferation, differentiation, and apoptosis.

**Aim of study:** The purpose of this study was to evaluate the role of Notch-3 protein in invasive cervical carcinoma.

**Materials & Methods:** Tumor specimens and adjacent non-neoplastic cervical tissues were obtained from the department of Obstetrics and Gynecology, Safdarjang Hospital and were examined using Immunohistochemistry. The statistical analysis was carried out using Stata-9.0.

**Results:** Chi square analysis showed significant up-regulation of Notch-3 expression in nuclear ( $4.87 \pm 0.34$ ) and cytoplasm ( $5.06 \pm 0.23$ ) of cervical cancer obtained from different stages of cervical carcinoma as compared to normal cervix tissue ( $0.53 \pm 0.17$ ,  $0.97 \pm 0.23$ ;  $p < 0.001$ ;  $p < 0.001$ ) respectively. But, its localization on the cell membrane of epithelial cells was found to be decreased ( $0.35 \pm 0.30$ ) in cancer as compared to normal cervix tissues ( $2.2 \pm 0.37$ ;  $p = p < 0.001$ ). Receiver Operating Characteristic (ROC) analysis showed that the values for area-under-the-curve (AUC), sensitivity and specificity for cytoplasmic and nuclear Notch-3 were 0.95, 92.3%, 90% and 0.89, 82.6% and 96.6% respectively.

**Conclusion:** Our findings suggest that Notch-3 might play important role in the development and proliferation of ISCC. Hence, the inactivation of Notch-3 may represent a new therapeutic avenue for the invasive cervical carcinoma.

#### **242. Lead Induced Histopathological Alterations in Liver and Lung: Effect of "Nagabhasma"**

**Lydia S.Quadros, Ashwija Shetty, Arunashri, Kumar MR Bhat**

Department of Anatomy, Kasturba Medical College, Manipal University, Manipal

Nagabhasma is an ayurvedic preparation with lead metal as main ingredient. This bhasma is used to treat diabetes, infertility, wound, diarrhea, hemorrhoids and muscle paralysis. It has been known that excess exposure to heavy metals such as lead is hazardous to health. However, the lead used in nagabhasma preparation, is claimed to be safe if it is prepared using traditional stringent purification/detoxification process. Recently, it has been reported that, the lead in this bhasma act as health beneficial organo-metallic compound instead of toxic heavy metal. **Objectives:** Therefore, we have designed this preliminary experiment to evaluate the possible toxic effect of lead on various organ system of the body using different nagabhasma available in the market. **Methodology:** Using the human equivalent doses of nagabhasma, the bhasma from two different sources was fed orally for 15, 30 and 45 days to Wistar rats and tissues were collected for histopathological studies. **Results:** In addition to neurotoxic, hemotoxic effect, our results also show that different bhasma induces variable histopathological changes in the liver and lung tissues. **Conclusion:** Therefore, the results indicate that the quality control during the purification process while preparing the nagabhasma is very critical to eliminate the toxic effect of this heavy metal. Further, effect of nagabhasma on functional efficacy of these organs is in progress.

#### **243. Evaluation of Neurological Alterations Due to Lead Based Indian Traditional Medicine**

**Lydia Quadros, Arunashri, Herman D'souza, Kumar MR Bhat**

Department of Anatomy, Kasturba Medical College, Manipal Life Sciences Center, Manipal University, Manipal

**Introduction:** Ancient medicinal systems use different metals such as Lead, mercury, ferrum in their preparations to treat various diseases of mankind. One such preparation in Ayurveda is "Nagabhasma" which is prepared using the lead and other herbal combinations. It has been claimed that the toxicity of the heavy metal, lead is removed by the stringent traditionally followed purification processes. However, there are many reports to show the lead induced toxicity due to these kinds of traditional medicines.

**Objectives:** Therefore, we have designed this experiment to evaluate the possible toxic effect of two different Nagabhasma, commercially available in the local market. Here we have tested the effect of Nagabhasma on cytoarchitecture of hippocampus and learning and memory using an animal model.

**Methodology:** Female Wistar rats were administered human equivalent dose of Nagabhasma for 15, 30 and 45 days. Along with these groups, we had untreated control and pure lead treated positive control groups. After the treatment, the animals were subjected to behavioral studies and then sacrificed and tissues were collected for histopathological studies.

**Results:** Results indicate the variable level of neurotoxicity by the different brands of nagabhasma. This may be due to the inefficacy in following the stringent traditional methods of detoxification during the preparation.

Conclusion: Therefore, a stringent quality control management is must for these kinds of medicines to avoid defamation of such valuable traditional medicinal system of India. Further, critical evaluation of preparatory process and toxicity levels in those by-products are in progress.

**244. Tubal Factors Predisposing to Infertility – Histological Structure of Intrauterine & Adjoining Isthmic Portions of Fallopian Tube in Parous (fertile) Women versus Women with Unexplained Infertility**

**M S Ahuja, R K Zargar, R Bhatnagar, R K Sharma\***

Department of Anatomy AFMC, Pune; \* Department of Obstetrics & Gynaecology & ART, Command Hospital, Pune

The intrauterine and adjacent isthmic parts of the Fallopian tube represent a transition between the uterine cavity and the Fallopian tube. Many cases of infertility are encountered clinically where cause cannot be ascertained. These are classified as unexplained infertility. A study of histological structure of intrauterine and adjoining isthmic parts of Fallopian tubes of fertile (parous) women versus those with unexplained infertility is thus worthwhile. It can throw light on whether this part of the female reproductive tract is in some way contributing to the infertile state. Specimens for this study were collected post hysterectomy and at post mortem. The intrauterine and adjoining isthmic portions were divided into four segments of around 0.5 cm each. Serial sections were then taken from medial to lateral side in each segment, stained and examined microscopically. The observations and their possible clinical significance are discussed in this presentation.

**245. Histogenesis of Suprarenal Gland in Fetuses of Different Gestational age Groups**

**Khayati SR, Sharma M, Sharma A, Saha P, Kapoor K.**

Department of Anatomy, Government Medical College & Hospital, Chandigarh

The suprarenal gland plays an important role in survival and maintenance of internal milieu. The knowledge of the gland is important in many cases of female virilization, hirsutism, pseudohermaphroditism and hypertension in association with suprarenal cortical and medullary tumors. The present study was carried out in the department of Anatomy, Government Medical College & Hospital, Chandigarh. The material for the study consisted of 30 spontaneously aborted human fetal specimens from 12th to 28th weeks of gestational ages. The suprarenal glands were taken from fetal specimens for histological study. The staining was done by three different methods; Hematoxylin and eosin, Malory's Trichrome and Singh's Modification of Masson-Hamperl Argentaffin Technique. Histologically, suprarenal gland has a superficial narrow zone of darkly stained cells underneath the capsule, which was the permanent cortex and a deeper lighter zone called the fetal cortex. As, the age advances, fetal cortex becomes bulkier and before term it constitutes about 5/6th of entire cortex. At >25 weeks fetal cortex regresses rapidly except for its outer most layer, which differentiates into the reticular zone. Medulla was

characterized as centrally placed space filled with large blood vessels, few large cells having abundant cytoplasm with vesicular nuclei, which stain yellow-brown with chrome salts. In addition the changes were seen in thickness of capsule, incidence of various types of cells including neuroblastic, ganglionic, giant epithelial cells. Some cells were ameboid shape which suggested that invasion of colemic epithelium from dorsomedial aspect of the gland via loose areolar tissue at the hilum.

The study will establish the micro development of suprarenal gland in human fetuses in North-West Indian population.

**246. Mucosal Changes in Barrett's Oesophagus**

**Manjiri Chaulwar, Chimurkar, Gajbe**

Department of Anatomy, J N Medical College, Wardha, Maharashtra

**Aim:** To study histological changes in mucosa of patients of Barrett's oesophagus.

**Material And Methods:** Patients who had Barrett's oesophagus on endoscopy were included in study. Targeted mucosal biopsies were taken from distal oesophagus having Barrett's mucosa. Mucosal biopsies were evaluated for epithelial and subepithelial changes and presence of dysplasia. Specimens were processed and slides were stained with haematoxylin and eosin stain and evaluated under microscope. We planned to evaluate twenty five patients with Barrett's oesophagus. Till date fifteen patients have been evaluated. Study is going on

**Result:** Barrett oesophagus is defined by replacement of normal oesophageal squamous epithelium by metaplastic columnar epithelium at and proximal to normal squamo-columnar junction for a varying length of segment. Metaplastic columnar epithelium in this setting is composed of mucinous columnar epithelial cells on surface and in crypt epithelia, and contains a variable number of scattered goblet cells. This mucosa is prone for development of dysplasia and malignancy. In this ongoing study, out of fifteen patients, all fifteen had shown evidence of goblet cells, ten patients had shown multi-layered epithelium and none had shown doubling of muscularis mucosa or dysplasia.

**Conclusion:** In Barrett's oesophageal mucosa, epithelium is metaplastic columnar and has abundant goblet cells. Awareness about Barrett's oesophagus is important as it is prone for adenocarcinoma.

**247. A Histological Study of Placenta in Normal and Hypertensive pregnancies**

**Shobha.S.Rawlani, Shival.M. Rawlani\***

Department of Anatomy, Dr PDMMC Amravati, \*Department of Oral Medicine & Radiology, SPDC, Sawangi (M) Wardha

**Aim of the Study:** Present study was under taking to record the morphology and histology of Placenta from mothers with pregnancy induced hypertension. Complications of pregnancy like hypertension and preeclampsia are life threatening for both fetus and mother during gestation.

**Material & Methods:** Present study was conducted on total one hundred placentae, out of which fifty placentae were from mothers with high blood pressure and fifty placentae

from normotensive mothers having uncomplicated pregnancy. Gross and histological changes were recorded in both the groups.

**Result:** It was observed that placentae of hypertensive mothers were small in size. In some placentae of hypertensive mothers there was marginal insertion of umbilical cord, areas of calcification, necrosis and infarction were also observed.

**Histological findings** showed proliferation of cytotrophoblastic cells in villi. There were formation of syncytial knots, fibrous tissue proliferation, fibrinoid degeneration. Areas of hyalinization and calcification were also observed. Rupture of blood vessels and spillage of blood in intervillous space was also observed.

**Conclusion:** These findings suggest that above changes in placenta are due to hypertension induced in mothers during pregnancy.

#### **248. Cystic Kidneys In a Bors Foetus - A Comparative Histological Study**

**V. Sunitha**

Department of Anatomy, Maharajah's Institute of Medical Sciences, Nellimarla

A still born male foetus of 20 wks gestation was brought to Anatomy department as a part of routine research work from a private nursing home in vizianagaram. On gross examination foetus showed bilateral cleft lip with cleft palate, atresia of right external acoustic meatus with malformed right pinna and an abnormally distended abdomen. This prompted the author to take up an in depth study. On exploring the abdomen, we found two large cystic cavities filled with clear and watery fluid occupied the entire abdomen. Branchial arch anomalies, ear deformities and renal anomalies constitute Melnick-Fraser syndrome. The microscopic structure of both cystic kidneys is compared with histological sections of kidneys in 15 still born fetuses of 18-22 weeks gestation. The present work is an initial and preliminary attempt to analyse the growth pattern of kidney in human fetuses, which may prove useful in diagnosing all foetal kidney diseases such as agenesis, hypoplasia, multicystic kidney, polycystic kidney etc.,. The details of the findings will be presented at the time of presentation.

#### **249. A Study of Placental Histological Changes Observed in Pregnancies with Preeclampsia in Southern Orissa**

**BK Dutta, S Rath, S Singh, BN Roul**

Department of Anatomy, MKCG Medical College, Berhampur, Odisha

**Aim-** To assess the frequency & types of histological changes in placenta in pregnant ladies complicated by preeclampsia  
**Materials & methods** – this is a prospective study conducted in dept. of Anatomy, MKCG Medical college, Berhampur. One hundred human placentae were collected for this study. Fifty placentae from normal pregnant women taken as control group, & rest 50 nos from pregnancies complicated with preeclampsia as the study group for histological study as per the standard procedure followed & the observations were subjected to statistical analysis

**Results-** it was observed that in preeclamptic placentae, cytotrophoblastic proliferation (55.55%), syncytial knots (76.47%), fibrinoid necrosis (61.11%), stromal fibrosis (50%) & calcification (61.11%) were recorded with microphotograph. The details of all observations will be discussed & presented as per references available.

#### **250. Study of Androgen Receptors in Skin of Patients with Acne Vulgaris before and after Treatment with Isotretinoin**

**Rohini Pakhiddey, Shipra Paul\*, Ashish Kumar Mandal, Vijay Kumar**

Department of Anatomy, Maulana Azad Medical College, New Delhi, India; \*Lady Hardinge Medical College, New Delhi

**Aims:** To study the expression of Androgen Receptors in the skin of patients of acne vulgaris before and after treatment with Isotretinoin and to compare and correlate the positivity of Androgen receptor expression before and after treatment with Isotretinoin.

**Materials and Methods:** Skin biopsies were procured from 20 patients of moderate to severe cases of acne vulgaris before and after treatment with Isotretinoin. Twenty age and sex matched cadaveric skin biopsies were taken as control group. Specimens were fixed in 10% formalin for 4-24 hrs. Paraffin blocks were made. Five  $\mu$ m sections were cut and stained with haematoxylin and eosin and immunostaining for androgen receptor was done with mouse monoclonal antibody.

**Result:** It was observed that the mean Androgen receptor positivity was 5% in patients of acne vulgaris before Isotretinoin treatment. Androgen receptor positivity was 2.5% in control cases. The mean percentage androgen receptor positivity was 2.75% after treatment with Isotretinoin in the same group of patients.

**Conclusions:** Androgen receptor positivity was found to be increased in untreated patients of acne vulgaris as compared to the control group. There was a significant decrease in Androgen receptor positivity after isotretinoin treatment in the same patients.

#### **251. Silver Nanoparticle Induces Autophagic Cell Death in Liver**

**Brigesh R. Shahare, Madhu Yashpal, Gajendra Singh**

Department Of Anatomy, Institute of Medical Sciences, Banaras Hindu University, Varanasi

The antimicrobial activity of silver nanoparticles has resulted in their widespread use in many consumer products. Yet, despite their many advantages, it is also important to determine whether silver nanoparticles may exemplify a menace to the environment and human health. Silver nanoparticles are known to exhibit cytotoxic effects and induce apoptosis in various tissues. Therefore, the present work has been undertaken with aim to appraise the effect of silver nanoparticles in mice after their repeated oral administration. Silver nanoparticles ranging between 3-20nm in diameter were administered to 8-10 week old

Swiss albino male mice with an average weight of  $23.0 \pm 5.0$ g. Mice were handled with utmost human care and were fed with food and water ad libitum. Silver nanoparticles were given orally to the treated groups in the doses of 10.0, 15.0 and 20.0mg/kg body weight for 21 days, while de-ionized water served as vehicle for the control group. After 24hrs of last dose, mice were weighed and sacrificed by cervical dislocation. Abdominal cavities of mice were cut open by a midline abdominal incision and small intestine were then dissected out and preserved in aqueous Bouin's and Karnovsky's fixative for histological and transmission electron microscopic studies, respectively. The present study reveals that silver nanoparticles in the concentration of 15mg/kg and above induced massive vacuolization and cell death of hepatocytes. Transmission electron microscopy revealed the formation of autophagosomes together with the uptake of silver nanoparticle in the hepatocytes of the treated mice. Silver nanoparticles were also found to be clustered along with digested materials in the cytoplasmic vacuoles, which are typical features of autophagosomes. In conclusion, repeated oral exposure of silver nanoparticles may induce oxidative damage in liver and autophagy may be a cellular defense mechanism against oxidative stress toxicity.

#### **252. Histomorphological Study of Human Fetal Thymus in Different Gestational age Groups**

**G. Prabavathy**, Vathsala Venkatesan, W.M.S. Johnson, Prabhu.K  
Sree Balaji Medical College & Hospital, Chennai

Thymus is a primary central lymphoid organ, and is responsible for the cell mediated immunity of the body. Various studies have been done on fetal thymus. This study is aimed to document the Morphological and Histological changes of thymus at different stages of fetal growth period. The present study includes 18 fetuses, obtained from the Department of Obstetrics & Gynaecology, SBMCH, Chennai. The specimen of fetuses were categorized into 3 groups (6 fetuses in each group). Group I: 8-12wks, II: 13-24 wks, III: 25-38wks. The location, extent and external morphology of the gland were observed. Weight and measurements were taken using Digital weighing balance and the Digital Vernier caliper respectively. Then the tissues were sectioned and stained with Haematoxylin & Eosin. Lobulation was noted at early gestational age. Differentiation of the cortex and medulla was observed after 12wks. Appearance of Hassall's Corpuscles were seen during the 16th wk, increased in their numbers and size at the end of 38wks. All the above parameters were recorded and tabulated.

#### **253. Histological Studies of the Mammalian Pancreas**

**Shashwati Geeta Deka**, J. Sarma\*, S. Paul\*\*  
Fakhruddin Ali Ahmed Medical College, Barpeta, Assam ; \*Gauhati Medical College, Guwahati, Assam ; \*\*Lady Harding Medical College, New Delhi

In India there are about 32 million people suffering from Diabetes Mellitus. At present, pancreatic transplantation is the only therapy that reliably establishes a euglycemic state

without the need for exogenous insulin. Due to paucity of human donors, the potential of animal tissues as new source for organ transplantation needs exploration. The aim of this study is to ascertain any histological closeness of the human pancreas with the four other mammalian pancreases. In this study, pancreatic tissues were collected from the rat, rabbit, goat, pig & human (all normal and in their adult age group). The tissues were processed, sectioned and stained with Haematoxylin & Eosin and observed under light microscope. Observations were made regarding the morphology of the pancreas in all the five mammals. Histological studies on the pancreatic tissues were done, with special emphasis on the distribution of islets, islet size, islet shape, observation on the acini, capillaries, centroacinar cells, lobes, lobules, septa and location of islets. Conclusions were drawn to establish significant variations between the histology of the five pancreata noticed with H & E stain. This study can form a base for further advanced studies on the mammalian pancreas that may help transplantation scientists find solutions to xenogenic transplant sources.

#### **254. Comparative Study of Major Salivary Glands in Mammals**

**Malabika Debi**, K.L.Talukdar  
Dept. of Anatomy, Gauhati Medical College, Gauhati

Aim of the Study: The proposed study is undertaken to observe the interspecies variation of mammalian salivary glands with the following objectives:

- i. To study the biometry and morphological characteristics of the salivary glands in human, pig and goat.
- ii. To study the histology of major salivary glands in these mammals.
- iii. To compare the major salivary glands between human and other mammals, and see if any similarity exist between them.
- iv. To correlate the microstructure (eg. any structural variation) with function, if any.

Materials And Methods: Study was conducted in the Deptt. of Anatomy, Gauhati Medical College, Guwahati, during the academic session 2009-2010. The species selected for study were human, pig and goat; each species being placed under groups- I, II & III respectively; consisting of 6 to 7 no. in each group. All the three species under study were selected in the adult age range.

Results And Observations: Results and observations so obtained were placed under two broad headings:

- i. Biometry & Gross Morphology
- ii. Histomorphology

Results obtained were tabulated and interpreted using Scatter charts, Bar and Pie diagrams. The details of this study will be discussed and displayed at the time of presentation.

#### **255. Histogenesis of the Hassall's Corpuscles in Human Fetal Thymus**

**Bashir Khan**, C.V. Diwan , V.P. Rukhmode , S.I. Shaikh, A.A. Jamkar  
Department of Anatomy, S.B.H, Government Medical College, Dhule

The present study is conducted to study the microscopic structure and differentiation of the Hassall's corpuscles of thymus at different gestational age groups. After ethical approval from institutional ethics committee, 53 human aborted fetuses (24 male and 29 female) were procured from department of Obstetrics and Gynaecology with due permission from head of the department and written informed consent from respective parents. The gestational age was determined by menstrual history and crown rump length. The specimen was dissected out through parasternal incisions and processed in paraffin. The sections were taken by rotatory microtome. The slides were stained by Haematoxyline & Eosin, Masson's trichrome and Periodic acid Schiff's stains.

Under light binocular microscope, the Hassall's corpuscles were first observed at 12 week of gestation. They increased in size and number with increase in gestational age and appeared PAS positive. The findings of the present study are comparable with the findings of standard text books and previous workers.

#### **256. Histochemical Study of Developing Colonic Mucosa & Its Comparison with Normal & Disease Condition**

Gaurishankar Ganga, P.G.Gaikwad\*

Department of Anatomy, SSIMS & RC Davangere, \*Navodaya Medical College Raichur, Karnataka

Mucin pattern in developing colonic mucosa of human foetuses from 14 to 37 weeks of gestational period have been studied. Different histochemical techniques to identify mucin pattern were employed to classify mucins. These techniques include PAS, Alcian blue (8GX) pH2.5, AB pH1, AB pH 2.5-PAS, Aldehyde fuschin(AF) & AF-AB2.5. These observations showed progressive rise of sulphomucins as compared to sialomucins. Mucin of normal adult colon was studied with different histochemical mucin techniques. Alterations of mucin in different malignant condition were studied. Role of mucin changes in adenocarcinoma and its comparison with developing colonic mucosa was discussed

#### **257. Age Related Changes in Atrioventricular Valve Apparatus Of Human Hearts: A Histological Study**

Narbada Saini, Daisy Sahni, Uma Nahar Seikia\*, Rana Sandip\*\*

Department of Anatomy, Department of Histopathology\*, Department of Cardiovascular And Thoracic Surgery\*\*, PGIMER, Chandigarh

Background: atrioventricular valve apparatus is a complex structure composed of an annulus, leaflets, commissures, chordae tendinae and papillary muscles. With increasing age, the interference in the histological configuration and architecture of one or more of these structures may result in dysfunction of valve apparatus leading to valve prolapse. The age related changes affect the leaflets in the form of mucoid deposition, fibrosis, inflammation and calcification. With increasing age, the chordae tendinae and papillary muscles undergo fibrosis and atrophy/hypertrophy leading to impaired valve functions.

Aim: The aim of this study is to find out age related changes

in mitral valve, tricuspid valve, papillary muscles and chordae tendinae by light microscopy.

Materials & Method: The study was conducted on 30 formalin fixed human hearts (age: 10-40 years, without any macroscopic developmental failure or pathological change) taken retrospectively from the Department of Histopathology, PGIMER, Chandigarh. The tissues were processed for paraffin sectioning and 5µ thick sections were stained with Haematoxylin and Eosin, Masson Trichrome, Elastin Van Gieson and PAS alcian blue stains. The sections were examined under light microscope and photomicrographed using digital camera. The histological grades (mild, moderate and severe) for mucoid deposition, fibrosis, inflammation, calcification, fibrosis and atrophy/hypertrophy were determined for each section.

Results :

n Age related and degenerative changes start from the age of 16 yrs onwards.

n Mucopolysaccharide material deposition starts as early as the age of 16 yrs and keeps on increasing towards twenties.

n Collagen and fibrosis increases with further advancing age.

#### **258. Histotoxic Impacts of Pyrethroid Inhalation on Liver and CNS-An Experimental Study in Albino Rats**

S.M. Yunus, S. Hasan, F. Ahmad\*, N.A. Faruqi

Department of Anatomy, Department of Pharmacology\*, J. N. Medical College, A.M.U., Aligarh

Aim: Use of insecticides has substantially improved the economic and social well-being in the developing world, but concern over the amount of insecticides used has been recognized as a serious public health problem during the past decades. In spite of low toxicity of pyrethroids, persistence of these compounds in the tissue causing harmful effects on CNS and digestive systems of cats, dogs and human have been reported on oral ingestion but data on inhalational exposure to these agents are lacking. Hence, the present study was designed to evaluate the prolonged use of inhaled pyrethroids on liver and CNS.

Material and Methods: Twelve albino rats were divided into control and experimental groups of six animals each. Experimental rats were exposed to 3.2% w/v prallethrin vapours 12 hourly daily for 180 days. Control animals were kept under identical conditions without exposure to said repellent. All rats were perfused with 10 % formalin and histological sections were obtained from liver, cerebral and cerebellar cortical tissues and stained with H/E.

Results: Cerebral cortex showed loss of cellular details and presence of inflammatory cells. Cerebellar cortex depicted degenerated and irregularly placed Purkinje's cells with separation of medullary layer. Hepatic parenchyma showed ballooning-degeneration, swollen and empty looking hepatocytes with few eosinophilic strands of cytoplasmic organelles, blood filled congested and obliterated sinusoids and dilatation of portal and central veins.

**259. Histological Changes in Placentas of Anaemic Mothers**

**Rohini M**, Goyal M, Banerjee C.

Department of Anatomy; Pt. J.N.M. Medical College, Raipur

The placenta provides a 'diary' of the pregnancy. The information provided from the pathological assessment of the placenta may provide important clinical information for both the mother and the neonate. Anaemia in pregnancy is a well recognized obstetric hazard, observed more frequently in developing countries. The present study was undertaken to analyze placental changes in the anaemia with a view to assess the significance of villous abnormalities by histopathological methods because these changes serve as a guide to the duration and severity of disease. A study of sixty placentae was done to find out the morbid and histological changes of placentae of anaemic mothers in comparison to those of mothers with uncomplicated pregnancies. This study was carried out on thirty mothers with uncomplicated pregnancy and thirty mothers with moderate to severe anaemia. It was found that mothers with moderate to severe anaemia had smaller placentae. Gross examination of placentae revealed presence of foci of calcification and infarction. On light microscopic examination, the striking villous abnormalities were observed in the study group which included increased syncytial knot formation, stromal fibrosis, fibrinoid necrosis, decreased villus vascularity, cytotrophoblastic cell proliferation, endarteritis obliterans, intervillous haemorrhage and basement membrane thickening. These findings were significantly higher in comparison to control group. The histomorphological findings of placenta in anaemic mothers are an adaptation to maternal hypoxia.

**260. Developmental histology of the lymph node in human fetuses**

**Dubey Aksh**, Jethani SL, Mehrotra Namita

Department of Anatomy, HIHT University, Jollygrant, Dehradun, Uttarakhand

40 human fetuses without any congenital defect were taken and divided into 5 groups according to the age. In each of the fetuses, the axilla was dissected, fat was taken out and histological slides were prepared and stained by H&E staining method. Lymph node was found to develop from lymph sacs which were later infiltrated by developing lymphocytes. In the later groups, lymph node increased in size. The space in the lymph sacs converted into subcapsular sinus. In later group fetuses other structures developed. The details will be discussed at the time of the presentation.

**261. Effect of Antiepileptic Drug Vigabatrin on Cerebellum of Albino Rats**

**Singh Deepa**, Mehrotra Namita, Jethani SL, Negi Gita

Department of Anatomy, HIHT University, Jollygrant, Dehradun, Uttarakhand

The present study was designed to study the histopathological effects of Vigabatrin (antiepileptic drug) on the cerebellum of albino rats. Rats were divided into control group and

treated group. Vigabatrin was administered intraperitoneally to the treated group in mild, moderate and high doses for a period of 4 weeks while the control group was given an equal amount of vehicle (normal saline). At the end of the treatment period, rats were sacrificed. The cerebellum was dissected out, fixed and slides were prepared for histological examination. Marked vacuolation, demyelination and neuronal cell loss were observed in different dose groups. Severity of the findings increased with increasing doses. The details will be discussed at the time of the presentation.

**262. Effects of Orlistat on Duodenum of Albino Rats - A Histological Study**

**Singh Nidhi**, Jethani SL, Rohatgi RK, Kalra Juhi

HIMS, HIHT, Jollygrant, Dehradun, Uttarakhand

Orlistat is an anti-obesity drug which is commonly used and sold over the counter freely. Adverse effects of the drug on prolonged usage have been reported by various authors in the literature. The study was conducted in the Department of Anatomy, Himalayan Institute of Medical Sciences (HIMS), Jolly Grant, Dehradun, on 60 albino rats of both sexes with body weight of 100-150gms to observe the adverse of the drug, if any on the histological structure of the duodenum. The rats are divided into Control and Experimental groups. The Experimental group was further divided into Group A and Group B. Group A further divided into 10 rats each received single dose of Orlistat i.e. 5.14 mg/100gms of body weight orally for 1 week and 3 weeks respectively. Group B further divided into 10 rats each received double dose of Orlistat i.e. 10.28 mg/100gms of body weight orally for 1 week and 3 weeks respectively. The control group further divided into 10 rats each received equal volume of normal saline for duration 1 week and 3 weeks respectively. After 1 week and 3 weeks each group of rats were sacrificed after giving ether anesthesia. The intestinal loops were taken out and kept in 10% formalin. Tissue was processed, stained with haematoxylin and eosin dye and observed under the light microscope. There was increase in the thickness of epithelium, number of cell per 10  $\mu$  field decreased with increased intercellular spacing and presence of slight vacuolation. Details of the findings will be discussed at the time of presentation.

**263. Histogenesis of Enteric Neurons in Human Fetal Stomachs.**

**Suchismita Ghosh**, Neelam Vasudeva, J M Kaul, Sabita Mishra

Maulana Azad Medical College, Delhi

The human Enteric Nervous System (ENS) derives from migrating neural crest cells and is structured into myenteric and submucosal plexuses embedded in the gastrointestinal wall. Elucidation of the mechanisms of ENS development and function allow the development of new approaches to the diagnosis, therapy, and prevention of human disorders of gastrointestinal motility. Therefore it is essential to understand the normal development of the ENS in human during prenatal period.

The present study was a baseline study to observe the light



microscopic features of the development and organization of the enteric neurons in relation to the layers of the stomach wall. The study conducted on 10 aborted fetuses, procured from the Department of Obstetrics and Gynaecology, Lok Nayak Hospital, Delhi, evaluated the histogenesis of ENS in the stomach of human fetuses ranging from 10–28 weeks of gestation. The stomach of the fetuses were dissected, formalin fixed and paraffin embedded. Serial sections were generated and stained with H&E, Masson's Trichrome, and Silver ( Modified Schofield). Synaptophysin expression was seen immunocytochemistry. Progressive maturation of ENS was evidenced by: organisation of the neurons into distinct, regularly spaced ganglia; encapsulation of the ganglia; appearance of two subpopulations of neurons; and positive immunoreactivity to Synaptophysin. Thus from the above study it can be concluded that the myenteric plexus is the first to develop and the submucosal plexus develops later. At 28 weeks of gestation, the human stomach has a well organized ENS.

#### **264. Effect of Neonatal Exposure of Aspartame on Microstructure of Retina of Swiss Albino Mice**

**A. M. Tarnekar**, D. Gudadhe, V.K.Gujar, M.R. Shende  
Department of Anatomy, M.G.I.M.S. Sevagram.

**Aim of study-** The present study is carried out with the principal aim to demonstrate structural alterations, if any, on Retina of Swiss albino mice as an irreversible effect of neonatal exposure of aspartame.

**Set-up of study:** A case-control type of prospective histological study with an experimental set up of Swiss albino mice.

**Material & Methods:** 20 Swiss albino mice- 10 experimental and 10 control. Aspartame [100 µg/g in normal saline /day X 2 weeks] injected intraperitoneally in neonatal pups. Eye balls were dissected out from Adult mice [ $> 2$  months of age] & histologically processed for light microscopy.

**Result:** Qualitative histological examination was carried out in both groups of mice. Histo-morphometry was applied wherever needed. Microphotographs were obtained.

**Conclusion:** Apparently no alteration in retinal microstructure was found. Detailed account will be presented.

#### **265. A Histological Study of Developing Fetal Thyroid in Gestational Age Groups**

**Gupta Prerna**, Kumar Pramod  
GSVM Kanpur, U.P.

In the present study 25 aborted fetuses between 9th – 38th weeks of gestational age were collected with no obvious congenital anomalies. The foetuses were obtained from the department of Obstetrics and Gynaecology with the consent of patient and permission of ethical committee of HIHT University, Dehradun. Fetuses were fixed in 10% formaline. For microscopic studies serial paraffin sections were taken and the findings were noted under high and low power light microscope. In the fetus, at 3–4 weeks of gestation, the thyroid gland appears as an epithelial proliferation in the floor of the pharynx at the base of the tongue. At 11th-

12th week colloid starts developing in follicle. Details of observation will be presented at the time of conference.

#### **266. A Histological Study of Developing Fetal Kidney in Gestational Age Groups**

**Mehrotra Namita**, Kaur Harmeet, Arora Mani, Jethani S.L.  
HIHT University, Dehradun

In the present study 25 aborted fetuses between 9th – 38th weeks of gestational age were collected with no obvious congenital anomalies. The foetuses were obtained from the department of Obstetrics and Gynaecology with the consent of patient and permission of ethical committee of HIHT University, Dehradun. Fetuses were fixed in 10% formaline. For microscopic studies serial paraffin sections were taken and the findings were noted under high and low power light microscope. Different histological features of kidney starts developing from 8th- 34th week. Details of observation will be presented at the time of conference.

#### **267. A Histological Study of Human Adrenal Gland**

**Farheen A. Karim**, K.L. Talukdar,  
Department of Anatomy, Gauhati Medical College Guwahati

**Aim:** A Histological Study of Human Adrenal gland with identification of the various zones of adrenal cortex and the medulla and to note any changes in width of various zones in respect to different age groups and sexes and the identification of capsule.

**Material and Method:** Human adrenal glands from 34 males and 26 females of various age groups were obtained from the Post Mortem department of Forensic Science Medicine, GMC after necessary formalities. Specimens were fixed in buffered formalin. Histological slides were made using routine H&E method of staining to examine for general morphology, cytoarchitecture under low (10X) and high power (40 X) Widths of different cortical zones and medulla were measured in each gland by the method of "Micrometry".

**Result-** In young adults clearly distinguishable and smooth borders were found between medulla and zona fasciculata. Which was not sharply demarcated in the elderly. There was evidence of blurring of border between zona reticularis and zona fasciculata in ageing. Average cortical thickness were higher in younger individuals than older. Zona fasciculata was wider in the seventh decade. There were signs of ageing atrophy around the sixth decade. Results and observations will be discussed in the conference in a more detailed manner

**Conclusion:-** Different histological regions of the adrenal gland maybe affected by various pathologies leading to diverse diseases at different ages. Therefore, its of paramount importance that the histological structure of human adrenal gland is studied.

#### **268. Histogenesis of Trachea in Developing Human Fetuses**

**Nita F. Gathe**, N. G. Herekar  
Department of Anatomy, Government Medical College,

Miraj

Respiratory system is one of the important & essential systems for the life of individual. It plays primary role in gaseous exchange & ventilation. The present work is aimed to study the histological development of trachea at different gestational ages and correlate them with the present available studies. Forty-two aborted human fetuses (24 male, 18 female) of 12-40 weeks gestational age with no obvious congenital abnormality are obtained after permission of ethical committee of our college. Trachea was obtained, external parameters were taken & tissue was processed, blocks were prepared & sections of 5 to 8 microns were taken on slides. It was stained with H & E & Masson's trichrome & was observed under light microscope. At 12 wks of gestation it was observed that numerous cartilage cells were seen & lacunae were seen at 1-2 places. Matrix of the cartilage was very less. At 38 wks cartilage cells were less, Matrix was increased so cartilage appears more transparent and more number of lacunae containing 4 cells were observed.

**269. Effect of Aspartame on Kidney of Adult Swiss Albino Mice - A Light Microscopic Study**

**Vijay Gujar**, A.M. Tarnekar, Pradeep Bokariya, Bhavana Khandawe, M.R. Shende  
Department of Anatomy, M.G.I.M.S. Sevagram, Wardha

Introduction: Aspartame is one of the most widely used artificial sweeteners in world. It is high intensity sweetener added to a large variety of food, most commonly used as alternative sweetening agent by diabetics & calorie conscious people. Aim of the study: to find out light microscopic changes on kidney of adult Swiss Albino mice as an effect of prolonged use of aspartame. Study design: case control study with animal xperimental set-up. The present study was conducted on 60 adult Swiss albino mice, 30 xperimental and 30 as control. In Experimental set of mice oral dose of spartame was given at a concentration of 100µg/g per day by intragastric tube upto a period of eight weeks. rol mice received only saline. The mice were sacrificed by euthanasia and kidneys were dissected out. The kidneys were subjected to gross and histological examination by light microscopy. Result: We have found evidences of structural alteration in renal cortical and medullary elements. The detailed account will be presented with review of relevant literature. Ethical clearance: The study is approved by Institutional Animal ethical committee.

**270. Morphometric Study of Endometrial Blood Vessels in Infertile Women**

**Pooja Jain**, Shipra Paul, Anita Tuli, Usha Gupta, Manjula Jain  
Lady Hardinge Medical College New Delhi

Infertility is multifactorial in origin and female subfertility may be a reflection of suboptimal endometrial vascularity. Angiogenesis is an essential prerequisite for endometrial development and differentiation, for the implantation of blastocyst and continuation of pregnancy. Unexplained infertility may have decreased endometrial perfusion. The

present study was carried out to estimate the endometrial vascularity by morphometry which can determine good endometrial receptivity. 60 Patients who qualified the exclusion and inclusion criteria were enrolled in the study. Doppler ultrasonographic examination was done just before premenstrual biopsy for sub endometrial blood flow. The biopsied endometrial tissue was processed. The blood vessels were identified in endometrial tissue and counted in 5 high power fields/slide. Total area of the field was calculated using stage micrometer. The density of the vessels was calculated as no. of vessels/mm<sup>2</sup> of the fields. Doppler vascular penetration was identified in 3 zones as zone 1, zone 2 and zone 3 i.e. poor, intermediate and good vascularity respectively. The microvascular density in patients with zone 1, zone 2 and zone 3 were 14.18±4.07vessels/mm<sup>2</sup>, 24.53±4.65vessels/mm<sup>2</sup> and 42.3 ±6.1 vessels/mm<sup>2</sup> respectively. Correlation between microvascular density and Doppler study revealed that Zone 3 vascularity showed more than 35vessels/mm<sup>2</sup>, zone 2 vascularity corresponded to 20-35 vessels/mm<sup>2</sup> and less than 20 vessels/mm<sup>2</sup> in zone 1 doppler study. Thus the microvascular density of >35vessels/mm<sup>2</sup> represents vascular penetration till innermost layer of endometrium i.e. good endometrial receptivity.

**271. The Microscopic Study of Skeletal Muscle in Human Cadavers before and After Embalming**

**Kalyankar A.G.**, Diwan C.V., Dr Archana Kalyankar  
Department of Anatomy, Government Medical College, Aurangabad.

Routinely for the purpose of teaching and research activities, histology slides are prepared from animals like guinea pig, mice etc. In the Department of Anatomy cadavers are available for dissection purpose. Here, an attempt has been made to prepare the histology slides by using human cadaveric tissue obtained before and after embalming. For the same purpose right sided deltoid muscle tissue obtained from 10 cadavers before and after the embalming. The tissues were fixed in 10% buffered formalin, processed and stained with usual H & E staining. The slide of striated muscle after embalming was comparatively better than the before embalming slide. So we concluded that rather than sacrificing the animals for the teaching and research purpose, tissues can be obtained from human cadaver after embalming. This trial was done considering the skeletal muscle only. In continuation of this study the next venture is to get other tissues for the slide preparation from human cadavers and test its suitability for purpose of teaching and research as compared to tissues from guinea pig.

**272. Effects of Fluoxetine on the Histological Structure of Seminal Vesicles and Prostate of Albino Rats**

**Rohatgi R.K.**, Aggarwal Alka, Jethani S.L., Kalra Juhi\*  
Department of Anatomy & Pharmacology\*, HIHT University, Dehradun.

The present study has been carried out to study the histopathological effects of Fluoxetine (Selective Serotonin Reuptake Inhibitors) on the seminal vesicles and prostate

of adult albino rats. The rats were divided into control and experimental groups. Fluoxetine was administered intraperitoneally to rats for three different durations of 2 weeks, 4 weeks and 12 weeks with the mild (10mg/kg/day), moderate (20mg/kg/day) and severe doses (40mg/kg/day). After the end of 2 weeks, 4 weeks and 12 weeks the rats were sacrificed with ether anaesthesia and tissues were procured. After tissue processing, histological slides were made with H & E staining. The lining epithelium of both the male genital organs showed a decrease in the cellular height on prolonged administration of the drug. There were associated signs of increasing cellular degeneration in the form of pyknotic nuclei and compensatory cellular proliferation. Denuded cells in the lumen were also observed. Details of observations will be presented in the Conference.

### **273. Injury pattern of stressed gastric mucosa**

**Sanjeev Kumar Jain, Suchit Kumar**  
SGRRIM&HS, Patel Nagar, Dehradun

**Aim of the study:** To find out Histological changes in gastric mucosa of Albino rats on Acute stress.

**Material:** The present study was conducted in department of Anatomy, SGRRIM & HS. 40 albino rats (20 male and 20 female) were taken which were further divided into 2 groups of 20 each, both groups contain 10 males and 10 females. 1st group was taken as a control and 2nd as a test group.

**Methods:** Each rat of test group was kept in a small plastic container for 3 hours every day for 7 days. After 7 days all rats were sacrificed as per research protocol. Stomach were taken out and cut in pieces in the size of approximately 1 cm and preserved in Bouin's fluid and 10% formal - saline. After going through the normal histological process, the Histological staining with Haematoxylin and Eosin was done. The slides were observed under Microscope, photographs were taken.

**Result:** Control Group: Stomach showed all the four layers namely - Serosa, Muscularis externa, Submucosa and Mucosa similar to normal gastric layers pattern.

**Stressed Group:** The gastric mucosa showed different grades of damage in the form of ischemic necrosis, microulcers etc. All these changes are in accordance with the injury classification as per Lacy and Ito. Details of observations will be discussed at the time of presentation.

**Conclusion:** Stress plays an important role in breach of gastric mucosa to different extent.

### **274. Variation in Sural nerve with Its Clinical Relevance**

**Riyazul Qamar Khan, Tanveer Ahmad\***

**Department of Anatomy, Maulana Azad Medical College;**  
\*Department of Anatomy, Jamia Millia Islamia, New Delhi

The Sural nerve is generally formed by the union of the medial Sural cutaneous nerve derived from the Tibial nerve, and the communicating fibular branch of lateral Sural cutaneous nerve a branch derived from the common fibular nerve. The union that results in the formation of the Sural nerve occurs in the middle or lower third of the leg. Although the Sural nerve has a constant topographical

localization, anatomic variations are frequent. Clinically, sural nerve is frequently used in biopsy and as a graft in nerve transplantation. Therefore, knowledge about the course, formation pattern and variation of Sural nerve is important for the above mentioned procedures. Details will be discussed in full length paper.

### **275. Behavioural Changes after Neomycin Intoxication – an Experimental Study in Albino Rat**

**Salahuddin M, Faruqi N.A, Ghaus Farah, Yunus S.M**  
Department of Anatomy, J. N. Medical College, A.M.U. Aligarh

Due to the known toxicities of the aminoglycosides, parenteral administration of neomycin has been discarded. But it is extensively used in the forms of creams, lotions and tablets. Sometimes, because of the uncontrolled dose used in the forms of cream, over a large area and for a long period, e.g. cases of burn, the drug can be absorbed in very large amount and can lead to systemic toxicity. So this study was planned to know the effects of systemic neomycin toxicity on the behavioural pattern of albino rats. The present study was carried on 12 healthy adult rats of either sex weighing  $180 \pm 10$  gm obtained from animal house of JNMC, AMU, Aligarh. Neomycin 100mg/kg body weight was given intramuscularly, every day for 10 days to the experimental animals and equal volume of distilled water, in identical manner to the control animals. Behavioural studies were done to collect information regarding ambulation, rearing, preening and motor activity, both gross and fine. It was found that there was reduction in the activities of rats; an observation highly significant for all parameters on day 10. It was concluded that there is generalized decrease in all behavioral movements like ambulation, rearing and preening, all gross and fine locomotor activities after neomycin intoxication in albino rats. This may be due to the neuromuscular blocking properties of neomycin as reported by some workers and central neurotoxicity.

### **276. Variation of Posterior Communicating Artery in Human Brain – A Morphological Study**

**Anubha Saha, B. Bhagyalakshmi\*, Shyamash Mondal\*\*, Manimay Bandopadhyaya\*\*\***

Department of Anatomy, Midnapur Medical College; Mamata Medical College\*; Department Of Medicine, Medical College\*\*; Department Of Anatomy, Baharampur Medical College\*\*\*

The circle of Willis, present in the interpeduncular cistern at the base of the brain, is the major source of blood supply of the brain. Posterior communicating artery is its most important component which connects vertebro-basilar and carotid arterial system. Absence or hypoplasia of this artery will influence development of collateral channel in case of obstruction or narrowing of the major cerebral arteries, thus explaining the different neurological symptoms and the prognosis of the disease. We have studied 60 brain specimens which were collected from consecutive adult donated cadavers from the Department of Anatomy, Mamata Medical College, Khammam, A.P, India and Department of Anatomy, Medical College, Kolkata, W.B, India. Only 38.3% of those

were found to have normal posterior communicating artery. Details of the findings will be presented in the conference.

**277. Prenatal Gabapentin Exposure Induced Behavioral Changes In Rats**

**Anand Mishra**

Institute Of Medical Sciences, Banaras Hindu University, Banaras

Gabapentin is a widely used drug in epilepsy, neuropathic pain and hot flashes. To observe its behavioral adverse effects Gabapentin was given in doses of 6mg/kg, 8mg/kg, and 12mg/kg to pregnant female Charles Foster rats on 9-12th day of gestation. The pups were collected after normal delivery and were reared up to 8 weeks after which they were subjected to behavioral tests (Open Field Exploratory Test, Elevated plus Maze Test, Morris Water Maze Test & Active Avoidance test) to evaluate the deleterious effect of Gabapentin on anxiety, depression, and memory and loco motor levels. The results show that Gabapentin induces a dose dependent enhanced anxiety and depression levels, reduces learning and memory and lowers loco motor activity in pups exposed to drug in utero. Thus it should be used with caution during pregnancy.

**278. Estrogen Improves Synaptic Plasticity and Neuroprotection via Complement-Cytokine Regulation in Female Rat Brain**

**Raj Mehra**

All India institute of Medical Sciences, New Delhi

Loss of estrogen (E2) following menopause or surgical removal of ovaries has been linked with the increased frequency of age related neurodegenerative disorders. Epidemiological studies reveal that long-term use of anti-inflammatory drugs reduces the risk for Alzheimer's (AD) and Parkinson's disease (PD) by roughly half, thus hinting at the role of inflammation in classical age-related neurodegeneration. Interestingly, normal aging also exhibits immune activation and cell infiltration in the brain. Despite these commonalities, the role of the immune system in aging and neurodegenerative diseases remains unclear. Our previous findings have indicated neuroprotective role of estrogen in female rat hippocampus, a highly susceptible brain area for neurodegeneration (Sharma and Mehra, 2007 & 2008). Neuroprotective effects of estrogen may include its anti-inflammatory response via regulating the complement system (key regulator of immune responses) and levels of pro-inflammatory cytokine IL-1. IL-1 arbitrates pro-inflammatory and pro-apoptotic signalling cascade that may render neurons vulnerable to neurodegeneration. Its modulation by estrogen remains to be elucidated which may help to explain the correlation between the hormone loss and increased risk of inflammatory neurodegenerative disorders. In the present investigations, we have investigated first the ovariectomy induced changes in synaptic activity and inflammatory events in hippocampus and subiculum (brain areas involved in learning and memory) of female wistar rats. Ovariectomy (estrogen depletion) led to the degenerative changes in neuronal cytoarchitecture and

upregulation of the expression of estrogen receptor subtypes (ER $\alpha$ , ER $\beta$ ), pro-apoptotic protein Bax and pro-inflammatory cytokine IL-1. Estrogen therapy given to ovx rats on the other hand led to the downregulation of ERs and reversal of cytoarchitectural changes near to that of the ovary intact controls. Neuroprotective effects of E2 therapy were also apparent with a concomitant decrease in bax and IL-1 and increase in anti-apoptotic bcl-2 expression. Functional assessment of spatial memory was done by morris water maze test. E2 treated ovx rats showed better performance in these tests indicating improved spatial memory. These results indicate that

**279. Declining Ethical Standards in Medical Teaching - The Malady and the Cure**

**Agnihotri G, Arora AK**

Department of Anatomy, Government Medical College, Patiala; Department of Anatomy, Sri Guru Ram Das Institute of Medical Sciences and Research

In modern times immense emphasis is being given to inculcation of a sense for ethics in doctors with respect to their professionalism and patient dealing. However, the ethical standards for medical teachers with regard to teaching and interactions with students are being ignored and need immediate attention. The medical teachers perform the roles of a teacher, manager, administrator, researcher and a doctor and all roles are governed and require a code of ethics. As such a study was conducted in which responses of 600 students and 300 teachers towards common ethical violations and possible remedies were obtained. The results indicate-

- (1) A policy regarding academic honesty should be prepared & publicized. (Positive response from 95% teachers and 75% students)
- (2) A regular feedback from students should be taken on teacher's behavior and way of teaching. (Positive response from 33% teachers and 99% students)
- (3) Management/administrators should behave ethically towards faculties (Positive response from 97% teachers and 95% students)
- (4) The student and teacher responses indicate that there is need for introspection and surrender to scrutiny because the interest of 'society is paramount' as compared to the interest of 'individuals'.

**280. Effectiveness of Chalk-Board and PowerPoint Presentation as Teaching Tools for Gross Anatomy**

**Ahire P A, Dr. Rokade S A, Bahetee B H**

B.J. Medical College, Pune, Maharashtra

With the advances in technology and economic development of the country, modern teaching tools like LCD projector are available for teaching & have been adopted by many medical colleges in India. However, it is our general experience that many of our senior anatomists prefer to teach with traditional chalk & board method while young teachers prefer power point presentations (PPT). This aroused curiosity in our minds to find out the reality and the reasons behind it. As well, we have tried to find out which method is preferred by

the students. We also studied the effectiveness of both the methods.

### **281. Preference of Different Teaching Modalities in Teaching and Learning Anatomy**

**Jyotirekha Gogoi**, Hirak Das, Anuradha Baruah, Roonmoni Deka

Department of Anatomy, Assam Medical College & Hospital, Dibrugarh, Assam

Medical education has undergone tremendous changes over the years. Medical education units have been opened up in most institution to make the teaching and learning process a more informative and interactive process. Different teaching modalities are in use. Traditionally, blackboard and chalk for theory classes and dissection for practical part have been used. But with the advent of science and technology, newer and newer modalities have been introduced. This study aims to compare the preference and efficacy of different teaching modalities to teach Anatomy so that teachers can fine tune their techniques and styles according to the need of the students. The modalities examined were the use of traditional blackboard and chalk in lecture classes, PowerPoint projection, dissection, prosection, and multimedia. The study was based on a questionnaire distributed among the faculty, postgraduates and 1st year MBBS undergraduates of Assam Medical College, Dibrugarh, Assam. The study recorded the response of both teachers and students about their preference of teaching and learning modalities. They were asked about the advantages and disadvantages they found with each system. The study has shown interesting results and has widened our understanding of teaching and learning process. In short, the study concluded that a multimodal approach would be the best approach for Anatomy teaching and learning.

### **282. OSPE: Can It Be An Evaluation Tool?**

**SD Lele**, A S Sabnis

Department Of Anatomy, K J Somaiya Medical College, Sion Trombay Highway, Sion, Mumbai

Aims of the study: To compare between OSPE and Traditional Viva ,To study whether it can be implemented in MUHS examination.

Materials: 1st M.B.B.S Students, teaching and non teaching staff, cadavers, bones

Methods: Students underwent traditional morphology viva and OSPE simultaneously by keeping strict vigilance. Results of both the tests analysed. At the end of examination students were asked to give written feedback on the printed forms.

Results:

1. 45.4 % students opted for OSPE
2. 29.5 % opted for both the methods
3. 15.9 % students opted for Traditional viva
4. 9 % students were confused.

Conclusion: OSPE being effective, reliable evaluation tool it can be partly implemented in the university practical examination along with traditional viva

### **283. Program Evaluation**

**Aseem Tandon**, Sushil Kumar, V Srinivas\*

Department of Anatomy and also faculty, Department of Medical Education; \*Coordinator, Department of Medical Education, Armed Forces Medical College, Pune

Faculty development programs in medical education have received impetus after the MCI by the MCI Regulations on Graduate Medical Education, 1997, made it mandatory for all medical colleges to establish Medical Education Units (MEUs) or departments in order to enable faculty members to avail modern education technology for teaching. However, there is need for a systematic approach to comprehensively evaluate the effectiveness and the impact of these programs. The paper addresses this issue applied to an on-going faculty development program at the Armed Forces Medical College, (AFMC), Pune, India.

### **284. OSPE in Histology Techniques – Perceptions of Postgraduate Teachers and Students in Anatomy**

**Rashmi A. Patil**, Praveen B. Iyer, Pritha S. Bhuiyan

Department of Anatomy, Seth G.S.Medical College and K.E.M Hospital, Mumbai

Aim:

- 1.To introduce OSPE (Objective Structured Practical Examination) as an assessment tool in the histology techniques for the postgraduate students in Anatomy
2. To evaluate the effectiveness of this new assessment tool by comparing it with the traditional method

Material and methods: 12 Postgraduate students and 13 teachers from Seth G.S.Medical College Mumbai were included in the study.

Results: The Postgraduate scores in OSPE were found to be statistically more than their scores in the traditional method of assessment. The feedback from the Postgraduate students and teachers brought about the various merits like systematic and unbiased pattern of OSPE and also surfaced its demerits like time, staff and space constraints.

Conclusions: The OSPE method was found to be an effective tool of assessment for Histology techniques.

### **285. Peer Teaching as an Educational Tool in Osteology**

**Lakshmi T.A.** ,Yogitha R, Nachiket S

Department of Anatomy, St. John's Medical College, Sarjapur road, Koramangala, Bangalore

Aim of the study: To evaluate the acceptability of peer teaching in osteology

Materials and method: 60 students of 1st year MBBS 2010-11 batch at St. John's Medical College were included in the study. They were divided into six groups of 10 students and were given specific objectives as handouts for each osteology class. Initially, for upper limb osteology sessions, three groups had active learning with peer teaching and the other three had didactic lectures by tutors. These groups were interchanged for lower limb osteology. Following this all 6 groups were involved in active peer teaching for the rest of osteology. A questionnaire based on Likhert scale was used to determine student response to peer teaching

technique.

Results: 83.3% of the students agreed that peer teaching had improved their understanding of osteology. 90% of the students recommend the continuation of the peer teaching methodology for osteology in the following years. 70% of the students recommended the peer teaching method for embryology and histology. The students found the hand outs very comprehensive and helpful. They felt that it helped them revise osteology quickly before exams. Further details will be dealt during presentation.

Conclusion: Our study showed that medical undergraduates are able to successfully participate in a structured teaching program and derive a unique perspective to exam preparation that was very well received by our student cohort. The role of students teaching their own peers in a formal structured environment is a very valuable teaching tool and the researchers feel this should be encouraged.

**286. Need to Incorporate Communication Skills, Professionalism, Ethics and Health Policies Courses in the MBBS Curriculum of India**

**Aaijaz Ahmed Khan**, Hillol Kanti Pal, Naila Aaijaz  
Department of Anatomy and Neurosciences, Universiti Sains Malaysia, and University Malaysia Kelantan, Malaysia

The undergraduate medical program is a five-year course leading to the degree of bachelor of medicine and bachelor of surgery (M.B.B.S.). The broad goal of the curriculum is to produce highly skilled, compassionate and ethical professionals for country's current and future needs, with a solid foundation to become excellent clinicians, researchers, educators, and or health administrators. A good professional requires excellent communication skills, professionalism, knowledge of ethical issues related to clinical practice and research and country's health policies. With these objectives most of the universities of the world including Universiti Sains Malaysia have incorporated these courses in their curriculum long ago. Though Medical Council of India has designed a curriculum to produce excellent clinicians but there has been no provision for the issues mentioned above. These may be a reason that in spite of having great clinicians, teachers and researchers we are unable to project our self on the world stage. This paper is to create awareness and importance of communication skills, professionalism, ethical issues and health policies of the country to produce a complete medical professional as per the current needs and requirements of the country. To substantiate our view we designed a questionnaire and surveyed around 100 Indian medical graduates ranging from fresh graduates to senior professor working in India and overseas. The data was analyzed by PASW statistics 18. Our results show that most of the medical graduates feel the need of incorporating these courses in the Indian medical curriculum. Therefore, we conclude that it is high time that these courses should be included in the Indian medical curriculum.

**287. Factors Affecting the Performance of Students in Anatomy in NRS Medical College, Kolkata**  
**Sharmila Pal; Manisha Pal\***

Department of Anatomy, NRS Medical College, Kolkata;  
\*Department Of Statistics, University of Calcutta, Kolkata

Aim: The focus of this research is to identify the factors those affect the performance of a medical student in Anatomy, and to provide important suggestions for improvement. Methodology: A survey was conducted on the students of NRS Medical College, Kolkata. Data was collected through a questionnaire consisting of two sets of questions - one relating to personal and family information, and the other to the study of Anatomy. 125 students participated in the study. The marks obtained by the students in the University Examination were considered for assessing the performance. The data was analyzed using regression analysis. Results and conclusion: The most important factor that affected a student's performance was his/her performance in Biology in the school leaving examination. A significant positive association was noted between a student's performance in the theory and practical examinations. Father's education, interest in the subject developed by the teaching, staying at one's parent's home and regular study habit were seen to have significant effect on the performance in theory examination. Food habit was seen to have a significant effect on the performance in practical examination. Further, a student from English medium school showed a significantly higher chance of passing in comparison to a student from Vernacular medium school. Based on the findings of the study, it appears that the performance in Anatomy may be enhanced if a teaching method which helps students to develop an interest in the subject is adopted. Students should be encouraged to participate actively in practical classes. Further, as a considerably good knowledge of English is essential for passing, students should be encouraged to enroll in private English classes.

**288. Mind Maps as Learning Tool In Anatomy**  
**Deepali D Deshatty, Varsha Mokashi**

Vydehi Medical College & R.C., Bangalore, Karnataka

Aim of the study: A medical student has to read vast portion of anatomy in short time period. Mind maps are multi-sensory tool that may help medical students organize, integrate and retain information. The purpose of this study was to see how mind mapping as a note-taking strategy facilitates medical students to learn anatomy better. Whether a relationship existed between mind-mapping and recall of information was assessed.

Material: First year medical students (2011 batch) of VIMS & RC, Bangalore were divided in 2 groups. Each group was having 50 students. One group was standard note-taking (SNT) and other was mind map group (MM).

Method: Same gross Anatomy topics were assigned for both groups. MM group was given training for mind mapping and asked them to study topic with mind maps. Theory exam was conducted on the given topic for both groups. Marks scored in the exam were compared. After exam a questionnaire was given to MM group to assess their opinion to mind maps.

Result: Students belonging to MM group scored better than SNT group. Majority of students of MM group opinion was

mind maps a better learning tool in gross Anatomy. Details will be discussed at the conference.

Conclusion: Mind maps helped medical students in learning Anatomy. It should be encouraged as a learning tool in gross Anatomy along with standard note-taking method.

**289. Factors Affecting the Performance of Students in Anatomy in NRS Medical College, Kolkata**

**Sharmila Pal; Manisha Pal\***

Department of Anatomy, NRS Medical College, Kolkata;  
\*Department Of Statistics, University of Calcutta, Kolkata

Aim: The focus of this research is to identify the factors those affect the performance of a medical student in Anatomy, and to provide important suggestions for improvement.

Methodology: A survey was conducted on the students of NRS Medical College, Kolkata. Data was collected through a questionnaire consisting of two sets of questions - one relating to personal and family information, and the other to the study of Anatomy. 125 students participated in the study. The marks obtained by the students in the University Examination were considered for assessing the performance. The data was analyzed using regression analysis, Results and conclusion: The most important factor that affected a student's performance was his/her performance in Biology in the school leaving examination. A significant positive association was noted between a student's performance in the theory and practical examinations. Father's education, interest in the subject developed by the teaching, staying at one's parent's home and regular study habit were seen to have significant effect on the performance in theory examination. Food habit was seen to have a significant effect on the performance in practical examination. Further, a student from English medium school showed a significantly higher chance of passing in comparison to a student from Vernacular medium school. Based on the findings of the study, it appears that the performance in Anatomy may be enhanced if a teaching method which helps students to develop an interest in the subject is adopted. Students should be encouraged to participate actively in practical classes. Further, as a considerably good knowledge of English is essential for passing, students should be encouraged to enroll in private English classes.

**290. Mind Maps as Learning Tool In Anatomy**

**Deepali D Deshatty, Varsha Mokashi**

Vydehi Medical College & R.C., Bangalore, Karnataka

Aim of the study: A medical student has to read vast portion of anatomy in short time period. Mind maps are multi-sensory tool that may help medical students organize, integrate and retain information. The purpose of this study was to see how mind mapping as a note-taking strategy facilitates medical students to learn anatomy better. Whether a relationship existed between mind-mapping and recall of information was assessed.

Material: First year medical students (2011 batch) of VIMS & RC, Bangalore were divided in 2 groups. Each group was having 50 students. One group was standard note-taking (SNT) and other was mind map group (MM).

Method: Same gross Anatomy topics were assigned for both groups. MM group was given training for mind mapping and asked them to study topic with mind maps. Theory exam was conducted on the given topic for both groups. Marks scored in the exam were compared. After exam a questionnaire was given to MM group to assess their opinion to mind maps.

Result: Students belonging to MM group scored better than SNT group. Majority of students of MM group opinion was mind maps a better learning tool in gross Anatomy. Details will be discussed at the conference.

Conclusion: Mind maps helped medical students in learning Anatomy. It should be encouraged as a learning tool in gross Anatomy along with standard note-taking method.

**291. Use of MS Access for MCQ Bank**

**PB Iyer, K Shyam Kishore, Y J Bhosale, P S Bhuiyan**

Department of Anatomy, Seth GS Medical College & KEM Hospital, Mumbai

Background: A Bank of items (questions) of known technical values helps to construct a written paper with ease, as questions can be chosen from it. In the past, MCQs have been stored on sorter cards that contain all the technical values of the questions. But as the number of questions being added to the bank goes on increasing, storing them on such sorter cards might become a cumbersome job. Hence computerised storing will help overcome this problem and also make retrieval of MCQs easy. Any computer software used for database management can be used for MCQ banking. Microsoft Access is one such software package that is easily available as a part of MS Office package. It can be used for storing the MCQs and retrieving when required.

Aim: To demonstrate the use of MS Access for storing and retrieving MCQs

Methodology: MCQs from the terminal exam of First MBBS held in Dec 2010 were chosen to be stored in MCQ bank. In a table in MS Access, an item with the key was entered in fields. The various other technical values pertaining to the item like code number, subject, broad subdivision of the subject, systemic sub-classification, topic, type of question, level of cognitive domain tested, statistical values p and d and remarks were also entered alongside the item in various fields. Same process was done for other items. For retrieval of items, query is formulated based on different categories i.e. a system of indexing based on subject subheading, p value etc. An illustration of the steps of MCQ banking using MS Access is presented in the paper.

Conclusion: MS Access is a simple computer programme that can be put to good use for MCQ banking with minimal effort.

**292. A Cross Sectional Study to Access the Benefits & Hazards of Internet Use Among the Students of Gauhati Medical College, Assam.**

**Santosh Kumar Sahu, K.L.Talukdar, H. Bayan, J Sarmah, Pradipta Ray Choudhury, Sudipto Pal**  
Gauhati Medical College, Gauhati Assam

Aim of study: Current generation of medical students to

acquire knowledge not only depend on classes & books but also use internet. This study is aimed at benefits & hazards of internet use among medical students.

**Material & method:** A prospective cross sectional study was conducted at Gauhati Medical College, Assam among undergraduate & postgraduate students. Total number of participant was 150; 100 undergraduate and 50 postgraduate. From five batches of undergraduate consisting of 100 students 20 students were taken randomly. Postgraduates were made contact at their respective department during normal duty hour. A predetermined questionnaire was distributed among the students consisting of questions like, reason of using internet, commonly visited websites for study, commonly used search engines, primary place of internet access, incorporation of computer science in medical curriculum, mode of payments in pay sites, entertainment etc.

**Result:** The result obtained from the filled up questionnaire will be computed, analysed, tabulated along with graphical representation.

**Conclusion:** The knowledge of medical science is growing day by day. That is why use of internet for gathering medical knowledge became popular among the medical students. For this reason the present study is conducted and will be discussed at the time of presentation.

### **293. Morphometric Study of Caroticoclinoid foramen in Cranial Cavity of Skull and Individual Sphenoid Bones Available in NCR, India**

**Poonam Patnaik**

Department of Anatomy, Jamia Millia Islamia, New Delhi

**Aim:** To carry out Morphometry of Caroticoclinoid foramen, discuss its incidence and clinical relevance.

**Material and Methods:** 14 sphenoid bones and 60 dry human cranial cavities kept in the department of Anatomy of Jamia Millia Islamia New Delhi and KDC Meerut were observed for presence of this foramen. The major diameter of this foramen was measured with the help of manual caliper. Mean value was calculated. The sphenoid bones were also observed for size of optic canal and presence of sellar bridges and ossified Pterygospinous process.

**Results:** Out of 148 observations, complete Caroticoclinoid foramen was found in 33 sides (20 right and 13 left). 20 sides (11 right, 9 left) showed incomplete Caroticoclinoid foramen. Mean diameter of complete Caroticoclinoid foramen was found to be 5.18mm. The mean of the major diameter was slightly more on left side than right side.

**Conclusions:** In the sphenoid bone Caroticoclinoid foramen is formed either by ossification of Caroticoclinoid ligament or dural folds extending between anterior and middle Clinoid process. Presence of this foramen can lead to compression or stretching of Clinoid segment of ICA, which may lead to headache due to compromised blood supply. Besides the detailed knowledge of incidence of Caroticoclinoid foramen is helpful for neurosurgeons for regional surgery.

### **294. Teaching Anatomy by Surgery Videos and Self Learning Modules**

**Ashwini C A, Kalaivani V\*, Roopa Kulkarni, C Sheshgiri**

Department Of Anatomy, \*Department Of Neurosurgery, M S Ramaiah Medical College

Anatomy is the basis of medical knowledge and needs to be carried on and implemented in the clinical phase. An anatomist can use creativity for making the students understand the clinical anatomy.

**Material and methods:** Videos of surgeries of thyroid and laryngoscopy were made with the collaboration of the surgical sciences faculty. Digital self-learning modules (SLM) of surgical anatomy of the thyroid and larynx were prepared. Two groups a and b of 75 students each were formed by randomization. Crossover comparative study was carried out. After these sessions, a comparative test was conducted to both the study and the control group. Programme evaluation was done by the students and the faculty.

**Results:** The mean test scores for thyroid were 13.37 and 18.6 in group a and b respectively. The mean test scores for larynx were 19.46 and 15.47 for group a and b respectively. The independent t test was applied as the tests of significance. The p value in the thyroid program and the larynx program was <0.001 and 0.003 respectively indicating high statistical significance. The module and the surgeon's point of view have been appreciated by the students (3.69). The students have expressed their desire to undergo similar programs on different topics (3.78). This intervention has increased their interest levels to study the subject in depth (3.44). The surgeon has appreciated this concept of exposing the students to surgery at an early stage.

**Conclusion:** Integration of surgical sciences with basic sciences enables the students to learn anatomy from the surgeon's point of view. The reinforcement by use of SLM has proved effective in better performance by the students due to effective learning.

### **295. Educational Technology in Medical Education Damayanti Devi Ningthoujam**

Department of Anatomy, Regional Institute of Medical Sciences, Imphal

Educational technology refers to ethical facilitation of learning and improving performance by creating, using and managing appropriate technological processes and resources. Appropriate educational technologies have been gradually applied in imparting medical education. However most medical institutes fail to make full use of the advanced technologies; many have not progressed beyond the use of OHP and presentation programmes. The controlling bodies-MCI and Universities insist on only the number of qualified teachers, infrastructures, and equipments. The abilities of the teachers to impart quality medical education are given the least consideration. Motivation of teachers in the form of recognition and rewards is also sadly lacking. This has led to a dwindling number of good and efficient teachers and of these very few are tech-savvy.

The modern day advances in educational technologies and the need to impart a larger volume of knowledge in a shorter period make it mandatory for the medical teachers to be conversant with and use new technologies. Such



technologies include the use of class-room-solutions like the tablets where the writings and illustrations on the computer screen can be seen on the large projection screen in real time, visualisers including 3-D visualisers as opposed to OHP, virtual reality animations during slide shows, streaming videos, online access to the www in the class-room, imaging techniques like ultrasonography in the department and tele-medicine facilities, etc. Introduction of these technologies to the teachers who are used to traditional teaching methods has led to a significant renewed enthusiasm, better acceptance and performance by students. Medical teachers have to rely heavily on the technological advances and move with time. The advantages and benefits of application of the various new educational technologies in the field of medical education are immense. It is high time that all the medical colleges and institutes took to advanced educational technologies to enable the teachers to impart knowledge effectively.

**296. Effect of Socio-demographic Profile on the Academic Performance of First Year Medical Students in Anatomy**

**Archana Rani, Jyoti Chopra, Anita Rani, Rakesh Kumar Diwan, AK Srivastava, PK Sharma**  
Department of Anatomy, C.S.M. Medical University, UP, Lucknow

Medical education is considered to be costly education imparted by any government. The factors responsible for students' performance need to be understood otherwise it could result into wastage of resources. If the factors influencing the performance adversely could be identified then this baseline data could be of immense help for the policy makers in modifying or improving the existing system. 363 first year MBBS students of 2009 (175) and 2010 (188) batches were included in the study. A proforma consisting of information about age, sex, place of residence, medium of instruction during schooling and the board of 12th standard was filled by the students. Performance of these students in the terminal examination was recorded and correlated statistically with their socio-demographic profile. Results will be discussed during the presentation.

**297. Traditional Versus Computer Assisted Teaching of Human Osteology: A Randomized Control Trial Study**

**Jyoti Chopra, Anita Rani, Archana Rani, Rakesh Kumar Verma, AK Srivastava, PK Sharma**  
Department of Anatomy, C.S.M. Medical University, UP, Lucknow

Osteology teaching is effective when it is taught in small groups. Demonstration of minute details is a time consuming process. Restriction in the time for teaching anatomy, shortage of trained faculty and increase in the number of intake of students have made traditional teaching in anatomy challenging. Therefore, the computer assisted learning is growing quickly within academic programmes. An innovative technique for teaching osteology was developed to overcome the above limitations. A multimedia device was connected directly to the LCD projector which gave a highly magnified image of bone on the screen. The teacher

had freedom to move the bone as and when required and can emphasize the details as per need of students. First year BDS students were randomly divided into two groups. One group was taught osteology by traditional method and other with the help of developed device by the same teacher. Total 4 demonstrations were taken and after completion of each class objective structured examination were conducted to assess the performance of each group. The results were statistically analyzed and will be discussed during conference.

**298. Viva Voce: Revisited**

**Surbhi Wadhwa and Veena Bharihoke**

University College of Medical Sciences, Delhi.

Viva voce is one of the main instruments of traditional assessment widely practiced in many anatomy departments in India. However, its utility has been found questionable in accurate assessment and has fallen out of favor in many medical colleges in the United States. A study was conducted at University College of Medical Sciences, Delhi, comparing the performances of 1st Professional MBBS students in viva-voce examination versus an objective structured examination. Each student (n=148) underwent the anatomy examination in two formats- a viva and an objective structured examination. The marks obtained were analyzed using 't' test. It was observed that the students performed significantly better ( $p < 0.001$ ) in the objective examination. The reasons for the difference in performance of the students who underwent both formats of examination on the same course content were analyzed. Subjectivity in questioning, variable interactive confidence levels of the candidate during a viva were deemed to be the possible factors responsible for the disparate observed result. However, its value as a tool of assessment providing the examiner opportunity in gauging depth and expanse of knowledge of the student as well as, testing his/her ability to "think on his feet" in real time and analytical reasoning is unparalleled. Thus despite its shortcomings there is apparent need to retain oral examination. To make viva-voce reliable and valid, restructuring of its format needs to be considered.

**299. Students, perception of computer assisted teaching and learning of anatomy-in a scenario where cadavers are lacking.**

**Fazal-ur-rehman, Sheeba Nuzhat\*, S. Mobashir Yunus**  
Department of Anatomy, Jawahar Lal Nehru Medical College; Aligarh Muslim University, Aligarh, 202002 ; \*Department of Kulliyat Ajamal Khan Tibbiya College, Aligarh Muslim University, Aligarh

Computer software program for three dimensional (3D) modeling of anatomical structures in the human body that presents detailed and step by step cadaver dissections can be used for computer assisted teaching and learning of anatomy. Anatomical drawing, models, skeletons, and live demonstrations supplement the classroom learning

environment. It can provide detailed human anatomical training for students, where there is a lack of cadaver facility. The multimedia equipped interactive Anatomical laboratory softwares enhance both memorization and visual learning skill and has been shown to be an effective teaching aid (Guy & Frisby, 1992), they will improve imaging data analysis and so represent a major advance in determining prognosis and therapeutic strategy. THE AIM of the study is to survey student's opinion/perception on the use of computer assisted classes for teaching anatomy and to determine the place of computer in the teaching—learning process of anatomy to Bachelor of Medicine and Bachelor of Surgery (MBBS) students, as whether they can replace or substitute cadavers. A questionnaire model was given to MBBS students. While studying anatomy, the students accessed a room equipped with computers containing previously loaded anatomy programs. The analysis of the questionnaire showed that for students the computer room considerably facilitates the study of anatomy in easy manner and also potentially increases the understanding of the lesson, at the same time it is considered that the computer room cannot replace cadaver dissection.

**300. Effect of Integrated and Non-integrated Teaching on the Performance of First Year MBBS Students in Anatomy**

**Anita Rani,** Jyoti Chopra, Archana Rani, Arvind Kumar Pankaj, AK Srivastava, PK Sharma, A Sahai  
Department of Anatomy, C.S.M. Medical University, UP, Lucknow.

Teaching in Anatomy is facing daunting challenges. It is a world wide opinion that the students should be taught clinically meaningful anatomy. How to teach clinically useful anatomy is still a debatable topic. Traditionally an anatomist teaches clinically relevant anatomy after consulting standard text books of the subject. Another way could be paired teaching by anatomists and clinicians, but the major limitation with this methodology is that clinicians are already overburdened with their routine schedule. To overcome this limitation we planned an innovative educational strategy in which clinical anatomy was taught to the students by anatomists after consulting clinician. First year MBBS students were randomly divided into two groups. Group A was taught by anatomist in traditional way and group B by anatomist after consulting clinician. Four lectures were taken on female reproductive system by both of them. Pre and post test was taken with each lecture. Marks obtained after four lectures were statistically analyzed and it was observed that the performance of the students of group B was better and the difference was statistically significant.

**301. Learning Anatomy by Jigsaw Puzzle- An Innovative Approach**

**S.N. Kazi,** \*Purshottam Rao Manvikar  
Department of Anatomy, SRM Medical College, Kattankulathur Chennai ; \*Dr D.Y. Patil Medical College, Pimpri, Pune

Making anatomy easy and appealing to students is continuous ongoing process. Learning is more effective by applying the mind to particular topic. This is achieved by

handling the model in the form of puzzle. A design of arteries of head and neck is made in CATIA (Computer Aided Three Dimensional Interactive Application) software. The design was then submitted to RAPID

PROTOTYPING MACHINE, using Acrylo Butadiene Styrene (ABS), a common thermoplastic as the base material. The effect of model in understanding the subject and reproducing the topic was studied in two different groups and the results were presented.

**Material and method:** Common carotid artery and its branches was the topic chosen. Model of common carotid artery was made using solid copper wire. Branching pattern of carotid arterial system including sub branches of external carotid artery was made and connected to main trunk by gas welding. Diameter, length, curvatures, direction of bend and distribution of each branch, sub branches were meticulously studied and made. The details of the model were fed to high ended designer software (CATIA).

**Discussion:** Models have played a major role in understanding anatomy in the past and will continue to be source of learning in future too. Best part of this model is it initiates thinking process of the student and makes them participate cent percent in the process and thus learning becomes an enjoyable experience. The model is displayed for demonstration.

**302. Contribution of Animals in Medical Education and Research (A video presentation)**

**Sandhya Dharwadkar,** K.H. Oswal  
Department of Anatomy, USM-KLE International Medical Programme, Belgaum, Karnataka

To learn and teach tissues of human body, we need to collect samples from fresh organs and tissues. The samples taken from post mortem humans or animals are of no use because of necrosis and degeneration of cells and tissues. This video presentation shows the process right from procuring a living mouse in cage from animal house. It is sedated with small amount of chloroform over cotton and kept firmly over its face for a few seconds. By the time animal is in the process of death the samples of internal organs in thorax and abdomen are taken. The work is complete in a short time after death of animal. Animals like mouse, rat, guinea pig, cat, dog etc., are used regularly for medical education, experimentation, research, invention etc. We should take a lesson from these animals who are sacrificed for the cause of our benefits of Medical Education. We can also contribute and wish to get involved in some way for donation after death.

**303. Use of Plastinated Specimens for Understanding Anatomy in Students of Various Health Science Courses**

**Kishwor Bhandari,** Rajeev Mukhia, Haritha Kumari.N, Aruna Mukherjee  
Topiwala National Medical College, Mumbai, Maharashtra

**Aim:** To study the use of Plastinated specimen in understanding Anatomy in students of various health science courses.

**Objective:** Plastination is a new technique of preserving Anatomical Specimens. In normal teaching the dissected

specimen are not easily carried to the class room. If plastinated specimens are used for explaining complicated structure to the students, they can understand better by viewing the specimen in 3 dimensional ways. Hence, our main objective is to find out the use of plastinated specimen in understanding anatomy in various health science courses.

**Materials and Methods:** Total of 100 MBBS, 100 BDS, 100 Bph, 50 M.Sc Course students were first taught on dissected specimen as well as plastinated specimen. Then a questionnaire based on teaching methods, utilization of normal and plastinated specimen were given to the students. The results are tabulated, compared and statistically analyzed.

**Observations and Results:** The details of Observations will be discussed during presentation.

#### **304. Explaining Cell Structure through Animation Video**

**Sandhya Dharwadkar, K.H. Oswal**

Department of Anatomy, USM-KLE International Medical Programme, Belgaum, Karnataka

Learning Cell Structure and understanding details of more than a dozen organelles, inclusions etc., through traditional methods with black board, diagrams, charts, OHP/Transparencies is difficult for students, who have just started medical course and makes them feel that their study of anatomy is going to be very hard. These traditional methods of teaching histology show the static pictures and being two dimensional they give only a partial impression of the spatial geometry of the objects illustrated. In this video, the cell structure is explained through animations. The travel of RNA, Ribosomes, Lysosomes, Secretary Vesicles within cell, the sequence of events during protein synthesis etc., are shown. The students may be benefited more by such methods.

#### **305. Diagram of The Week (Hand Drawn) - The Targeted Anatomical Fact Reinforcement Methodology for Priority Medical Topics & Clinical Problem Based Learning.**

**Poonam Patnaik, Dalvinder, Tanveer, Mohit Patnaik\***

Jamia Millia Islamia University, Delhi; \*Department of Anatomy, Santosh Medical College and University, Gaziabad

**Aim:** Development and evaluation of targeted anatomical fact reinforcement methodology for priority medical curricular topic teaching in a strategic way.

**Materials and methods:** graduate student must thoroughly learn the basics related to most frequently encountered clinical problems requiring anatomically correct approach.

The performance at first part completion test (general anatomy) by students was considered poor as diagrammatical expressive parts in answers were missing in majority of answers, therefore, a strategy "Diagram of the Week (hand drawn)" was enforced, (Flow charts in Pharmacology at SMC & H\*), were introduced on same strategy later.

The anatomy diagram was displayed on departmental notice board from Friday till Monday for memorization. During Wednesday practical, during first Fifteen minutes, each

student drew the labeled diagram and submitted finally for correction and verification by teacher.

Thus diagrams on twelve topics were given over a span of three months.

The results of next two part completion tests and first terminal exam were analyzed and compared with the first part completion test.

**Results:** The results will be discussed in the conference.

**Conclusion:** The series of diagram has helped students to develop base in anatomy for the related medical educational and clinical fields. The classical repetition of anatomical facts through hand drawn diagrams constitutes most valuable learning tool.

#### **306. Anatomy Junior Faculty Scope: Swot Analysis**

**Sunita Bharati, Jayshree Deshpande, Vivekanand Giri, Sanjay Wanjari, Ujwal Gajbe**

Department of PSM, SVNGMC, Yavatmal,

Department of Anatomy, Jawaharlal Nehru Medical College, Savangi Meghe, Wardha (M.S)

**Introduction:** Scope and future of Anatomy Junior faculty based on changing dynamics of Human resource management. There has large paradigm shift in choosing career in recent years; Non-clinical branch like Anatomy is one of most preferred branch now days. The present study based on assessing scope for Junior Anatomy faculty by using SWOT Analysis.

**Methodology:** Present SWOT analysis based on data of official web page of Medical Council of India and Dental Council of India, which we use PG college database and faculty database. SWOT Analysis is a tool used by organizations to help them identify their Strengths, Weaknesses, Opportunities and Threats (SWOT). In the business world a SWOT analysis is used as a framework to help develop overall corporate, marketing, or product strategies.

**SWOT Analysis**

**Strength:** Total 335 Medical Colleges & 40335 MBBS Seats in India. There are 189 colleges having Anatomy Post-graduation facility & 414 PG seats. Till date 3774 Anatomy faculty and PG enrolled at MCI web pages. Large number of Faculty deficit. MCI in process of increasing 10,000 MBBS seats. 294 Dental colleges with 21540 BDS seats

**Weakness:** Medical council of India reduced faculty norm in recent years. The age of Retirement for Private Medical College in process increase 65 to 70 years. Large Number of In-equality in PG output i.e. 60 % PG seat only concentrate in MS, AP, KA. Many Medical and Dental colleges jointly use same staff for to fulfill norm and workload

**Opportunity:** Large Deficit at level of Associate and Professor so better opportunity for promotion. Overseas Job as Anatomy faculty

**Threats:** Reduced Faculty Norm by DCI, No Separate Faculty structure for Medical & Dental college independently. 42% colleges still in process of increasing PG Seats. Increase in Non-Medical Anatomy Faculty.

**307. Pronunciation In Anatomy**

**M. NATARAJAN**

Seth G. S. Medical College, Parel, Mumbai, Maharashtra

Spoken presentation of papers in conferences is an activity which every academician is associated either actively or passively. The language by far in all these presentations is English. With that being the case, in addition to the knowledge of the specialist's specialty one has to be conversant with phonetics of the language as well. Pronunciation is the dress worn by the individual if the individual is the subject matter. In English language certain letters are not expressed in some words, they being designated "silent" as is the letter 'c' in 'Gastrocnemius'. Every letter in the English language can be "silent" in different contexts. The decision as to when they are "silent" and when they are not, is based upon their meaning and location. Quite often this is traditional transmission, meaning "I will express it the way I heard it". Like any other learning, once a particular phoneme gets entrenched then one is quite resistant to change. An interaction in a previous conference promoted a thought to analyse this issue and reach at a consensus. This in fact opens up a "Pandora's box".

Overlap of multiple languages has led to a plethora of phonemes. So a final decision as to which way to express would be dependent upon the language of origin of a word and the phonetics in that language. This presentation is an attempt to arrive at some unification in this diverse field.

**308. Best Out of Dissected Waste**

**Sunita Gupta**

Department of Anatomy, A.M.C MET Medical College, Ahmedabad

Every year we take out ten bodies for dissection, after completion of dissection a huge amount of dissected waste is produced which is generally disposed off to graveyard. Each year we require a new bone set for the studies, so we decided, why not to harvest bones from the waste of cadavers we usually discard. We went through the fine procedure of bone extraction to strengthen our assets. For one to two weeks selected parts were air dried in indirect sunlight. The air dried soft parts (tissue) were chipped off from the bones using a knife or scalpel. The undone bones were treated with 30% hydrogen peroxide, 30% formalin and water in a ratio of 1:1 for about 15 to 20 days. The remaining tissue is meticulously removed from the bones. Hydrogen peroxide is a strong oxidising agent and a weak acid in water solution. One volume of hydrogen peroxide releases ten volumes of oxygen when it decomposes. This process of epoxidation, oxidation, hydroxylation is used to chemically hasten the decomposition of tissues on bones. The bleaching and deodorizing property of solution makes it perfect chemical to harvest a pure white bone.

**309. Evaluation of Neural Development by Assessment of Growth Rate of Fetal Corpus Callosum Using Ultrasonography**

**T.Siva, Varsha Shenoy, P. Saraswathi**

Saveetha Medical College & Hospital, Chennai

Introduction: The fetal corpus callosum is an important commissural fiber which connects the two large hemispheres. It is considered as a sensitive indicator for the neural development. In this study the corpus callosum was visualized and measured its growth rate by means of its length on midsagittal view using ultrasonography between 18 -36 weeks of gestational age.

Materials: USG 3.5 mega Hz, 50 fetuses belonging to 18-36 weeks of gestational age.

Result: The length of corpus callosum were measured and compared with Bi-parietal diameter corresponding to gestational age and the normative data will be discussed in the venue.