A study was carried out to find out the prevalence of sulcus vocalis in the patients of the Departments of Anatomy and ENT, Sri Ramachandra Medical College and Research Institute, Sri Ramachandra University, for a period of one year. Patients of both sexes, between 25 and 50 years, with horseness of the voice and vocal cord problems were observed. The study was correlated with the anatomy of the vocal cords in the cadavers.

Treatment options include speech therapy and phonosurgery.

It is a challenging disorder and commonly neglected. Therefore a thorough knowledge on sulcus vocalis would lead to extra care in the diagnosis.

317. Anthropometric Measurements of the Hand Length and Their Correlation with the Stature in Oriya Population

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Introduction: Stature or body height is a useful anthropometric parameter for identification of an individual. From the time of Leonardo da Vinci (the Virtuvian Man) the human hand is estimated to bear a 1:10 ratio with height. The study was done to estimate stature from the hand length on 150 Oriya adult Hindu males and females. The morphometrical study has been conducted in the Department of Anatomy, SCB Medical College.

Materials and Methods: Undergraduate students during the period August–November 2012 were selected as cases. Consent was obtained from the volunteers. Stature was measured with a standard stadiometer. Length of both hands were obtained from tip of the styloid to the tip of the middle finger with a slide caliper. Data were analyzed with IBM SPSS for Windows ver.20.

Results: The present study showed significant ($p < 0.001$) positive correlation between the stature and hand lengths.

318. A Comparative Study of a-b Ridge Count and Total Finger Ridge Count in Schizophrenics and Control Groups

Subhasis Chakraborty, Alpana (De) Bose

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Objective: The case control study was designed to compare the value of two dermatoglyphic parameters like a-b ridge count (ABRC) and total finger ridge count (TFRC) in patients of schizophrenia with sex matched control groups and also to see whether these parameters differ significantly with respect to sex.

Methods: Finger and palmar prints of both hands of 58 schizophrenics (male = 30, female = 28) and 50 sex matched control groups (male = 25, female = 25) were taken using traditional ink method. Schizophrenics were diagnosed using DSM-IV criteria from outpatient department of R.G. Kar Medical College and Hospital. Ridge counts were read by method of Cummins and Midlo. Schizophrenic patients with other psychiatric illnesses were excluded from the study to avoid confounding bias.

Results: Statistically significant difference in ABRC of schizophrenics was noted in relation to sex ($p < 0.05$). ABRC decreased in both male and female patients compared to control group although difference was not statistically significant. TFRC also significantly differs between male and female schizophrenics ($p < 0.01$). No significant difference was noted in between schizophrenics and control group although in both sexes the value of TFRC increased compared to control group.

Conclusion: The results show an association between certain dermatoglyphic characteristics and schizophrenia. The nature of association can be better evaluated by further analysis.

Poster Presentations

319. A Case Report on Bipennate 2nd Lumbrical Muscle of Hand

Chintan J. Lakhani, Mayank D. Javia, Mohit V. Changani, Dhaval H. Talsaniya

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The lumbrical muscles form an important part of intrinsic musculature of the hand. The first two lumbricals are unipennate and remaining two are bipennate as described in various textbooks. The variation in hand muscles including lumbricals are very common. We found bipennate 2nd lumbicals in both the hands of the same cadaver during routine dissection. This variation was found only in one among the 30 cadavers dissected during a period of 2.5 years at Anatomy Department of MP Shah Medical College, Jamnagar, Gujarat. The photographs were taken for proper documentation and an attempt was made to compare and discuss the case with other research workers. The present study had concluded that the variation of bipennate 2nd lumbrical muscle of the hand was at 3.3% (1 in 30 cadavers).

320. Variations in the Branching Pattern of Celiac Trunk

S. Jayagandhi, Suman Verma, Magi. M, Mohamed Fasil, Anup Rao

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The celiac trunk is the branch of the abdominal aorta at the level of the twelfth thoracic vertebra. Its branches namely left gastric, common hepatic, and splenic arteries supply the

primary organs of the supracolic abdominal compartment namely the stomach, pancreas, spleen, and liver. During routine dissection of abdomen of a 65-year-old male cadaver in the Department of Anatomy, Pondicherry Institute of Medical Sciences, we had found that the branching pattern of celiac trunk had a variation than the usual pattern, so the specimen was photographed for the details. The celiac trunk was giving the common hepatic and superior mesenteric artery as common trunk and left gastric and splenic artery aroused as common trunk from abdominal aorta. Knowledge of this variable anatomy may be useful in planning and executing surgical or radiological interventions.

321. Higher Level of Origin of Profunda Femoris Artery – A Case Report

Dhurjati Das, Roonmoni Deka, Giriraj Kusre, Rubi Saikia, Anuradha Baruah

Assam Medical College, Dibrugarh, Assam

Profunda femoris artery is a large branch that arises laterally from the femoral artery. At first lateral to the femoral artery, it spirals posterior to this and the femoral vein to reach the medial side of femur. It passes between pectineus and adductor longus, then between adductor longus and adductor brevis before it descends between adductor longus and adductor magnus. It pierces adductor magnus and anastomoses with upper muscular branches of the popliteal artery. The profunda are the main supply to the adductor, extensor, and flexor muscles. It anastomoses with internal and external iliac arteries above and popliteal artery below. Median distance of separation of profunda femoris artery from femoral artery measured from the midpoint of the inguinal ligament is 3.5–4.5 cm in adult cadavers. In case of fetuses, when we divide the femoral artery in femoral triangle into four equal vertical segments, then profunda femoris arises mostly from first segment (59.5%) followed by from second segment (27.5%), from third segment (11%), and from fourth segment (2%) [Alexander et al]. However, no case is reported in review of literatures about higher level of origin of profunda femoris artery just beneath the inguinal ligament. This case is a very rare one, found during routine dissection of undergraduate students, where profunda femoris artery arises laterally from the femoral artery just beneath the inguinal ligament in an adult 56-year-old male cadaver.

322. Unilateral Complete Double Ureter – A Case Report

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Assam Medical College, Dibrugarh, Assam

The ureters are two muscular tubes that extend from each renal pelvis to posterior surface of urinary bladder, about 25 cm in length and 3 mm in diameter. Double or duplex ureter is one of the rare variations of ureter (1 in 125 individuals). It may be unilateral or bilateral. Double ureters may be incomplete or complete. Incidence of complete variety where 2 ureters enter separately into the bladder is 3 times less than incomplete one.

We report a case of right-sided unilateral complete double ureter during dissection of a female fetal cadaver of 36 weeks of gestation (IUD). Ureter from upper pole of kidney is longer than that from the lower pole and enters the bladder separately. Left ureter is single and normal. The duplex collecting system is associated with a variety of congenital anomalies of urogenital tract. Most patients having double ureters are asymptomatic. In our case no associated anomaly of any other systems is observed. The knowledge of anatomical variation of ureter and collecting system of kidney is of great importance not only for the urological conditions but also in surgeries involving renal transplants and radiological diagnosis.

323. Very Rare Variation in Morphogenesis of Greater Curvature of Stomach

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Knowledge of anatomical and vascular variations of stomach plays a crucial role in operative diagnostic and endovascular procedures of the abdomen. Variations in size and position of stomach have been studied in detail earlier. Diverticuli, volvulus, and perigastric adhesions are also noted in stomach. Anatomical classification of shape and topography of stomach has also been stated. A rare variation in morphogenesis of greater curvature of stomach was observed during routine dissection in a 65-year-old male cadaver at Department of Anatomy, Dr. D.Y. Patil Medical College, Kolhapur. Abdominal cavity was opened systematically and relative position of stomach with other structures was found to be normal. No Perigastric adhesions were noted. Neither postoperative scar nor fibrosis was noted. On external examination, all presenting parts of stomach were found to be within normal limits except the greater curvature, which showed abrupt curvature with a beak like shape pointing downwards and to the left. Internal examination was within normal limits. Histological examination of bits of stomach taken from various parts showed normal histological appearance at different regions of stomach. The unusual variation in shape of greater curvature only can be attributed to factors affecting morphogenesis of stomach. The maintenance of progenitor cells, morphogenesis, and cellular differentiation in stomach is controlled by FGF10. Similarly, Hes 1, Shh, Wnt 6 expression also affect the morphogenesis of stomach. This variation can be due to altered expression of FGF 10 acting in concert with multiple morphogenetic signaling systems during gastric development.

324. Unusual Formation of Median Nerve from Lateral Cord of Brachial Plexus

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Median nerve, the nerve supplying most of the muscles of flexor compartment of forearm, plays a crucial role in movements of all joints of upper limb except shoulder joint. So truly it is referred to as "Labourer's nerve"; important for movements of forearm and hand, especially the thumb. Usually median nerve forms from two roots, one coming from lateral cord and other from medial cord of brachial plexus. We found a rare variation in left axilla of a 62-year-old male cadaver during routine dissection at Department of Anatomy, Dr. D.Y. Patil Medical College, Kolhapur. In this case, both roots forming the median nerve were arising from lateral cord of brachial plexus. The median nerve did not receive any contribution from medial cord in whole course. Course and distribution of this median nerve were as usual. The variation was unilateral. Precise knowledge of such variation helps clinician to correctly interpret the clinical findings, neurophysiologic tests, and radiological images. It helps anesthetists in planning of brachial plexus blocks and orthopedicians for routine and reconstructive operations in arm. This rare variation can possibly be attributed to embryological condition. Action of circulatory factors, chemo attractants, and chemo repellents in a highly coordinated site-specific fashion leading to proper signaling between mesenchymal cells and neuronal growth cones is essential for normal formation of limb plexuses. Any variation in this process leads to formation of anatomical variants in such plexuses.

325. Multiple Variations in an Upper Limb – Unilateral

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Chettinad Hospital and Research Institute, Kelambakkam, Tamil Nadu

During upper limb dissection of a female cadaver multiple anatomical variations were observed. On the left side of upper limb, medial brachial cutaneous nerve was absent; instead cutaneous innervation for the medial aspect of arm reinforced by intercostobrachial nerve associated with this communication between musculocutaneous and median nerve was observed. In addition to this presence of third head of biceps brachii, absence of palmaris longus, and 3rd lumbrical was innervated by median nerve. On the right side, no variations were noticed except for the presence of recti sternalis. Embryological basis was discussed. Unique variations as reported in this case may guide surgeons. For example, sectioning of intercostobrachial nerve during breast surgery for cancer can cause intercostobrachial neuralgia or postmastectomy pain syndrome (PMPS). So preservation of intercostobrachial nerve during surgeries may decrease the morbidity of postoperative sensory disturbances in the arm.

326. An Unusual Branch of Superficial Palmar Arch: A Case Report

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Superficial palmar arch (SPA) is an arterial arch in palm that is formed by the ulnar artery with superficial branch of the radial artery. Usually, it gives branches of 4 palmar digital arteries. The most medial one is the proper palmar digital artery to the medial side of little finger. The other three branches are common palmar digital arteries-pass to interdigital clefts where each receives the corresponding palmar metacarpal artery from the deep palmar arch and divides into two proper palmar digital arteries to the adjacent sides of 2 fingers. The both medial and lateral sides of the thumb are supplied by branches of arteria princeps pollicis and lateral side of index finger is supplied by arteria radialis indicis which are branches of superficial branch of radial artery. Variations encountered in SPA are more often than the deep palmar arch. During the gross anatomy dissection of the right hand of an approximately 60-year-old male cadaver in the Department of Anatomy, Gauhati Medical College, we observed an unusual branch that arises from SPA that goes to the lateral side of index finger, where it divides into two adjacent sides. This vascular abnormality under study was colored and photographed. The details of the variations were presented in the form of poster at the conference. Knowledge of this type of variation is very important in avoiding complications during successful operative surgery.

327. Unilateral Variation in the Position of Internal Carotid and External Carotid Arteries

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During the routine dissection in the Department of Anatomy, Bankura Sammilani Medical College, Bankura, West Bengal, a unique variation was found in the neck region of a 77-year-old male cadaver. Unilateral variation in the relation and position of the internal and external carotid arteries was noticed on the right side of neck. Usually, the internal carotid artery is situated laterally and the external carotid artery is situated medial to that on each side of the neck. But in this cadaver the internal carotid artery was present medially and the external carotid artery with all its branches (lingual ar-

tery, facial artery, etc.) was present laterally on the right side of neck. On the left side the normal anatomical position of the two arteries was restored. Knowledge of variations in the course and relation of carotid and external carotid arteries is important for surgeons (during a surgery in the neck) and also for radiologists to interpret carotid system imaging.

328. Blackboard Versus PowerPoint Presentation

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The blackboard was invented by James Pillans, headmaster of the Royal High School, Edinburgh, Scotland. The term "blackboard" dates from around 1815 to 1825 while the newer and predominantly American term, "chalkboard" dates from 1935 to 1940. The blackboard is a reusable writing surface on which text or drawings are made with sticks of calcium sulfate or calcium carbonate, known as chalk. Blackboards were originally made of smooth, thin sheets of black or dark grey slate stone. A blackboard can simply be a piece of board painted dark. A more modern variation consists of a coiled sheet of plastic drawn across two parallel rollers, which can be scrolled to create additional writing space while saving what has been written. The highest grade blackboards are made of rougher version porcelain enameled steel. Now the chalkboard or blackboard is being replaced with Computer Integrated Teaching (PowerPoint). PowerPoint, a product of Microsoft, has become an integral part of our lives. Whether business gatherings, academic conferences or even in media, it is finding large scale acceptance and appreciation. With just a few clicks and keystrokes, we can add graphics, text, audio, video, and animation to a slide show. Therefore, in latest technological advancements, education and style of lecture delivering have undergone transformations. The teaching methods have seen a long list of changes beginning from Chalk and Talk method to PowerPoint. The PowerPoint has many merits and demerits over blackboard which were discussed in detail during poster presentation.

329. Pearls Around The Knee? Anatomical Consideration

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During routine dissection of knee in a male cadaver age between 60 and 65 years, a hard mass was felt in the infrapatellar part of right knee in its lateral part which was exposed by incising lateral patellar retinaculum and to our surprise, small pearl like object of the size smaller than 1cm, oval in shape, and bony hard in consistency could be removed. In yet another case in a male age between 60 and 65 years while exposing the interior of knee by a transverse supra patellar incision the articular surface of patella and infra patellar pad of fat were exposed. A rounded projection about 2 cm in size was visualized deep to synovial membrane in the midline. After cutting the synovial membrane a large bony ossicle, which also looked like a pearl, was removed. Measurements and weights were recorded and their radiographs taken. It is variously described in literature as peri-articular calcinosis, heterotrophic calcification (HO), tumoral calcinosis. Credit is given to Reidel (1883) for describing HO for the first time. A large number of predisposing factor are described in literature, although the precise pathogenetic mechanism is unknown. But it is thought to be due to overexpression of BMP (bone morphogenetic protein) in peri-articular soft tissues. HO can limit the range of motion of a joint. These may be solitary or multiple painless periarticular masses which are lobular and densely calcified, and can be diagnosed by USG, X-ray, CT, and MRI. In the light of available literature these rare findings will be presented and discussed.

330. Biceps Brachii with Four Heads – A Case Report

Garima Pardhi, Sonali Agichani, Yogesh Sontakke
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Biceps brachii is one of the muscles of the anterior compartment of the arm. Normally it has 2 heads: long head which originates from the supraglenoid tubercle and short head from the tip of coracoid process. During routine anatomy dissection for first MBBS students, in an adult male cadaver age approximately 65 years, a biceps brachii muscle with 4 heads was observed. The short and long heads had their normal origin. In addition to this, a 3rd head was found to be originating obliquely from the shaft of the humerus along the lateral side of insertion of the coracobrachialis muscle and the 4th head originated from superomedial margin of origin of the brachialis muscle. Both additional heads were directed downwards and laterally and joined the deeper surface of short head. All heads of this variant biceps brachii muscle were supplied by the musculocutaneous nerve. Earlier, Poudel PP and Bhattarai C (2009) reported the presence of a third head in 6.2% and fourth head also in 6.2%, whereas Standring (2008) reported the presence of a third head in 10% of cases. Knowledge of the existence of such variations of biceps brachii may be significant in surgeries of the arm in trauma, tumors, etc. This case report was presented and discussed in the light of the available literature.

331. Ossified Ligaments around the Turcica Region in a Specimen of Sphenoid Bone – A Rare Finding

Mrinmoy Pal, N. Damayanti Devi, Th. Naran Babu Singh
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The inter clinoid ligaments between the anterior, middle, and posterior clinoid process are occasionally ossified. The presence of the ossified interclinoid connections may be significant in surgical management and may manifest clinical symptoms, depending on its size.

Aims and Objectives: The aim of this reporting is to present the ossified ligaments around the sella turcica region morphologically and to consider their possible impact on the surrounding nervouovascular structures.

Results: A bony bridge between the anterior and middle clinoid process and between the anterior and posterior clinoid process was found in a dry specimen of one sphenoid bone and was found bilaterally forming a ring around the sella turcica.

Conclusion: The occasional presence of ossified CCL may compress the internal carotid artery, interrupting the blood flow, and may also compress the cranial nerves. So, the anatomical knowledge of such ossification is important from clinical and surgical point of view and should be kept in mind and evaluated before proceeding to skull based surgery around the sella turcica region.

332. Third Root of Median Nerve Coming from Musculocutaneous Nerve – A Case Report

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Median nerve is formed by union of two roots, lateral root and medial root, coming from lateral and medial cord of brachial plexus, respectively. During routine dissection in Department of Anatomy, RIMS, Imphal, median nerve and variation in its formation were noticed in right axilla. Three roots forming median nerve were observed and the third root was coming from musculocutaneous nerve. Nerve variations of the upper limb are very important in routine surgery and during radical neck dissections where these variations are more prone to injury. These variations may also help in interpretation of a nervous compression having unexplained clinical symptoms. So, knowledge of such anatomical variations is of interest to the anatomist and clinician.

333. A Rare Case of Megacolon

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Megacolon is a condition in which a part or whole of the large intestine shows marked dilatation. If the diameter of the colon exceeds the normal value of more than 12 cm for cecum, 6 cm for transverse colon, and 8 cm for rectosigmoid junction, it is considered as megacolon. The cause of megacolon might be congenital or acquired. Congenital megacolon is also referred to as Hirschsprung's disease is the absence of myentric or Auerbach's plexus and it rarely affects the small intestine. The most common cause of acquired megacolon is idiopathic. Various forms of inflammatory bowel disease (IBD) such as ulcerative colitis, Crohn's disease, and proctoloitis also cause megacolon. In the present case an unusual form of megacolon is reported. On routine dissection, an adult male cadaver presented the following features: The sigmoid colon was markedly dilated with no signs of volvulus. The transverse colon and cecum were larger than the normal size. The appendix, and ascending and descending colons were found to be normal. The sigmoid colon, mesentery and transverse mesocolon was normal which excludes any malrotation of the gut. Interestingly, the arterial supply to the left one-third of transverse colon and descending colon was derived from a branch of middle colic artery. This branch formed a communication loop with trunk of inferior mesenteric artery. On the whole, the suspended parts of the colon were found to be dilated while the fixed parts of the colon were normal. The case was presented for its rarity and the cause of such anomaly was discussed further.

334. Bilateral Second Branchial Cleft Fistula: A Case Report

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Study of the branchial anomalies covers a wide variety of pathological conditions. The developmental defects of the neck include branchial cleft anomalies such as branchial cysts, sinuses, and fistulas. These are mostly unilateral in presentation. A second branchial cleft cyst and fistula is an uncommon branchial cleft anomaly which appears as a mass just anterior and medial to the sternocleidomastoid muscle in the neck. In the present case report, we observed a child with small, bilateral external openings in the lower part of front of neck. On examination, we observed bilateral openings along the anterior border at the junction of middle and lower third of the sternocleidomastoid muscle with some mucoid discharge. In fistulogram, the sinus tract was seen opening into the pharynx. Further details of this bilateral second branchial cleft anomalous fistula were discussed at the time of presentation. Correct diagnosis is essential to avoid inadequate surgery and multiple procedures and complete excision is essential for good outcomes.

335. Bilateral Variation in Formation of the Median Nerve – A Case Report

Shantanu B. Chavan, M.A. Rahman, S. Porwal, S.S. Dhapate
S.R.T.R. Government Medical College, Ambajogai, Maharashtra

Anatomical variation in the formation, course, and distribution of median nerve has been well documented in various literatures. During the routine anatomical dissection of the human cadavers in the Department of Anatomy, SRTR Government Medical College, Ambajogai, incidentally a variation in the formation of median nerve was found. In the present report this variation has been studied and documented. Normally, the median nerve is formed by two nerve roots i.e. medial and lateral nerve roots arising from the medial and lateral cords, respectively. But, in the studied cadaver, median nerve was formed by three roots on the left side of the body and there was an abnormal communication present between the median nerve and musculocutaneous nerve on the right side of the body. The abnormal root coming from musculocutaneous nerve had a very close course with the axillary artery. Variation of these kinds can be of interest to surgeons and anesthetics while doing surgical operations in axilla and arm or giving axillary block. The possible mode of origin and clinical importance of this variation was discussed in the poster presentation.

336. Unilateral Renal Agenesis – A Case Report

Ajit A. Holkunde, D.S. Joshi, S.S. Dhapate
SRTR Govt. Medical College, Ambajogai, Maharashtra

During routine cadaveric dissection for 1st year MBBS students of batch 2011–12, we found one characteristic finding that is a small mass of tissue of size 4cm × 3cm in the right hypochondrium. Hypertrophy of left kidney and hepatomegaly were other notable findings. The histopathological study of the tissues is also done.

All the findings during the dissection as well as the histopathology reports direct us toward the diagnosis of unilateral renal agenesis. Interesting feature about this case report is the histopathological findings and the differential diagnosis, which were discussed in detail at the time of poster presentation.

337. Hallux Valgus (Bunion) – A Case Report

Walwante Raviraj Durganand, S.S. Dhapate
SRTR Govt. Medical College, Ambajogai, Maharashtra

During routine cadaveric dissection for 1st year MBBS students of batch 2012–13, we found one characteristic finding on a male cadaveric body: there was bilateral enlargement and bony protrusion of first metatarsophalengeal joint on medial side with the lateral deviation of great toe. These findings have been studied by dissection and radiological examination of both feet and observed that there is increase in first and second intermetatarsal angle, lateral dislocation of sesamoids, subluxation of first metatarsophalangeal joint leaving metatarsal head uncovered, and lateral deviation of phalanges of second and third toes. All the findings during the dissection as well as the radiological study direct us toward the diagnosis of bilateral hallux valgus (bunion). The findings of radiological examination, the differential diagnosis, and interesting features of this case report were discussed in detail at the time of poster presentation.

338. A Unilateral Accessory Submandibular Duct

Harsha B.R., K.R. Dakshayani
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During routine dissection in the Department of Anatomy, MMC and RI, Mysore, a unilateral accessory sub-mandibular duct was observed in a male cadaver age around 55 years. The sub-mandibular duct (Wharton's duct) is the principal duct of sub-mandibular gland which is the main mucous salivary gland of the body. Normally gland has only a single main duct which arises from deep part of the gland. The variation in duplication or accessory origin of the duct is important in total or partial removal of the gland, interventional sialography, and also in the successful radical neck surgeries. The knowledge regarding the variations of sub-mandibular duct can help the surgeons in accurate treatment of sialolithiasis and assist them in minimizing postoperative complications. The details of the observation and its clinical significance were dealt in detail during the presentation.

339. Variation in The Foramation of Ansa Cervicalis on Right Side

Jyothi. S. R., K. R. Dakshayani
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During routine dissection in the Department of Anatomy, MMC and RI, Mysore, variation in the formation of ansa cervicalis on right side was observed in a male cadaver age around 45 years.

The ansa cervicalis is a loop of nerves that are part of cervical plexus. It is found in the anterior wall of carotid sheath in the carotid triangle which supplies the infrahyoid muscles. Formation of ansa cervicalis is by the union of descendens hypoglossi and descendens cervicalis. In the present case descendens hypoglossi is uniting with descendens vagi to form the upper loop. A branch from upper loop is seen joining with descendens cervicalis to form the lower loop. The knowledge of anatomy of ansa cervicalis is important for surgeons in laryngeal reinnervation surgeries by nerve to nerve anastomo-

sis or by nerve-muscle transplantation to paraglottic space. Ansa cervicalis is used in preventing tongue hemiatrophy after facial-hypoglossal anastomosis. Knowledge regarding variations can also prevent iatrogenic injuries to ansacervicalis during procedures such as thyroplasty, arytenoid adduction, and teflon injection. The details of the observations and its clinical significance were dealt in detail during the presentation.

340. Unusual Distribution of Right Phrenic Nerve

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During routine dissection in the Department of Anatomy, MMC and RI, Mysore, an unusual distribution of right phrenic nerve was observed in a male cadaver age around 40 years. The phrenic nerve arises chiefly from fourth cervical ventral ramus. However, the ventral rami of third and fifth cervical spinal nerves also contribute to the formation of the nerve. It is formed at the upper part of the lateral border of Scalenus anterior muscle. Phrenic nerve is a mixed nerve having both sensory and motor fibers, the motor being to diaphragm and rarely to scalenus anterior. In the present case, it was observed that it gives muscular branches to Scalenus medius and Scalenus posterior while descending on Scalenus anterior. It also gives 2 branches which join the upper trunk of brachial plexus. The knowledge regarding unusual branches can help the surgeons in accurate interscalene nerve block for regional anesthesia and assist them in minimizing postoperative complications. The details of the observations and its clinical significance were dealt in detail during the presentation.

341. Parasite Twin- A Case Report

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T.N. Medical College and B.Y L. Nair Charitable Hospital, Mumbai Central, Mumbai, Maharashtra

Parasites on heteropagus twin represent one of the rare forms of conjoined twins in which an incomplete smaller (parasite) twin is attached to and dependent on an otherwise normal host twin. It occurs as a result of abnormal process in first few weeks of embryologic development. This is a parasite twins. Full term conjoined twins delivered by cesarean section. The parasite twin attached to the right lateral side of the abdomen of host twin. The parasite twin had only lower limbs and male external genitalia. Rest of the body parts were not developed. CT scan of parasite twin showed normal pelvic and lower limb bones. Surgical separation of twins was carried out. During surgery it was found that they were sharing a common liver. The twins were separated, the whole parasite twin was removed from the host twin and was placed back in its abdominal cavity.

342. A Case Report on Synostosis of Right Sacroiliac Joint

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Sacroiliac joint is a synovial joint between the auricular surfaces of the sacrum and ileum where the iliac surface is covered with hyaline cartilage and the sacral surface by fibrocartilage. This study reports a case of adult female pelvis showing unilateral sacroiliac synostosis. The right sacroiliac joint was solidly synostosed and when viewed from behind, the joint was marked by a slight and irregular bony ridge, and on the pelvic face a completely smooth surface was seen. Because of their situation the sacroiliac joints have received relatively little study and hence the case is reported.

343. A Rare Case of Complete Double Inferior Vena Cava

Mrinalini Konjengbam
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A case of almost complete duplication of the inferior vena cava involving not only the post-renal abdominal segment but also the thoracic segment was noted during routine dissection class of undergraduate students. The plausible embryogenesis along with relevant clinical implications were discussed.

344. Variation in the Axillary Arch Muscle

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The axillary arch muscle (AAM), also known as Langer's muscle, axillopectoral muscle or the "Achselbogen Muskel," is a rare muscular anomaly of the axilla. It is described as a thin muscular slip extending from the latissimus dorsi to the pectoralis major. Variations of this muscular anomaly have been observed. Common cases include the muscle adhering to the coracoid process of the scapula, medial epicondyle of the humerus, teres major, long head of the triceps brachii, coracobrachialis or biceps brachii, and pectoralis minor. The AAM has been observed both unilaterally and bilaterally. The clinical significance of the AAM has been implicated as a potential cause of neurovascular compression in the cervicoaxillary region, and the hyperabduction syndrome among others. We have encountered a unilateral muscular slip extending from latissimus dorsi to the coracoid process while doing routine dissection in the department of anatomy.

345. An Accessory Head of Flexor Digitorum Profundus Muscle

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A lot of variations in the arrangement of flexor muscles of the forearm have been reported in literature. Some of these variations have been mentioned as retrogressive, while some separation of proximal muscle bellies has been considered as a progressive variation. Macalister has reported all types of variations involving flexor digitorum superficialis 9FDS), flexor digitorum profundus (FDP), and flexor pollicis longus (FPL). During routine dissection of a cadaver, an accessory slip of FDP muscle was found having two heads originating from the deeper surface of FDS and interosseous membrane. One of these heads was seen passing through the median nerve splitting it into two and distally uniting to form an independent tendon which was lying parallel to the tendon of FDP for the index finger. In the palm this tendon was close to the latter and from that the first lumbrical was arising. This accessory muscle received its nerve supply from anterior interosseous nerve.

Details of this variation, its embryological basis and clinical significance were presented.

346. Bilateral Three Headed Biceps Brachii Muscle – A Case Report

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During routine dissection by medical undergraduates, the third head of the biceps brachii muscle was found on both sides of a 67-year-old male cadaver among a total of 16 cadavers (32 arms) dissected. The biceps brachii muscle is described as a two-headed muscle that originates proximally with a long head from the supraglenoid tubercle and short head from the coronoid process of the scapula. In this case, the long and short heads were normal; however, the bilaterally symmetrical third head had a fleshy humeral origin between the insertion of the coracobrachialis and the upper part of the origin of the brachialis. The supernumerary head was deep to the other two heads of biceps and was inserted into the bicipital aponeurosis by a common tendon. All heads were supplied by the musculocutaneous nerve.

347. Bifid Rib: A Case Report

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A case of bifid rib was found in a cadaver during routine dissection. The distal part of the osseous rib bifurcated into two branches with an angle of 60°. Both branches had their own costal cartilage. The costal cartilage fused again to form a single trunk which connected to the sternum. The space between the two branches was filled with normal intercostal muscles. Blood supply was maintained by a small branch from the internal thoracic artery to the upper branches. However, the intercostal nerves did not branch toward the upper branch of the rib, but only ran along the lower margins of the lower branch of the bifid rib. A bifid rib is a congenital abnormality of the rib cage and associated muscles and nerves which occurs in about 1.2% of humans. Bifid ribs are usually asymptomatic, and are often discovered incidentally on chest X-ray. Effects of this neuroskeletal anomaly can include respiratory difficulties and neurological limitations. There are other types of congenital anomalies and deformities of the ribs, including developmental fusion of two or more ribs, articulation or bridge formation between two ribs, and bifid rib (forked rib). These anomalies are usually of little or no clinical significance; however, one should be familiar with them to distinguish them from true rib diseases.

348. Cleft Lip: A Case Report

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Introduction: Congenital malformations of the face may be initiated early, and related to abnormal migration, proliferation, and/or apoptosis of neural crest cells, or later, during the morphogenetic phase of facial development. Cleft lip occurs when one or both medial nasal processes fail to fuse with the corresponding maxillary process. A cleft lip, with or without cleft palate, occurs approximately once in 1000 births; however, the frequency varies widely among ethnic groups; 60–80% of affected infants are males.

Materials and Methods: After taking formal permission from the authority, an abnormal fetus was collected from the Department of Obstetrics and Gynaecology, RIMS. Fetus was observed externally and internally after dissection.

Observation: A male fetus was found with a unilateral and incomplete cleft of the upper lip. It was associated with polydactyly.

Conclusion: Prevention is the ultimate objective for clefts of the lip and palate, and the prerequisite to achieving this is to elucidate the causes of the disorders.

349. Roberts Syndrome

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Roberts syndrome is a rare genetic disorder, inherited in an autosomal recessive manner. The cytogenetic study of the peripheral blood of affected individual shows the character-

istic chromosomal abnormality of premature centromere separation and separation of the heterochromatic regions in most chromosomes in all metaphases. ESCO2 is the only gene documented to undergo mutation. Prevalence of Roberts syndrome is <1/1000,000. Parental consanguinity is common. It is characterized by prenatal growth retardation and limb malformations. Upper limbs are more severely affected than lower limbs. Craniofacial abnormalities include cleft lip and/or cleft palate, micrognathia, microbrachycephaly, ocular hypertelorism, exophthalmos, and ear malformations.

Aim: Description of the phenotype expressed in the term female newborn with multiple congenital anomalies.

Materials and Methods: A term female with multiple congenital anomalies delivered in the Obstetrics and Gynaecology Department, RIMS, and admitted in RIMS Pediatric ward.

Findings: Term female baby, 3.4 kg birth weight. The phenotypic expressions included the following:

(i) Amelia of upper limbs, phocomelia of lower limbs, syndactyly of right 4th and 5th toes, absent left 5th toe, laterally rotated left leg, (ii) brachycephaly, hypertelorism, micrognathia, cleft lip, and palate, and (iii) enlarged clitoris. No history of parental consanguinity.

Conclusion: The phenotypic expressions correspond with that of the Roberts syndrome. However cytogenetic study was not done.

350. A Newborn Baby Associated with Spina Bifida Cystica

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Background: Spina bifida cystica is a developmental defect of the central nervous system due to nonclosure of the neural tube, in which a hernial cyst containing meninges (meningocele), spinal cord (myelocele) or both (myelomeningocele) protrudes through a congenital defect due to nonfusion of the spinous process of the vertebra. The incidence of spina bifida is 0.2–0.4/1000 live births.

Materials and Methods: A term live baby was born by normal vaginal delivery on October 6, 2012 at 5:00 am in the Department of Obstetrics and Gynaecology, RIMS, Imphal. The baby was irritable and on physical examination a spina bifida cystica was observed on the lumbar area. The cyst was studied externally.

Observation: The cyst was present at the lumbar region measuring 4 × 4 cm. A tuft of hair was observed by the side of the cyst. The cyst was soft and tender. Other external anomalies were not observed.

Conclusion: This case is being reported because of the high prevalence of neural tube defects (NTDs). NTDs can be caused by defect of Pax, Hox, Msxl and Msxll genes and folic acid metabolism. It can be etiologically classified as: (1) chromosomal trisomy 13 and trisomy 18, (2) syndromal and (3) isolated. Seventy percent of NTDs occurrence can be prevented by taking folic acid tablets 3 months before and during pregnancy.

351. Omphalocele: A Case Report

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Objective: An omphalocele is a type of abdominal wall defect in which the intestine, liver and occasionally other organs remain outside the abdominal cavity at the base of the umbilicus. The protruded organs are usually covered by a membrane. This anomaly develops as baby grows inside mother's womb, because the normally herniated midgut during the 6–10 weeks (physiological umbilical herniation) fails to return to the abdominal cavity. The incidence of this abnormality occurs in 2.5/10,000 births. It is also associated with high mortality rates and severe malformations, including cardiac abnormalities, neural tube defects, etc. There are two types of omphalocele. In small type only the intestine comes out, but in large type liver and spleen may come out of the body. This can be detected in the intrauterine life prenatally by ultrasonography.

Materials and Methods: The abnormal fetus with protruded abdominal wall defect was collected from the Obstetrics and Gynaecology Department, RIMS, Imphal, with permission from the competent authority.

Observation: A spherical structure was found on the wall of the anterior abdomen in the umbilical area. It was covered by a thin membrane through which viscera could be seen. Fetus was dissected and after opening the sac, liver, stomach, intestine and spleen were found. The external genitalia were not developed.

Conclusion: This congenital defect is of great importance because if it is detected by ultrasound in the prenatal period, mother will be closely monitored to make sure the unborn baby remains healthy. Plans could be made for careful delivery and immediate management of the problems after birth.

352. Bifid Distal Part of Palmaris Longus Tendon: A Case Report

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The palmaris longus (PL) is the most variable muscle in the human arm and also in the human body. This variability has formed the basis for many researches on it. Although the PL muscle is of little functional importance, it assumes great surgical importance because it is the first option in tendon graft procedures. The awareness of absence or other anomalies of PL is highly warranted. The knowledge of this rare anomaly is important not only to anatomists but also to clini-

cians in their routine practice. This is a case which was incidentally found during dissection of a term fetus in Anatomy Department, Regional Institute of Medical Sciences, Imphal. The morphologic feature of the anomalous tendon was V-shaped bifid distal part of PL tendon. Both slips ran superficially crossing the wrist to be inserted into the palmar aponeurosis, the central tendinous slip ran toward a groove created by the two eminences, in the mid-palm while the other lateral slip was radial directed toward the thenar eminence.

353. Eagle's Syndrome (Elongated Styloid Process)

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In the Department of Anatomy, Andhra Medical College, Visakhapatnam, during the routine demonstration classes of osteology for undergraduate students, we came across an unusual case of bilaterally elongated styloid process in two dried human skulls. These skulls showed abnormally elongated long styloid processes. The relative literature and findings of such an anatomical variant were discussed during the presentation.

354. Unilateral Variation in the Course of Musculocutaneous Nerve: A Case Report

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During routine dissection for undergraduate students in the Department of Anatomy, RIMS, Imphal, a variation in the course of musculocutaneous nerve was observed in the left upper limb of a female cadaver. In this case, the musculocutaneous nerve does not pierce the coracobrachialis muscle but goes beneath it supplying biceps brachii and brachialis. Coracobrachialis is rather supplied by a branch that emerges directly from the lateral cord of the brachial plexus.

355. Unusual Course of Inferior Vena Cava with Bilateral Variant Pattern of Renal Vasculature: A Case Report

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Adequate knowledge of variations of the large vessels of the abdomen is essential to the radiologists and surgeons. One such variation was observed in a 65-year-old female cadaver during a routine undergraduate dissection of the abdominal retroperitoneal region. The inferior vena cava formed by confluence of the right and left common iliac vein on the left side of abdominal aorta that ascends on the left side to abdominal aorta up to left renal vein and then crosses anterior to abdominal aorta from left to right side just below the superior mesenteric artery. The right renal vein was longer and drain at a higher level than the left renal vein. The right ovarian vein drains into the right renal vein instead of directly draining into inferior vena cava. Right and left renal arteries were equal in length but both were early divided at hilum. Further related literature review is done and the clinical implications of these variations in abdominal surgeries and in radiology are discussed.

356. Absence of Extensor Indicis Muscle: A Rare Muscular Variant

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Variations in the muscles and nerves of the forearm or hand occur very frequently in human beings. These variations are found very often during cadaveric dissection by student and during surgical procedures. Knowledge of such variations is necessary to surgeons in order to avoid possible damage to adjacent structures. There are numerous reports regarding the possible variations of the extensor indicis muscles. In this report we describe the absence of extensor indicis muscle tendon in the extensor compartment of the forearm. The extensor indicis muscle was absent in the forearm and there was a smaller muscle on the dorsum of hand inserting into the extensor digitorum tendon of the index finger. Such variations are very unusual and knowledge of such anomaly has practical importance.

357. Third Head of Biceps Brachii: A Case Report

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Biceps brachii is one of the muscles of anterior compartment of the upper limb. It is characteristically described as two-headed muscle. During routine dissection of the upper limb a supernumerary third head of biceps brachii was found bilaterally in a sixty-year male cadaver, originating from anteromedial aspect of the humerus at the point of insertion of coracobrachialis and joined with common biceps brachii tendon for insertion. Third head of biceps is innervated by a twig from the branch of musculocutaneous nerve, which supplies the other two heads. Knowledge of the presence of this bilateral occurrence of third head of biceps brachii is important to surgeons and traumatologist as this might lead to compression of neurovascular structures.

358. Variation in Lumbricals of Hand: A Case Report

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Lumbricals are four small muscles of the hand resembling earthworms in their shape. They arise from the radial side of the 4 tendons of flexor digitorum profundus and get inserted into the dorsal digital expansion of the medial 4 fingers; the first and the second lumbricals are unipennate and the third and fourth are bipennate. In a male cadaver during routine dissection, a variation of the fourth lumbrical was present in both hands. In this case, all the four lumbricals were unipennate. In the right hand, the fourth lumbrical arises from ulnar side of the third tendon of flexor digitorum profundus as unipennate and inserted into radial side of the dorsal digital expansion of the little finger. In the left hand, the fourth lumbrical arises as unipennate from ulnar side of the third tendon of flexor digitorum profundus and inserted into the ulnar side of dorsal digital expansion of the ring finger. There is no lumbrical for the little finger.

359. Variation in Flexor Digitorum Sublimis: A Case Report

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Flexor digitorum sublimis (flexor digitorum superficialis) is a muscle of the anterior compartment of the forearm. It is an evolutionarily important muscle linked to the evolution of hand as a prehensile organ to humans (from amphibians through primates).

The function of flexor digitorum sublimis is flexion of the middle phalanx at proximal interphalangeal joint. Absence of this tendon to the little finger may not affect the routine day-to-day activities but may cause inconvenience for typists, keyboard users and musicians for whom its function is vital. This study was undertaken in 20 upper limbs in 10 adult cadavers obtained from the Department of Anatomy, SRM Medical College Hospital and Research Centre. A variation was encountered in the tendon to the little finger. Absence of tendon to the little finger was noticed.

360. Sacralization of L5 Vertebra: A Case Report

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Sacralization of L5 vertebra entails morphological alterations in the sacrum. The normal sacra in these specimens presented grossly diminished parameters. It is more susceptible to degenerative changes resulting from the altered load-bearing patterns at these regions.

During routine osteology class, we found a lumbar vertebra (L5) fused with sacrum. Normally L5 is not fused with sacrum. This is due to segmental failure of vertebral elements in embryological development. It causes nerve root compression, back pain, decreased mobility in the lumbar spine and changes in postural alignment. Clinically it is important during spinal surgery. As this is the transitional zone between lumbar and sacral vertebral segments, sacralization is of much clinical significance.

361. Variation of Biceps Brachii Muscle

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During routine dissection in the Department of Anatomy, Andhra Medical College, origin of supernumerary head of biceps brachii in the right arm was found. The long head and short head were in normal position; however, the third head raised superolateral to brachialis muscle below the insertion of coracobrachialis muscle. On the left-hand side there is no such variation. The relative literature of such an anatomical variant was discussed during the presentation.

362. Anatomical Variation of the Origin of the Left Vertebral Artery from the Arch of Aorta: A Case Report

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The present study describes the anatomical variation of the origin of the left vertebral artery arising directly from the arch of aorta proximal to the origin of left subclavian artery as a case report. The diameter of the left vertebral artery was less than that of the right vertebral artery. This variation was reported during routine dissection of an adult male cadaver, in the superior mediastinum and neck, at the institute of T.N. Medical College and B.Y.L. Nair Ch. Hospital, Mumbai Central, Mumbai. Accurate knowledge of the normal and variant arterial anatomy of the vertebral artery is important for vascular radiology and would provide an anatomical basis to assist surgeons in performing safe vascular surgery involving the arch of the aorta and its branches. The relative literature and its potential embryologic development are discussed in detail.

363. Variant form of Axillary Arch Muscle and Its Clinical Significance

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One of the rare anatomic variations within the axilla is a muscular band extending from the latissimus dorsi muscle to pectoralis major muscle, called variously as Langer's axillary arch, aschelsbogen, axillopectoral muscle, pectodorsal muscle or arcus axillaris. Many variants of this muscular anomaly have been described. Macalister described this muscle as "very liable to vary." Further interest has been stimulated by increasing surgical importance of this region during axillary surgery for breast cancer, reconstruction and axillary bypass operations.

During the routine undergraduate dissection of the left axillary region of a 50-year-old male cadaver, a muscular slip was encountered which originated from the anterior border of the latissimus dorsi and crossed the axillary vessels and cords and branches of brachial plexus. This has been observed for the first time in the past 20 years in which around 200 cadavers were dissected in this institute. Details of this were presented during the conference.

364. Atlanto-occipital Fusion: A Case Report

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Aims and Objective: The congenital malformations at the cervico-occipital region are, in general, of considerable consequence because of their proximity to the spino medullary region with the possibility of neurological compression syndrome. The occipitalization of the atlas, in particular, can produce a wide range of neurological signs and symptoms that vary from a transitory headache to a full-blown neurological syndrome. Skeletal abnormalities at the cranio-cervical junction may result in sudden unexpected death. Therefore, to attract the attention of clinicians and surgeons, this variation has been presented.

Materials and Methods: Norma basalis of the 30 human dried skull bones were examined during the routine teaching to undergraduate students in the Department of Anatomy, Dr. V. M. Government Medical College, Solapur, for the abnormal atlanto-occipital fusion.

Results: During routine demonstration of the skull bone to the undergraduate students in the Department of Anatomy, the skull with abnormal atlanto-occipital fusion was noted and photographed. Such 30 skulls were examined but no such abnormality was noted in other skull bones.

Conclusion: It is quoted in medical journals that atlanto-occipital fusion reduces the foramen magnum dimension, leading to neurological complications due to compression of spinal cord. Therefore, such abnormality can cause mild to major neurological symptoms and even death.

365. Formation of Median Nerve by Three Roots: A Case Report

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Introduction: Median nerve is one of the terminal branches of brachial plexus. It is formed by union of two roots; lateral root and median root coming from lateral and medial cord, respectively.

Aim: To provide additional information about the variation in the formation of median nerve to avoid injury during surgical procedures of the region.

Materials and Methods: The 24 brachial plexus were examined carefully in axillary region during routine dissection of cadavers by undergraduate students in the Department of Anatomy, Dr. Vaishampayan Memorial Government Medical College, Solapur.

Result: Of the 24 brachial plexus examined, we observed that median nerve in the left axillary region of the male cadaver was formed by the three roots, of these three roots of median nerve, two were from the lateral cord and one was from the medial cord of brachial plexus. No variation was found on the right side of median nerve.

Conclusion: The knowledge of such variation is important for anatomist, radiologist and surgeons carrying out surgical procedures in axillary and arm region.

366. An Altered Insertion of Iliopsoas

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During routine bone distribution, the femur with an altered insertion of iliopsoas was found from the bone library of the Department of Anatomy, Seth G.S. Medical College. In the anteroinferomedial part of the neck-shaft junction of the right femur, 3.4 cm (vertical dimension) and 2.5 cm (horizontal dimension) sized ossified insertion of iliopsoas were observed. Details of this finding were presented during the conference.

367. Omphalocele: A Case Report

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Omphalocele is a central abdominal wall defect through which abdominal contents, both solid (liver, spleen, etc.) and hollow abdominal viscera (intestine and stomach) may protrude out of the abdomen, and is usually covered by a membrane consisting of amnion externally and peritoneum internally. The umbilical cord inserts onto this membrane unless it is ruptured prenatally. The size may vary from few

centimeters to large ones known as giant omphalocele. In more than 50% of cases, it occurs in association with gastrointestinal, cardiac, central nervous system, genitourinary and skeletal malformations. More than 40% has chromosomal anomalies, including trisomy 13, 18, 21, Turner's syndrome, Klinefelter's syndrome. Clustering of anomalies occurs including omphalocele as a part of three syndromes: (a) the Beckwith—Wiedemann syndrome, with macroglossia, hypoglycemia, and gigantism; (b) the pentalogy of cantrell of the upper midline syndrome, which includes sternal, diaphragmatic, pericardial, cardiac defects; (c) the lower midline syndrome with vesicointestinal fistula, imperforate anus, colonic agenesis and bladder exstrophy.

368. Unilateral Isolated Incompletely Duplicated Ureter: A Case Report

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The aim of this study is to report congenital anomaly in a cadaveric dissection. During routine undergraduate dissection in a middle-aged male cadaver, we found that there was an incompletely duplicated ureter on the left side. On the right side the ureter was single in its whole extent. No other congenital anomaly was found to be associated. The two limbs of the left ureter joined at about 5 cm from the bladder wall. A duplicated ureter is commonly found in association with other congenital anomalies and defects. The present case report describes a rare case of isolated duplicated ureter with normal kidney, urinary bladder and renal vessels. This case report will be helpful and interesting for the surgeons. The possible embryological reasons for the formation of duplicated ureter are discussed.

369. Bilateral Absence of Musculocutaneous Nerve with Complimentary Distribution of Median Nerve in Arm

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Complete merging of musculocutaneous into median nerve is very rare. Communicating branches arising from musculocutaneous and median nerve are observed frequently. In Beheirys study of 60 upper limbs, the absence of musculocutaneous nerve observed only in one of them. The present study was undertaken on 18 upper limbs. Bilateral absence of musculocutaneous nerve and median nerve passing behind brachial artery was observed in one cadaver. In the left upper limb, median nerve was formed in upper part of the arm. A thick branch arising from the lateral root of median nerve supplied coracobrachilis and biceps brachii. Another thick branch arising from median nerve at the middle of the arm supplied brachialis and continued as lateral cutaneous nerve of the forearm. This branch has a communication branch from nerve to biceps brachii. In the right upper limb, median nerve was formed at the upper third of the arm, while musculocutaneous nerve was absent at its regular origin was seen as a continuation of lateral root with a communication from medial root of median nerve, remaining medial root of median nerve continued behind brachial artery and then continued as lateral cutaneous nerve of the forearm. The musculocutaneous nerve was formed as continuation of lateral root with a contribution from medial root originated too low that is, middle of the arm. The distribution was same as that of the musculocutaneous nerve from there onwards. Absence of communication between median and musculocutaneous nerve has been classified by Lemin into five types. The present variation fits into the fifth type and constitutes 10% of cases.

370. An Unusual Presentation of a Large Osteophyte in the Fifth Lumbar and Sacral Vertebra in a Dried Human Pelvis: A Case Presentation

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Background: Osteophytes formation in the lumbar vertebrae is a well-documented phenomenon that is poorly understood. Vertebral osteophytes are recognized by outgrowths of bone on the margins of the vertebral body. The most commonly identified etiologic factors are degeneration and altered mechanics of the vertebral bodies, either of which in turn have been considered to be a result of the natural aging process or the pathogenesis of a spinal disease.

Aim: To enlighten the implications of large lumbar and sacral osteophytes from the point of clinical perspective.

Materials and Methods: We report a case of large osteophyte in the body of the fifth lumbar vertebra and sacrum on the right side during routine study of osteology of dried human pelvis with lumbosacral junction.

Results: There is an unusually large osteophyte formation on either side of the disc between the fifth lumbar vertebra and sacrum measuring 40 mm × 23 mm in size. There are small osteophytes between L4 and L5 vertebra also.

Conclusion: It is important for the orthopedic surgeons and radiologists to be aware of such unusually large osteophytes in lumbosacral region, which poses difficulties in arriving at correct diagnosis and management of such symptomatic large osteophytes in patients.

371. Spinal Dysraphism: A Dorsal Enteric Fistula

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Spinal dysraphism comprises a spectrum of congenital conditions resulting in defective formation of neural arch through which meninges or neural elements may herniate. A rare and pleomorphic form of spinal dysraphism is described as "split nothochord syndrome," which is characterized by a wide spinal defect and a persistent communication between endoderm and ectoderm. The syndrome manifests as a cleft in the dorsal midline of the body through which intestinal segments are exteriorized (often with an associated fistula), meningomyelocele and occasionally as a teratoma. The autopsy of a 24-week-old fetus of a primigravida showed the presence of a similar dorsal enteric fistula. The fistula was seen to show a communication between the intestinal cavity and dorsal skin of midline in the thoracolumbar region from where intestinal loops were seen to herniate. The radiological evaluation of the fetus showed a complete midline cleft in vertebral bodies from T11 to L4 segments on antero-posterior radiograph, and a split in spinal cord seen on ultrasonograph. This was further confirmed by evidence of split in the spinal cord seen on gross dissection of back. The present findings correlate with the embryological defect seen in the fetus as a persistence or partial obliteration of the neurenteric canal.

372. Aplasia Cutis Congenita: A Rare Variant

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Aplasia cutis congenita (ACC) is a rare heterogenous group of disorders characterized by localized or widespread thinning or absence of skin at birth. The defect is most commonly seen in scalp and may be seen involving epidermis, dermis or deeper structures. The affected area is seen to be typically covered by a thin, transparent membrane and characteristically shows absence of skin appendages. Several distinct clinical subtypes based on the location and pattern of skin absence, presence of associated anomalies and the mode of inheritance have been described. It is usually seen as an outcome of infections, vascular malformations, amniotic bands and teratogens. A variant of ACC was diagnosed on routine fetal autopsy of a 22 + 1 week stillborn fetus of a 25-year-old primigravida. Maternal history was seen to document the presence of partial hydatidiform mole on antenatal evaluation. The fetus appeared to be covered by thin membrane all over the body and the deeper structures were visible through the transparent covering. A remnant of avulsion due to attached amniotic band was seen as a hemorrhagic focus on the left side of thoracic cage. The defect also involved scalp with incomplete formation of skull bones and herniating brain mater and visible duramater underneath. Histological examination of the covering membrane showed irregular areas of presence of patchy epithelium. The present findings are developmentally explained in light of the available literature.

373. Patterns of Cephalic and Facial Indices in Three Ethnic Groups in Rural Population of Banke District of Nepal

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The objective of this study was to correlate craniofacial anthropometry in three ethnic groups, Tharu, Magar and Kami. The study was conducted in a population of 8–70 year age group in the mid-western region of Nepal in Banke district. Head width, head length, face length and face width were measured with the help of spreading caliper and the cephalic, and prosopic indices were calculated in 34 subjects. The mean cephalic index in three ethnic groups (Magar, Tharu and Kami) was 69.85%, 71.25% and 72.25%, respectively, while the prosopic index was 95.5%, 93.0% and 93.4%, respectively. The result showed that there was no significant difference between the shape of head and the shape of face among the above 3 ethnic groups. Based on international classification, the dominant head shape was dolicocephalic (long and narrow head) while the dominant face shape was hyperleptoprosopic (very long face).

374. Variation in Origin of First Lumbrical Muscle in Hand

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Aim: To know variation in the origin of the first lumbrical muscle and its role in carpal tunnel syndrome.

Materials and Methods: During dissection in the Department of Anatomy at B.J. Medical College, in old female cadaver, it was observed that the first lumbrical muscle had two heads of origin. One head of the first lumbrical muscle originated as usual from the flexor digitorum profundus. Additional belly arising from the tendon of flexor digitorum superficialis of the index finger on the lateral side of the first lumbrical muscle. Both muscle bellies fused together to form

a tendon and then inserted into dorsal digital expansion of the index finger.

Result: In the present case, we observed a rare variety of anomalous origin of additional belly of the first lumbrical muscle, which originated from flexor digitorumsuperficialis tendon on both right and left sides of the upper limb of the same cadaver. Both muscle bellies were supplied by median nerve.

Conclusion: Additional muscle belly for the first lumbrical as observed in the present case has a phylogenetic and clinical significance and the occurrence of such an anomalous muscle belly may compress the median nerve and cause the carpal tunnel syndrome. Clinicians and hand surgeons should be aware of this type of anomalous origin of first lumbrical while dealing with various surgical procedures in hand and operations on the carpal tunnel.

375. Morphometric Analysis of Supraorbital Foramen/Notch in Dry Human Skulls

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Background: Precise knowledge of location of supraorbital notch/foramen (SON/F) is essential for clinicians while performing regional nerve block and craniofacial surgeries.

Aim: This study was conducted to determine the morphology and location of supraorbital notch/foramen relative to surgical landmarks.

Materials and Methods: Measurements were made on 60 dry adult skulls. Parameters measured bilaterally included width/transverse diameter of SON/F, distances of SON/F from nasion, temporal crest of frontal bone and supraorbital margin.

Results: SON was found more frequently as compared to SOF; 63.3% of the skulls presented symmetric findings between the right and left sides. In 10.8% of the sides had either two foramens or two notches or a notch and foramen, indicating that the supraorbital nerve left the orbital cavity in its two branches, the medial and lateral branch. The average distance of SON/F from the nasion on the right side was 23.1 ± 3.95 mm (range 17–33 mm) and on the left 23.3 ± 3.87 mm (range 16–31 mm). The SOF/N on right and left sides was situated 25.9 ± 3.54 mm and 25.2 ± 3.67 mm medial to the temporal crest of frontal bone, respectively. The maximum vertical distance from the supraorbital rim to SOF was 5 mm (range 1–5 mm). Accessory SOF was observed in 13.3% sides.

Conclusion: The knowledge of the distance of SON/F from the bony landmarks may assist surgeons to localize supraorbital nerve and vessels passing through them in facilitating surgical, local anesthetic and other invasive procedures.

376. Morphometric Analysis of Mandibular Foramen and Incidence of Accessory Mandibular Foramen in Dry Adult Human Mandibles

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Knowledge of anatomical location of mandibular foramen (MF) and accessory mandibular foramen (AMF) is important for inferior alveolar nerve block, implant dentistry and mandibular osteotomies, such as bilateral sagittal split osteotomy (BSSO) and vertical ramus osteotomy (VRO). The aim of this study was to precisely locate MF and identify AMF around mandibular foramen. Sixty (60) dry adult human mandibles were studied to determine the distance of MF in relation to the anterior, posterior borders of the mandibular ramus, mandibular notch and angle of the mandible. AMF were also identified and studied. The average distance of MF from anterior border of mandibular ramus was 15.72 ± 2.92 mm on the right side and 16.23 ± 2.88 mm on the left side and its distance from posterior border was 13.29 ± 1.74 mm and 12.73 ± 2.04 mm on the right side left side, respectively. The MF was located 22.70 ± 3 mm and 22.27 ± 2.62 mm from mandibular notch on the right and left side, respectively. The distance of MF from angle of mandible was 21.54 ± 2.92 mm on the right side and 21.13 ± 3.43 mm on the left side. AMF was present in 16.66% of mandibles. In 10% of mandibles, a single AMF was present and in 6.66% multiple foramina were present. Location of MF and AMF is important to avoid complications, such as hemorrhage and paresthesia during oral surgical procedures, and for radiotherapists in planning radiation therapy.

377. Dicephalic Parapagus-Tribrachius: A Case Study

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Conjoined twins have interested people throughout history and their images have been found in cave drawings and carvings many centuries ago. Exact statistics is not known, but it is estimated to be 1 in 20,000 live births with a higher incidence in India and Africa. If the splitting of embryonic disc occurs more than 12 days post conception, the embryos do not fully divide and the twins may share body parts. Researchers still do not know the exact mechanism why some twins become conjoined. There may be specific genetic and environmental reasons that prevent the egg from splitting completely. More research is required to determine the cause of conjoined twins. A case of dicephalic parapagus-tribrachius is brought from Obstetrics and Gynaecology Department to Anatomy Department of Shyam Shah Medical College and Sanjay Gandhi Hospital, Rewa. It was of female

sex united in saggital plane. External findings, radiological and ultrasound examination findings were noted. The detailed observations of the study were discussed during the conference session.

378. Variation of Renal Artery and Inferior Mesenteric Artery: A Case Report

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Aim: An observed variation in renal vasculature and inferior mesenteric artery and its embryological and clinical significance is discussed in this case report.

Materials and Methods: During routine dissection of abdomen of adult female cadaver in Department of Anatomy GMC, Aurangabad, variation in renal vasculature and inferior mesenteric artery was found. Variation was noted and photographed.

Result: It revealed the presence of accessory renal artery to inferior pole of left kidney arising from the left common iliac artery which is of rare occurrence. Left accessory renal artery was crossed anteriorly by left ureter and inferior mesenteric artery, which in this case was arising as left lateral branch of abdominal aorta just above the aortic bifurcation.

Conclusion: Accessory renal arteries are regarded as persistent embryonic lateral splanchnic arteries. Accessory vessels to the inferior pole cross anterior to the ureter and may, by obstructing the ureter, cause hydronephrosis. Rarely, accessory renal arteries arise from the common iliac artery. In this case there was proximity of accessory renal artery and inferior mesenteric because of lateral origin of the later from abdominal aorta. Knowledge of these possible variations is important for surgeons, urosurgeon, and clinicians.

379. An Evaluation of Branching Pattern of the Coronary Arteries

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Background: Coronary artery disease is one of the major causes of death in the present world. The incidence of coronary artery disease is increasing due to urbanization, sedentary and changing lifestyle. Knowledge of normal anatomy and variations of coronary arteries are important in management of heart diseases. A detailed study of coronary arteries would be of use to cardiologists and interventional radiologists to predefine the abnormalities by invasive and noninvasive studies.

Aim: To study the origin, course and variations of coronary arteries in cadaveric human hearts.

Materials and Methods: The heart specimens for this study were obtained from the Department of Anatomy, Kasturba Medical College, Manipal. The specimens were collected and numbered and immersed in 10% formaldehyde for preservation. After opening the thorax, the pericardial cavity was opened, the great vessels were ligated, and the specimen of heart along with great vessels was removed from thoracic cage. The left and right coronary arteries were dissected out, noting their branching pattern and variations if any, at the subepicardial level. The following observations were made: site of origin, branching pattern and coronary dominance.

Results: Out of 15 specimens, eight specimens showed normal pattern. The following variations were noted. Circumflex A was originating from the anterior aortic sinus, trifurcation of left coronary A, left coronary dominance, coronary codominance, Right conus A continued as right marginal A.

380. Noncommunicating Bilateral Superior Venacava: A Case Report

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Abnormalities of the central vascular system are always of extreme interest for many developmental problems. Normal anatomy describes the formation of superior vena cava by the union of right and left brachiocephalic veins draining the head and neck area. Presence of bilateral superior vena cava was encountered during routine dissection in the Department of Anatomy, Kasturba Medical College, Manipal. Right and left superior vena cavae were formed as a continuation of respective brachiocephalic veins. The left superior venacava drained into the right atrium via the coronary sinus that was enlarged. No communication was observed between the two vena cavae indicating that the right and left halves of the head and upper limb drain back to the heart independently. Persistence of the left anterior cardinal vein and regression or absence of the communicating vein would be the possible embryological explanation for this anomaly. Literature reviews suggest that the frequency of its occurrence is 0.3–1.3% in general population but higher (10–11%) in people with congenital heart diseases. Although it has no physical derangement per se, it may complicate or mislead the placement of cardiac catheters or pacemaker leads. Dilated coronary sinus may cause cardiac arrhythmias due to stretching of the AV node and bundle of His. Presence of these anomalies is an indication for the screening of other associated cardiac abnormalities.

381. Multiple Variants of the Superficial Volar Arch: A Case Study

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The superficial volar arch and the arteries contributing to its formation are highly variable. The arch is usually formed

by the superficial branch of ulnar artery and completed by one of the branches of radial artery, i.e., superficial palmar branch, arteria radialis indicis or arteria princeps pollicis. It is rarely completed by the axis artery of the upper limb, i.e., median artery that accompanies the median nerve. The objective is to study the morphological variants of the superficial volar arch in humans, to define the formation of the arch and classify the possible varieties. Forty formalin-fixed upper extremities were dissected and the superficial volar arch formation observed. The superficial volar arch is classified into two categories complete or incomplete. An arch is said to be complete, if an anastomosis is found between the vessels contributing to it. An incomplete arch has an absence of a communication or anastomosis between the vessels constituting the arch. Literature review has shown complete arches were seen in 75% and incomplete in 25% subjects. The anatomic knowledge of variability in the arch formation becomes important in the application of surgical techniques that can help in treating pathologies of the hand. Recent advances in the microsurgical techniques for reconstructive hand surgeries have necessitated the understanding of variant arterial arches, a comprehensive knowledge of which is important for the surgical interventions and successful outcome.

382. Morphometric Dimensions of Fetal Larynx

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Background: The laryngeal cavity space extends from the laryngeal inlet down to the lower border of the cricoid cartilage, where it continues as the trachea. The skeletal framework is formed by a series of cartilages interconnected by ligaments and fibrous membranes. The vocal cords are the primary source of phonation. The larynx contributes for indispensable significance from embryologic, anatomic, physiologic and surgical standpoints.

Aim: The aim of the present study was to investigate morphometric growth patterns of the cartilaginous components and vocal cords in fetal larynx.

Materials and Methods: The study was done on 35 spontaneously aborted (23 males and 12 females) fetuses from the second to eighth month, in the Department of Anatomy, Kasturba Medical College, Manipal. The fetuses were obtained from the Department of Gynecology, Kasturba Medical Hospital, Manipal.

Results: The dimensions of the larynx and its cartilaginous components were measured and the relationship between the obtained data was statistically assessed. The results of the study were discussed in the conference.

Conclusion: Correlations were found between the cartilaginous components, size of the larynx, and gestational age. Advances in neonatal medicine have resulted in increased care of fetal and neonatal airways, which requires an exhaustive knowledge of fetal airway anatomy and development. This study results are useful in the prenatal analysis, during treatment planning of airway emergencies and while designing supra glottis devices.

383. Morphometric Study of Lumbar Pedicles with Its Clinical Significance

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Background: With the recent increased use of various pedicle screw instrumentation, there is concern about injuries to the pedicle cortex, nerve root, facet joint and adjacent vital structures by discordant pedicle screw size. A pedicle screw is a bone screw implanted into the pedicles, the study of side pillars of the vertebrae in patient's backbone for the purpose of immobilizations or fixations. Success depends upon accuracy of choice of screw and morphometry of the pedicle. Understanding the morphometry of pedicles may decrease the concerned risks.

Objective: To obtain the width and height of the pedicles of 50 dry lumbar vertebrae.

Materials and Methods: Pedicles of lumbar vertebrae were measured using callipers.

Results: Results are recorded, tabulated and were presented.

Conclusion: This study may be a reference guide to the choice of the size of the pedicle screw for screw fixations.

384. Bilateral Variation in the Formation of Brachial Plexus

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The brachial plexus formed by the ventral rami of lower four cervical and first thoracic spinal nerves, supplies the upper limb. It presents 3 trunks, 6 divisions, 3 cords and branches. During the routine dissection of a 55-year-old male cadaver for the undergraduate students, in the Department of Anatomy, KMC, Manipal, bilateral variations of brachial plexus were observed. (1) Instead of three, only two trunks were present. The C5 and C6 united to form Upper trunk and C7, C8 and T1 united to form lower trunk. (2) Absence of divisions. (3) A single cord was seen lying posterior to the axillary artery. (4) A communication between median and musculocutaneous nerves was observed in the arm.

Knowledge of such variations is important for clinicians and surgeons due to the frequency of surgeries done in the axilla and in the arm.

385. Absence of Musculocutaneous Nerve: A Rare Case Report

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Variations of the musculocutaneous nerve and median nerve at the level of brachial plexus are common. Usually the musculocutaneous nerve, a branch of the lateral cord of the brachial plexus, pierces the coracobrachialis muscle and supplies all the muscles of the front of the arm and then continues as lateral cutaneous nerve of the forearm after piercing the deep fascia lateral to the tendon of biceps brachii just superior to lateral epicondyle of the humerus. However, in the present case in the right upper extremity of a 65-year-old male cadaver, the musculocutaneous nerve was absent. The lateral cord of the brachial plexus gave rise to the lateral pectoral nerve, lateral root of the median nerve and additionally a branch to the coracobrachialis muscle. Further, the rest of the muscles of the front of the arm, biceps brachii and brachialis were innervated by the branches from the median nerve from its lateral side. In the lower end of the arm, one large branch arising from the median nerve, after passing through the brachialis muscle continued as the lateral cutaneous nerve of the forearm just above the lateral epicondyle. Precise knowledge of such variations will help clinicians in proper interpretation of unusual clinical findings, clinical neurophysiological tests and radiological images. It would also help anesthetists in planning the brachial plexus nerve blocks.

386. Variations in the Arterial Supply of Suprarenal Gland

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Background: Variations in the arterial supply of suprarenal gland are quite common. Suprarenal gland is supplied by superior, middle and inferior suprarenal arteries, which are the branches of inferior phrenic, abdominal aorta and renal artery, respectively.

Aim: A study was done to find out the variations in the arterial supply of suprarenal gland.

Materials and Methods: Twenty formalin-fixed cadavers were dissected in the Department of Anatomy, KMC, Manipal, to study the arterial supply of suprarenal gland, which were photographed and different variations were recorded.

Results: Out of the 20 cadavers variations were observed in four specimens in the arterial pattern of suprarenal gland. We found that in one cadaver superior suprarenal artery on the left side was arising directly from the coeliac trunk. Another variation was observed on the right side in a cadaver that inferior and middle suprarenal arteries were arising from accessory renal artery and on the right side it gave another small branch to the gland.

Conclusion: Variations in the arterial pattern of suprarenal gland are significant for radiological and surgical interventions.

387. Rare Variation of Left Gastric Artery and Common Hepatic Artery: A Case Report

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The coeliac trunk arises just below the aortic hiatus as the first anterior branch of the abdominal aorta. It branches into left gastric, common hepatic and splenic arteries. Variations in the branching pattern of the coeliac trunk are common and have been reported. However, we present an unusual variation not reported elsewhere. Variation in the branches of the coeliac trunk was observed during routine abdominal region dissection of a 60-year-old male cadaver in the Department of Anatomy, Kasturba Medical College, Manipal. In the present case, the left gastric artery arose directly from the abdominal aorta, which before supplying the lesser curvature of the stomach gave the left hepatic artery. No further variation was detected in its course and termination. The coeliac trunk was found to emerge just below the left gastric artery and terminated into splenic and common hepatic arteries. Further, the common hepatic artery had an unusual course that passed behind the pancreas and portal vein and finally emerged out at the inferior aspect of the pancreas to terminate into the gastroduodenal and right hepatic arteries. These anomalous variations are of considerable importance in liver transplants, laparoscopic surgeries, radiological abdominal interventions and penetrating injuries to the abdomen.

388. Cadaveric Study on Morphology of Dorsal Interossei of Hand and Its Anatomical Variation

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The dorsal interosseous muscles of the hand consist of four bipennate muscle, each arising from the adjacent sides of two metacarpal bones. They insert on the bases of the proximal phalanges and separately into the dorsal digital expansion. First dorsal interossei is attached to the radial side of proximal phalanx of the index finger and to the capsule of the adjoining metacarpophalangeal joint. The second and third are attached to the radial and ulnar sides of the middle finger, respectively, whereas the second generally reaches the digital expansion and the proximal phalanx, the third

usually extends only to the digital expansion. The fourth may be wholly attached to the digital expansion but often sends additional slip to the proximal phalanx. In this study, routinely dissected 30 formalin-fixed upper limbs were observed for origin, insertion, tendon length, muscle pattern of dorsal interpose of hand in the Department of Anatomy, KMC, Manipl. Adequate knowledge of muscular abnormalities is very important for hand surgeons dealing with fractures, stiff joints, claw hand, or tendon's transfer.

389. Anatomical Variations of Pulmonary Vein Opening into the Left Atrium

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During early embryonic development, the solitary pulmonary vein enters the heart via dorsal mesocardium, which connects the intraparenchymal pulmonary venous network to the left atrium. Later, due to morphologically asymmetric process of absorption, four pulmonary veins eventually drain independently into the left atrium. However, the extent of absorption and hence the number of pulmonary veins opening into the left atrium may vary. As there are only a few studies to show such variations, the present study was aimed to evaluate the possible variations in the pulmonary veins opening into the left atrium. Our results show that 68% of the hearts studied showed usual pattern of two left and two right pulmonary veins, while remaining 32% of the hearts studied showed variations in the number of pulmonary veins opening into the left atrium. Around 12% of the hearts showed two left and three right pulmonary veins, 14% of hearts showed two left and one right, 4% showed one left and two right, 2% showed one left and four right pulmonary veins openings into the left atrium. Usually, these variations may not cause any serious pathological conditions but such variations may help in explaining the controversial embryogenesis of the pulmonary veins and also in pulmonary vein isolation for radiofrequency ablation as a treatment for atrial fibrillation. Since the pulmonary veins are important landmarks for both open and thoracoscopic lobotomy, the knowledge of such variations may become indispensable during surgery and radio imaging.

390. An Unusual Axillary Arch and Its Associated Clinical Implications: A Case Report

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The axillary arch, also known as Langer's muscle or the axillopectoral muscle, is a rare muscular anomaly of the axilla. It is described as a thin muscular slip extending from the latissimus dorsi to the pectoralis major. During routine dissection classes for undergraduate students in the Department of Anatomy, Kasturba Medical College, Manipal, an anomalous axillary arch was observed in the left upper extremity of a 55-year-old male cadaver. Muscular slips arising from the lateral edge of the latissimus dorsi muscle were seen to blend with the deep fascia covering the pectoralis major muscle. Interestingly, the upper and lower fibers of the muscle had twisted over each other and were much bulkier unlike the cases reported so far. Although axillary arch is not very rare, it is generally neglected and not explored or described well. It has immense morphological and clinical importance in axillary surgeries, axillary vein entrapment syndrome, neurovascular complaints of the upper limb etc.

391. Rare Anomaly of Human Heart — Three-Chambered Heart in Adult Aged 32 Years (Cor Triatriatum): A Case Report

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Aim: Study of a case of three-chambered heart in a human being.

Materials and Methods: A 32-year-old male patient was presented with complaints of breathlessness on exertion, cyanosis, easy fatigability and palpitation to the OPD at U.N. Mehta Institute of Cardiology, Civil Hospital, Ahmedabad. These symptoms were present since past 12 years.

Result and Observation: On examination, pulse was 104/min, regular, normal volume, normal force and tension bilaterally in the radial artery. blood pressure was 120/80 mmHg. Apex beat was palpable in 4th intercostal space just medial to mid-clavicular line. Echocardiogram showed two atria and single ventricle (dominant right ventricle), both great arteries arising from dominant right ventricle and aorta is on the left and anterior to pulmonary artery.

Conclusion: The patient had a three-chambered heart that was revealed on 2D echocardiogram conducted keeping in view the cardiac symptoms.

392. Anomalous Relation of Suprascapular Nerve and Vessels with the Suprascapular Ligament: A Case Report

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Aim: The aim of the present study is to describe the relation of suprascapular nerve and vessels with the suprascapular ligament (transverse scapular ligament) and to present the abnormalities, if any.

Materials and Methods: The study was conducted in the Anatomy Department at B.J. Medical College, Civil Hospital, Ahmedabad, Gujarat. Sixty upper limbs were dissected (30 ca-

davers bilaterally) and the relation of the suprascapular nerve and vessels with the suprascapular ligament was observed.

Results: Result of the present study showed that out of 60 upper limbs, 59 had normal relation of suprascapular nerve and vessels with the suprascapular ligament (the suprascapular nerve passing below the suprascapular ligament and suprascapular vessels passing above the suprascapular ligament) and one had abnormal relation showing that suprascapular nerve and vessels both were passing below the suprascapular ligament.

Conclusion: Awareness about details and topographic anatomy of suprascapular nerve and vessels may serve as a useful guide for both radiologist and vascular surgeons. It may help prevent diagnostic errors and avoid complications during any surgery over the scapular region. This type of abnormal course of suprascapular vessels can lead to compression of vessel by the suprascapular ligament.

393. Eagle-Barrett Syndrome: A Case Report

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Eagle-Barrett syndrome is a rare congenital anomaly of uncertain aetiology almost exclusive to males. It is characterized by the triad of absent or incomplete abdominal musculature, undescended testes, and urinary tract abnormalities. A male baby with above characteristics triad was born in our hospital. A diagnosis of Eagle-Barrett syndrome was made. This was undertaken in order to highlight the occurrence of this rare syndrome in our environment and to review its pathogenesis, presentation and management approach. In this case report, a 3.5-kg male baby was delivered in our hospital by an unbooked 29-year-old mother with an APGAR score of 5 at 1 minute and 10 at 5 minutes after birth. Abdominal examination revealed huge distension with thin and wrinkled skin protruding most prominently in the right side with visible bowel loops. Both the kidneys are palpable. Perineal examination showed bilateral cryptorchidism and hypospadiasis. Cardiac examination was normal by clinical examination and echocardiography. Investigations showed hyponatremia with Na of 130 mEq/l, urea of 65 mg/dl, and creatinine of 1.5 mg/dl. Ultrasound imaging showed mild hydronephrosis with gross dilatation pelvicalyceal system of right kidney and moderate hydronephrosis of left kidney with grossly dilated ureters, and distended bowel loops.

394. Gap Junctions in the Dorsal Root Ganglia of Rats: An Immunohistochemical Study

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Aim: To classify the neurons according to size and to compare the gap junctions between the neurons before and after surgery.

Materials: Experimental work was conducted on L3–L5 dorsal root ganglia (DRG) of Sprague Dawley rats (n = 12), which were divided into two equal groups. DRGs from one group were sectioned and stained with 0.5% Cresyl Violet. Remaining rats (n = 6) were used for localizing gap junctions by immunohistochemistry.

Methods: Plantar surgery was performed on 6 rats after anesthesia by Isoflurane (2.5%) inhalation. A 1-cm long incision was made on the plantar surface of right paw, which was later closed with suture. Morphometric analysis was done using progres image analysis software. Immunohistochemistry was done by labeling with primary antibodies for connexion-43 (1:400) and peripherin (1:1000). Ipsilateral and contralateral DRGs were examined by immunohistochemistry. Visualization of immunostained neurons was done by Avidin-Biotin complex (ABC) technique.

Results: The pseudounipolar neurons in dorsal root ganglia varied in size. Peripherin staining expresses more in small to medium neurons. Connexin-43 was noted in the periphery of all neurons.

Conclusions: Small to medium sized neurons (16–43 μm) carry the pain sensation from the periphery to the central nervous system. Gap junctions were seen between the satellite cells and neurons, indicating increased excitability of these cells.

395. Gap Junctions in Somatic and Autonomic Ganglia of the Rat

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Aim: To localize gap junctions in trigeminal and superior cervical ganglia using electron microscopy and immunohistochemistry.

Materials: Male Wister rats (n = 12) were used for the study for the experimental work. Half of these were used for electron microscopic study and the remaining half for immunohistochemistry study.

Methods: Electron microscopy was done by using Karnovskys fixative and then visualization of gap junctions was done by transmission electron microscopy (TEM). Immunohistochemistry was done by labelling with primary antibody for connexion-43 (1:400). Visualization of immunostained neurons was done by Avidin-Biotin complex (ABC) technique.

Results: No evidence of interneuronal gap junctions was noted; however, they were observed in the junctions between neurons and satellite cells, both in EM and IHC.

Conclusion: Gap junctions are observed in almost all the tissues of the body. In the heart, it facilitates the spread of electrical activity. However, in autonomic and somatic ganglia these are limited to neuron and satellite cells.

396. Fusion of Axis with the Third Cervical Vertebrae: Three Cases

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Aim: To study morphology of the fused cervical vertebra C2 and C3.

Materials and Methods: The study included 3 specimens (A, B, C) of fused cervical vertebra C2 and C3, which were procured from the bone collections of the Department of Anatomy. The specimens were observed for fusion of body, pedicle, lamina, transverse process, foramen transversarium and spine.

Results: In all the three specimens, body of axis and third cervical vertebrae were fused both anteriorly and posteriorly. Pedicles were fused both anteriorly and posteriorly. Lamina was also fused in 2 specimens (B, C), but in one specimen (A) the lamina was not fused on both sides. Spines and transverse process were not fused in all three specimens. Foramen transversarium were present on both C2 and C3 vertebra in all three specimens.

Conclusion: Fused cervical vertebrae (FCV) have embryological and clinical importance. Normal segmentation of the sclerotomes is important for the development of a normal vertebral column. In certain cases, due to decreased local blood supply during embryonic period, results in abnormal segmentation and formation of congenitally fused vertebrae or block vertebrae. These may lead to signs and symptoms which include shortening of cervical spine, the trapezei become unduly prominent laterally, limited neck motion, osseous malformation (scoliosis, kyphosis, torticollis), signs of peripheral nerve irritation, signs of nerve compression. Anomalies of cervical vertebrae are of great importance to anatomists, orthopaedicians, neurologists, neurosurgeons and even orthodontists.

397. A Study on Morphology of Suprascapular Notch and Ossified Superior Transverse Scapular Ligament (STSL)

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Suprascapular notch is located at the anterolateral end of superior border of scapula separating it from corocoid process. The notch is bridged by STSL, which is attached laterally to the root of the coracoid process and medially to the limit of the notch, converting the notch into foramen. The foramen, thus completed, transmits the suprascapular nerve to the supraspinous fossa. Suprascapular vessels pass above the foramen.The ligament is sometimes ossified. Ossification of STSL may lead to compression or entrapment neuropathy resulting in pain over the back of shoulder, also cause weakness and wasting of supraspinatus and infraspinatus.Therefore, clinicians should have a thorough knowledge about the anatomical variations of suprascapular notch and STSL. The present study was done on 115 scapulae obtained from the bone library of the Department of Anatomy, Subbaiah Institute of Medical Sciences and Research Centre, Shimoga. The aim of our study is to study the morphology of suprascapular notch and ossified STSL. In our study, we found different shapes of suprascapular notch of which some are documented in previous studies, also we observed a rare and unique variation, which has not been reported in previous studies to the best of our knowledge. The results of the study were discussed at the time of presentation.

398. Twisted Right Renal Arteries: A Case Report

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A 42-year-old female was referred for MDCT angiography of abdomen. It was observed that the right kidney was supplied by three arteries, one main and two accessory renal arteries. One accessory renal artery arising at the level of superior mesenteric artery entered the kidney close to superior pole. The other two renal arteries arise from aorta below the level of superior mesenteric and showed a peculiar twisting arrangement before entering renal hilum. They exhibited a figure of 8 arrangements. Such variation has important surgical implications, especially in renal transplant surgery.

399. Middle Colic Artery Supplying Transverse Colon Arising from Inferior Mesenteric Artery: A Case Report

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Muzaffarnagar Medical College, Muzaffarnagar, Uttar Pradesh

Middle colic artery, normally a branch of superior mesenteric, is a variable artery present in about 85% cases (Sage et al 1977). Its origin from the inferior mesenteric artery has been reported earlier (Benton & Cotter 1963). During routine anatomical dissection in a male cadaver, we observed that the middle colic artery arising as a branch of left colic artery from inferior mesenteric and supplying the entire transverse colon. Close to the hepatic flexure it anastomosed with right colic branch of superior mesenteric to form the marginal artery. Detailed knowledge of anatomical variations of colic arteries is important for proper surgical planning of segmental resection of colon without compromising the arterial supply.

400. Persistent Median Artery in the Carpal Tunnel

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Background: The median artery usually regresses after the 8th week of intra uterine life, but in some cases it persists into adulthood. The persistent median artery (PMA) passes through the carpal tunnel of the wrist, accompanying the median nerve. If it persists it will arise from any of the forearm arteries, it usually terminates as superficial palmar arch or by supplying index and long fingers.

Aim: To report the frequency of persistent median artery in the carpal tunnel in human cadavers.

Materials and Methods: An attempt was done to observe the presence of persistent median artery by dissecting 32 specimens from the Department of Anatomy, Bangalore Medical College and Research Institute, Bengaluru.

Results: In 3 cases (9.3%), the persistent median artery was observed, 2 in the right limb and 1 in the left limb.

Conclusion: PMA is not such a rare anatomical variant, and its presence should be taken into consideration in clinical practice, especially in carpal tunnel release, because thrombosis or traumatic rupture of such an artery may cause carpal tunnel syndrome as a result of the pressure exerted on the median nerve. Practitioners should actively seek their presence or absence, in order to avoid its injury during endoscopic surgery.

401. Supracardiac Total Anomalous Pulmonary Venous Connection

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Supracardiac total anomalous pulmonary venous connection (TAPVC) consists of an abnormality of blood flow in which all four pulmonary veins drain into systemic veins or the right atrium with or without pulmonary venous obstruction. Systemic and pulmonary venous blood mix in the right atrium. TAPVC is a relatively uncommon congenital defect representing approximately 2% of all congenital heart anomalies. TAPVC encompasses a group of anomalies in which pulmonary veins connect directly the systemic venous circulation via persistent splanchnic connections. The most common classification described by Darling et al. consists of four types, i.e., supracardiac, cardiac, infracardiac and mixed. Supracardiac TAPVC occurs in apporoximately 45% of patients. In these pulmonary veins drains into innominate vein, superior vena cava, or an azygous vein via ascending vertical vein. Increase in pulmonary vascular resistance leads to decrease in pulmonary blood flow and lower volume of saturated blood in the venous mixture. In this case report, a 6-hour-old male newborn was presented in pediatrics OPD of our hospital, complaining of cyanosis, no cry and poor activity. On examination, the newborn was lethargic, with heart rate 126/min and respiratory rate 30/min. Respiratory system and per abdomen was normal but CVS shows murmur and CNS shows poor tone and activity. Causes, clinical features, differential diagnosis and treatment were discussed at poster presentation.

402. Persistant Mullerian Duct Syndrome: A Case Report

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Background: Persistent mullerian duct syndrome is a rare variety of male pseudoharmaphroditism. This syndrome results due to the failure of regression of mullerian ductal system. The classical presentation of this case is a patient who is phenotypically and genotypically a male with unilateral cryptorchidism and a contralateral hernia that contains mullerian duct derivatives such as uterus, fallopian tubes and vagina.

Case Report: In our hospital, GMC Latur, a 21-year-old male patient was presented with right-sided inguinal hernia and left-sided undescended testis. The patient was phenotypically male with normal secondary sexual characters. At the operation table, hernial sac on the right side showed presence of a uterus with bilateral fallopian tubes arising from it and one left-sided testis. Karyotyping analysis showed normal 46XY male pattern. The etiopathogenesis, laboratory investigations, treatment and prognosis of a case are discussed.

403. Unilateral Bifid Ureter: A Case Report

K. Vijaya Kumar, S. Senthilkumar, S. Ramesh Kumar, Melani Rajendran
Sri Ramachandra University, Chennai, Tamil Nadu

Ureters are thick walled, thin cylindrical tubes that convey urine from the kidneys to the corresponding urinary bladder. Duplication of ureter might be complete or incomplete. Incomplete duplication of the ureter is known as bifid ureter. During routine dissection of 25 cadavers in the Department of Anatomy, SRU, a rare case of unilateral bifid ureter was observed on the right side in a middle-aged female cadaver. Bifid ureter may be formed due to some error or disturbances during the development. Duplication of ureter has an increased risk of developing UTI, hydronephrosis and stone formation.

404. A Study on Bitendinous Palmaris Longus Muscle

Janani Maheshwari V. Vyas, S. Senthilkumar, S. Ramesh Kumar, Melani Rajendran
Sri Ramachandra University, Chennai, Tamil Nadu

Palmaris longus muscle is one of the common flexor muscles of the forearm whose short muscle belly arises from the medial epicondyle of the humerus, with a common flexor origin. Its long slender tendon passes superficial to the transverse carpal ligament and is attached to the distal half of its anterior surface and centrally to the palmar aponeurosis. It is classified as a phylogenetically retrogressive muscle often exhibiting anatomic variations. The palmaris longus tendon is often considered as the ideal donor for tendon grafts for replacement of the long flexors of the fingers and of the flexor pollicis longus tendon. In our study involving 50 extremities (12 male and 13 female cadavers), we identified bitendinous Palmaris longus in one female cadaver on the left side. The length of the tendon, the level of bifurcation, and its attachment were measured. The result of this study will be useful for hand surgeons and orthopaedicians.

405. A Rare Case Study of Variations in the Branching Patterns of the Brachial Plexus and Brachial Artery

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During routine dissection, a number of variations were observed in the right upper limb of a male cadaver. The variations include the formation of median nerve by union of three roots, namely, one medial root and two lateral roots, the additional lateral root was comparatively smaller, crossing over the 3rd part of axillary artery and joined the medial root of median nerve. The median nerve was found to be medial to the brachial artery throughout in the arm. Besides these, the coracobrachialis muscle had an additional muscular slip of insertion to the medial supracondylar ridge of the humerus. At the level of neck of the radius, the brachial artery trifurcated into ulnar artery, radial artery and muscular branch. In the lower part of the arm, approximately 1.5 inch above the lateral epicondyle of the humerus, the radial nerve divided into the numerous branches: 1 branch to brachioradialis, 2 branches to supinator, posterior interosseous nerve, branch to extensor carpi radialis brevis, branch to extensor carpi radialis longus and superficial branch of radial nerve.

406. Anomalous Formation and Course of Median Nerve and Anomalous Course of Brachial Artery

A. Christina Deborah, Melani Rajendran, Rameshkumar Subramanian
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During routine dissection an interesting variation on the formation and course of the median nerve and abnormal course of brachial artery were observed in a female cadaver on the left upper limb. The following variations were observed: The median nerve was formed by two lateral roots and one medial root and there was a communication between the two lateral roots. In the lower part of the arm, the median nerve pierced the brachialis and entered the cubital fossa and was deep to the pronatorteres. In the upper one-third of the arm, the brachial artery was posterior to the median nerve. In the middle one-third of the arm the brachial artery crossed the median nerve and in the lower one-third, it was lateral to the median nerve. In the cubital fossa, the brachial artery and the median nerve were far separated approximately 6 cm from each other. In the forearm, the course of the median nerve was found to be normal. The presence of such anatomical variations is often used to explain unexpected clinical signs and symptoms.

407. Variations in the Branching Pattern of Median Nerve and Absence of Musculocutaneous Nerve: A Case Report

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Variations in the branches of brachial plexus are commonly reported, but the variation observed in the present case is a rare one and not hitherto reported. During routine dissection of axilla and arm, multiple variations were observed bilaterally in a female cadaver. The observations include: Musculocutaneous nerve was absent on both sides, and had completely merged to the median nerve; all muscles of the front of arm on both sides were supplied by the median nerve. On the right side, formation of median nerve by union of two roots were at a lower level below the coracoid process; a common branch to the coracobrachialis and biceps brachii from the median nerve in the arm; origin of the lateral cutaneous nerve of the forearm from the median nerve in the arm; a separate branch was given to the brachialis; nerve supply to the humeral head of pronator teres arose in the lower part of the arm and to the ulnar head in the cubital fossa; origin of medial cutaneous nerve of arm and forearm

by a common stem from the medial cord. On the left side, the coracobrachialis and biceps brachii were supplied by smaller muscular branches from the median nerve. The nerve to brachialis after supplying it, continued as the lateral cutaneous nerve of forearm.

408. Bifurcation of Long Head of Biceps

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Case Report: A 48-year-old man was presented with left shoulder pain for 3–4 months. Rotator cuff tear was suspected on physical examination. MRI of shoulder revealed partial tear of the supraspinatus tendon and superior glenohumeral ligament injury. Incidental finding on MRI was splitting of long head of the biceps brachii at the bicipital groove and reattachment at lower level close to musculotendinous junction.

Diagnosis: Bifurcation of the long head of the biceps tendon.

Conclusion: This case report will be helpful to distinguish traumatic rupture and variant anatomical bifurcation of long head of biceps by imaging.

409. A Cadaveric Study of Fissures of the Lungs

Kanchan S. Nagdev, Himanshu K. Prajapati
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Background: Lungs are important respiratory organs. The fissures of the lungs divide them into lobes. The presence of fissures is essential for even expansion of all the lobes during inspiration. Their presence limits the spread of infection or malignancy. Normally, right lung is divided into three lobes—upper, middle and lower by the presence of two fissures—oblique and horizontal dividing the entire parenchyma of lungs up to the hilum and the left lung has two lobes—upper and lower divided by one oblique fissure. Thus, the present work has been undertaken to study the normal pattern of fissures of both the lungs.

Aim: To study the normal patterns of the fissures of lungs of both sides and look for abnormal or absence of fissures.

Materials and Methods: Fifty lung specimens, 25 of each side, for the present study were obtained from the cadavers from the anatomy department. Each lung was inspected for the number, length and type of the fissure. The length of the fissure is measured using a measurement tape. Moreover, a fissure can be graded according to the depth of the parenchyma it divides; therefore, we can obtain the lungs with various grades of the fissures.

410. Retrocaval Testicular Artery Supplying the Suprarenal Gland

Pooja Rani, Preeti Goswami, Surbhi Wadhwa
University College of Medical Science and GTB Hospital, Delhi

Background: Variations in the normal pattern of origin, course and branching of abdominal vessels are particularly important with the advent of new diagnostic, therapeutic and operative techniques. We present an unusual case of high origin of testicular artery from abdominal aorta supplying the testis and a branch to suprarenal gland.

Methods: Routine dissection of abdominal aorta in elderly male cadaver for undergraduate teaching at University College of Medical Sciences, Delhi.

Results: An abnormally arising testicular artery was seen on the right side. The testicular artery arose from the abdominal aorta at the level of origin of superior mesenteric artery, i.e. at L1 level. It coursed posterior to the IVC, gave a branch to suprarenal gland and continued in the posterior abdominal wall toward the testis.

Conclusions: Such anomalous testicular artery needs to be kept in mind during surgical procedures. Injury to the vessel may result in testicular atrophy. These also need to be remembered while interpreting angiograms to avoid diagnostic errors. The detailed embryological and surgical significance of the case are discussed.

411. Variation in Branching Pattern of Axillary Artery: A Case Report

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University College of Medical Science and GTB Hospital, Delhi

The knowledge of the course and distribution of the axillary artery becomes important in surgical, clinical, radiological and interventional approach because of the increasing trends of vascular and reconstructive surgeries these days. Axillary artery is the derivative of the axis artery of the upper limb. Its variations in the upper limb are not uncommon and have been reported earlier. During routine dissection of upper limb in an elderly female as a part of undergraduate teaching schedule at University College of Medical Sciences, New Delhi, an unusual branching pattern of the axillary artery was observed. The third part of axillary artery gave five branches: (a) suprascapular, (b) thoracodorsal, (c) circumflex scapular, (d) anterior circumflex humeral and (e) posterior circumflex humeral. The thoracodorsal and circumflex scapular instead of arising from subscapular arose directly from the main trunk of the third part. The subscapular artery was absent. The suprascapular artery instead of arising from the thyrocervical trunk of the first part of subclavian artery was coming from axillary artery. The embryogenesis of such a combination of anomalies is not clear, but the anatomic consequences may have important clinical implications.

412. Variations in the Branching Pattern of the Brachial Artery

K. Deepika, M. Pariplavi , M. Aruna Jyothi
Osmania Medical College, Hyderabad, Andhra Pradesh

During routine dissection of the upper limb of human cadavers as part of the undergraduate teaching programme at our institute, we came across variations in the branching pattern of brachial artery in two middle-aged male cadavers among 10 cadavers allotted in the year 2012.

The course, distribution, branching pattern and clinical importance of these variations were discussed in detail at the time of presentation. Variations found are include: First case—1. High-up division of brachial artery at the level of epicondyles. 2. Trifurcation of brachial artery: (a) ulnar artery, (b) radial artery, (c) common interosseous artery. Second case—1. Unusual origin of ulnar artery from brachial artery at the midarm level. 2. Brachial artery dividing into radial and common interosseous at cubital fossa.

413. Meningomyelocele: A Case Report

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Meningomyelocele is a type of neural tube defect. We report a case of meningomyelocele in 1-day-old female baby brought with the primary complaints of swelling over the lower back. Incidence, embryological aspects, diagnosis, complications and management of this condition are discussed.

414. Pyramidalis

G.N. Charitha, M. Pari Plavi, G. Aruna Jyothi
Osmania Medical College, Hyderabad, Andhra Pradesh

During routine dissection of the abdominal region in human cadavers allotted for undergraduate medical students in our institute, we have observed the presence of pyramidalis muscle unilaterally in only one middle-aged male cadaver among 10 cadavers allotted for the year 2011–2012. The morphology, incidence, clinical importance and evolutionary significance are discussed.

415. Prenatal Repair of Cleft Lip and Palate: The Latest Modality

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Most congenital defects even when detected prenatally are corrected only after birth. In recent years, many life-threatening developmental anomalies have been increasingly corrected in utero. Less invasive interventional techniques and fetal stem-cell transplantation have extended the scope and indications for prenatal intervention. In utero repair of cleft lip and palate was discussed.

416. Gummy Smile and Lip Elevators

G.N. Charitha, M. Pari Plavi, G. Aruna Jyothi
Osmania Medical College, Hyderabad, Andhra Pradesh

The shape of lips and therefore a smile is determined by many factors. One such component is facial musculature. Prominent among these muscles are Levator Labii Superioris (LLS), Levator Labii Superioris Alaeque Nasi (LLSAN), and Zygomaticus Minor (ZMi)/Major muscles (ZMj). Among these, the LLS, the LLSAN, and the ZMi determine the amount of lip elevation that occurs during smiling. An excessive display of gingival tissue on smiling is referred to as a "Gummy Smile." There are many factors responsible for this, one such factor is hyper activity of lip elevators. An awareness of the surface anatomy of the lip elevator muscles is required for the treatment of gummy smile using Botulinum toxin.

417. Quadrifurcating Celiac Artery with Malrotation of Gut

Gitanjali Khorwal, Sarika Rachel Tigga, Surbhi Wadhwa
University College of Medical Sciences and GTB Hospital, Delhi

Background: Knowledge of the vascular supply of the gastrointestinal tract and its possible variations is essential while performing surgical procedures involving the gut, especially in the present era of minimal access surgery. We present a case of quadrifurcating celiac trunk with rare anomalous course of the hepatic artery and discuss the developmental and clinical significance of the anomaly.

Materials and Methods: Routine dissection of abdominal aorta of an elderly female cadaver was done in the department of anatomy.

Results: During the dissection the celiac trunk was found to be dividing into four branches instead of normal three. They include: (1) Normal splenic artery, (2) a left gastric artery that also supplied the left lobe of liver, (3) an anomalous gastroduodenal artery (GDA) that had its course and branches similar to a "normal" common hepatic artery except that it did not supply the liver and (4) a retroportal proper hepatic artery. The cystic artery was arising abnormally from the GDA. The common hepatic artery was absent. These variations in the vessels were accompanied with an intraperitoneal duodenum, pancreas and ascending colon.

Conclusion: With the advent of newer interventions for intraarterial management of hepatic tumors, there has been a growing interest in the variations of celiac trunk and its branches. Anomalous branches of celiac trunk such as in the

present case, warrant modifications in catheter placements to ensure complete tumor eradication during transarterial chemo-embolization of hepatic tumors. The embryological basis and its significance are discussed.

418. Duplication of Palmaris Longus: A Very Uncommon Variation

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Prathima Institute of Medical Sciences, Karimnagar, Andhra Pradesh

Aim: To evaluate the variation in Palmaris longus muscle.

Materials and Methods: During routine dissections of 10 cadavers in Prathima Institute of Medical Sciences in the year 2012, we found a variation of rare type, duplication of palmaris longus, in the right upper limb of a male cadaver of age around 55 years. Apart from the normal palmaris longus, this muscle also has its complete course. It too originates at medial epicondyle of the humerus, in between getting slips from flexor digitorum superficialis and then inserted into the flexor retinaculum and then to palmar aponeurosis.

Results: Although the variations such as absent palmaris longus and accessory bellies of the muscle are common, "complete duplication of palmaris longus" as such is very rare.

Conclusion: This is of surgical importance to plastic surgeons in tendon transfers and reconstructive surgeries and also to orthopedic surgeons in cases of nerve compressions (Guyon's canal syndrome), tenosynovitis, chronic inflammation, etc.

419. Abnormal Formation of Inferior Venacava

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Variations in any structure of human body are of interest to anatomist to explain the basis of variation. During the dissection practicals of undergraduate, in one cadaver the common iliac veins are observed to be absent. By further dissection, it is found that the two internal iliac veins were joining together at the lower border of the 5th lumbar vertebrae to form inferior vena cava. Both external iliac veins joined inferior vena cava as tributaries at upper border of L5. This variation is not observed for many years, it is studied in detail to explain the variation. The surgeons should be aware of this rare variation while doing pelvic surgeries.

420. The Profile of Body Donors at St. John's Medical College, Bangalore

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St. John's Medical College, Bengaluru, Karnataka

Aim: The paucity of cadavers for medical education makes it imperative that body donation is encouraged. The aim of the present study was to describe the profile of body donors at St. John's Medical College, Bengaluru.

Materials and Methods: Two hundred and eighty-three forms submitted by body donors from January, 2008 to August, 2012 were studied. The following details were noted: (1) Gender; (2) age; (3) marital status; (4) educational status; (5) employment status; (6) source of information; (7) reason for donation. The frequencies for the categorical variables were calculated. The mean and standard deviation were noted for the age. Gender differences were estimated using the independent sample t-test Chi-square test. A p-value of 0.05 was considered significant.

Results: Fifty-four percent of donors were males and 47% were female. The mean age of donors was 66.1 ± 14 years. A large majority (84.5%) of the donors were married. A high proportion (79.5%) had studied up to graduation or less. Retired people (50.5%) and housewives (28.6%) constituted the two largest groups when employment status was considered. Forty-nine percent gained knowledge of body donation from media or friends. Sixty percent stated that they had donated their bodies to serve humanity or to further medical research. Significant gender differences were noted for age, educational and employment status.

Conclusion: The present study provides baseline data about body donors that is likely to provide insights to help future body donation initiatives.

421. Body Donation and Its Relevance in Anatomy Learning

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Government Medical College, Aurangabad, Maharashtra

Body donation is defined as the act of giving one's body after death for medical research and education. Cadavers and donated bodies remain a principal teaching tool for anatomists and medical educators teaching gross anatomy. Learning of anatomy without hands on training of dissection on human bodies is never considered perfect. The Bombay Anatomy Act (1949) provides for the supply of unclaimed bodies to teaching institutions for the purpose of anatomical examination and dissection and other similar purposes. As per MCI norms, every medical college should have certain number of cadavers for teaching purpose depending on student intake capacity of that institute, e.g., 15 bodies are required every year in GMC Aurangabad for 150 students, for this few unclaimed bodies are acquired but the major contribution is through body donation. Voluntary donation of body is not much different from donation of organs including eyes,

kidney, liver, heart or simply blood; only a bent of mind is needed. People should be motivated to donate their bodies. The role and procedure of body donation were discussed in the presentation.

422. Unilateral Double Plantaris: A Rare Anatomical Variation

J.B. Linda, P.C. Kunjumon, G.V. Hebbal

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Aim: During routine dissection, the presence of double plantaris muscle found on the right leg, plantaris muscle is vestigial in human being and important for surgeons performing tendon transfer operation and clinicials diagnosing muscle tear.

Materials and Methods: Plantaris muscle is the superficial muscle at the back of leg between the muscles soleus and gastrocnemius, originates from lower part of lateral supracondylar line of femur and oblique popliteal ligament and inserted to the posterior surface of the calcaneal tendon. Plantaris muscle is responsible for causing plantar flexion of foot. During routine cadaveric dissection we found double plantaris muscle in a 72-year-old male cadaver, having different origin and insertions. Muscles were displayed by careful dissection and delineation of surrounding structure morphometric measurements were also taken and the specimen was photographed.

Results: Plantaris muscle had two bellies. Upper belly originated from lateral condyle of femur and inserted into muscle belly of medial head of gastrocnemius. Total length, 13 cm; muscle belly length, 4.7 cm; muscle belly breaths, 1.5 cm. Lower belly originated from fascia covering popliteus and inserted into fibrofatty tissue immediately in front of tendocalcaneus. Total length, 37 cm; muscle belly length, 3.2 cm, muscle belly breaths, 1.2 cm.

Conclusion: Plantaris muscle known to exhibit variations and used as excellent graft, plantaris tendon graft used for reconstruction of anterior talofibular and calcaneofibular ligaments, tendon of plantaris muscle also used for flexor tendon replacement in hand and atrioventricular valve repair, considering the above fact, existence and importance of plantaris muscle must not be ignored.

423. Common Celiac Mesenteric Trunk: A Rare Anatomical Variation

N. Esther Yamuna, P.C. Kunjumon, G.V. Hebbal

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Aim: During routine dissection, celiac trunk and superior mesenteric artery arising from common trunk of the abdominal aorta was found. Knowledge of variation in abdomino vascular patterns is of great importance for both surgical approach and angiographic examinations. Hence, the above rare anomaly is reported.

Materials and Methods: Normally, celiac trunk, artery of foregut arises from the front of anterior surface of abdominal aorta at the level of T12 vertebrae, gives off branches, left gastric, common hepatic artery and splenic artery, to supply the derivatives of foregut. Superior mesenteric artery, which supplies derivatives of midgut, arises from the front of abdominal aorta at the level of L1 vertebrae and gives off various branches to supply derivatives of midgut. In the present study, we came across anomalous origin of celiac trunk and superior mesenteric artery in 65-year-old male cadaver. A common trunk, which is called celiac-mesenteric trunk, found to arise from the anterior surface of the abdominal aorta at the level of L1 vertebra with length of 32 mm and diameter 4 mm. It proceeded downward slightly to the right and terminated into celiac trunk and superior mesenteric artery. From celiac trunk, left gastric artery, common hepatic artery and splenic arterial branches arose in normal way. Therefore, superior mesenteric artery was found to give off its normal branches.

Conclusion: Celiac and superior mesenteric arteries with common orgin from aorta accounts less than 1% of all abdominal vascular anomalies. Knowledge of this type of rare variation is useful for surgical, oncologic or interventional procedures and should be kept in mind to avoid complication.

424. High Division of Brachial Artery

L. Lakshmi Sailaja, D. Asha Latha, K. Neeraja, K. Sushma, T. Surekha, S. Suneetha

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During routine dissection in the department of Anatomy, Andhra Medical College, we observed high division of brachial artery in both the arms. On the left side, the brachial artery divided just below the insertion of teres major into radial and ulnar arteries. On the right side, it divided 5 cm below the insertion of teres major into radial and ulnar arteries instead of its routine division at the neck of radius. The details of such an anatomical variant were discussed during the presentation.

425. Anatomical Variations in Branching Pattern of Lateral Cord of Brachial Plexus and Formation of Median Nerve: A Case Report

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Aim and Objective: The aim is to describe the variation in the branching pattern of lateral cord and formation of me-

dian nerve of brachial plexus and correlate with its clinical and surgical importance.

Materials and Methods: The present case report was noted during routine anatomical dissection in the department of anatomy, KMC Mangalore.

Observation: An unilateral variation in the formation of median nerve was discovered in the right upper extremity of a 57-year-old Indian male cadaver. Additionally, an accessory slip from the tendon of biceps brachii muscle, near its insertion, was observed in the right arm of the same cadaver.

Conclusion: It is extremely important to be aware of these variations while planning a surgery in the region of axilla or arm as these nerves are more liable to be injured during surgeries.

426. Anatomical Variations in Branches of Sacral Plexus in the Gluteal Region and Its Clinical Importance: A Case Report

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Aim and Objective: The aim of the present report is to describe the variation in the branches of sacral plexus in the gluteal region for its clinical and surgical significance.

Materials and Methods: During routine dissection for undergraduates, unilateral variation in the branches of sacral plexus in the gluteal region was observed in the right lower extremity of a 45-year-old Indian female cadaver in the Department of Anatomy, KMC Mangalore.

Results: We found that most of the nerves of this region were coming from a single thick trunk and nerve to obturator internus communicated by a twig to inferior gluteal nerve. Communication between pudendal nerve and the main trunk was also observed.

Conclusion: Knowledge of variations in the gluteal region is of surgical significance during sciatic nerve block or inferior gluteal flap surgery etc. Hence, this report is an attempt to create awareness among medical practitioners to minimize the complications during surgeries.

427. Aberrant Medial Pectoral Nerve and Anomalous Intercostobrachial Branch of First Intercostal Nerve

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On routine dissection of an embalmed male cadaver aged around 55 years, an aberrant medial pectoral nerve was found arising as the lateral cutaneous branch of second intercostal nerve and its intercostobrachial branch was negligible. But surprisingly, a well-defined anomalous intercostobrachial nerve was provided by the first intercostal nerve. The lateral pectoral nerve had its normal origin from the lateral cord of the brachial plexus but had no communication with the aberrant medial pectoral nerve. Even though several cases of a communication between medial pectoral nerve and branch of intercostobrachial nerve are reported in the literature, the present case is unique to the best of our knowledge. The present case emphasizes the significance of preservation of intercostobrachial nerve during axillary surgical procedures. The clinical consequences of such a variation may include pectoral muscle motor loss, in addition to the commonly reported sensory loss resulting from the accidental injury or intentional sacrifice of the intercosto-brachial nerve.

428. Anomalous Origin of the Left Common Carotid Artery: A Case Report

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The arch of aorta classically has three branches the brachiocephalic trunk, the left common carotid artery and the left subclavian artery. Abnormal branches from the arch of aorta are usually incidental findings during routine surgeries or during imaging studies as they are known to be asymptomatic. Such abnormal branches when found are usually only of academic interest. An anomalous origin of the left common carotid artery from the brachiocephalic trunk was noted in a 67-year-old female cadaver during routine dissection for medical students. The brachiocephalic trunk divided into the right common carotid artery and the right subclavian artery, the left common carotid artery originating at a slightly lower level from the brachicephalic trunk itself. The variations in the branching pattern of the arch of aorta occur due to altered development of the branchial arch arteries. The knowledge of the anatomy of the brachiocephalic trunk is necessary for vascular procedures like cardiac catheterisation, four vessel angiography, aortic instrumentation and endovascular surgeries. The embryological basis of this variation and its clinical implications are discussed.

429. Bilateral Extrinsic Origin of the Inferior Epigastric and Deep Circumflex Iliac Arteries: A Case Report

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Shetty Melaka Manipal Medical College, Manipal, Karnataka

Inferior epigastric and deep circumflex iliac arteries are the branches of external iliac artery. They take their origin just above the inguinal ligament and supply the anterior ab-

dominal wall. The variations of these vessels are very rare. We report here the origin of inferior epigastric and deep circumflex iliac arteries from the femoral artery bilaterally. Both these arteries took their origin from femoral artery, about 2 inches below the inguinal ligament and passed up deep to the inguinal ligament. After crossing the inguinal ligament they had a normal course and distribution. Knowledge of these variations is of importance in plastic surgery, anterior approach to the hip joint, draining psoas abscess and reducing a femoral hernia.

430. Unusual Formation of an Arterial Loop in the Cubital Fossa and Abnormal Origin of Radial Artery from the Arterial Loop: A Clinically Important Variation

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Arterial variations in the upper limb are common. These variations are reported to be of high clinical and surgical importance. In the right upper limb of about 60-year-old male cadaver, the brachial artery gave an additional branch in the middle of the arm which ran superficially along the basilic vein in the lower part of the arm. As this additional branch reached the roof of the cubital foosa, it ran downwards and laterally along the median cubital vein, superficial to the bicipital aponeurosis. In the cubital fossa, it was joined by the lateral terminal branch of brachial artery forming an arterial loop in front of the tendon of biceps. This arterial loop gave a larger branch which continued as radial artery and a smaller muscular artery. The peculiar features of the variation reported here, such as an additional branch arising from the middle third of the brachial artery, abnormal course of the additional branch in the cubital fossa and its relationship with the bicipital aponeurosis becomes important to be known in orthopaedic procedures requiring surgery on the bicipital tendon, distal humerus and radial head in trauma and correction of deformities. In addition, the course of the additional branch of the brachial artery in the roof of the cubital fossa in proximity to the basilic and median cubital veins could expose the vessel to potential danger during routine insertion of the commonly used intravenous canula.

431. Abnormal Origin, Course and Distribution of Arteries of Upper Limb: A Case Report

Surekha D. Shetty, B. Satheeshanayak, Srinivasarao Venumadhav, P. Abhinitha

Melaka Manipal Medical College, Manipal, Karnataka

Knowledge of arterial variations in the arm is of importance for a clinician as it is a frequent site of injury and also involved in many surgical and invasive procedures. During routine dissection classes for medical students, we came across the multiple arterial variations in the right upper limb of an approximately 45-year-old male cadaver. The brachial artery was very short, and it terminated by dividing into radial and ulnar arteries in the upper part of the arm. The radial collateral, middle collateral and superior ulnar collateral arteries arose from a common trunk. This common trunk originated from the proximal part of the brachial artery. The ulnar artery was the lateral branch and radial artery was the medial branch of brachial artery at their point of origin. The radial artery had a tortuous course, and it crossed the ulnar artery from lateral to medial side in the middle third of the arm. The ulnar artery gave anterior and posterior interosseous arteries and a common trunk that divided into anterior and posterior ulnar recurrent arteries in the cubital fossa. The knowledge of these variations is very useful for radiologists and surgeons.

432. Abnormal Intraparotid Termination of Facial Vein and its Clinical Importance

S. Swamy Ravindra, B. Satheesha Nayak, Srinivasarao Sirasanagandla, Sapna Marpalli, L.S. Ashwini, Ashwiniaithal P. Jyothsnapatil, P. Abhinitha

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Facial vein is the main vein of the face. Although its origin is constant, it frequently shows variations in its termination. We report a very rare type of variation of facial vein. The right facial vein was found crossing transversely across the masseter and terminated into the superficial temporal vein. The transverse facial vein was found draining into the facial vein. As the vein was very superficial in the parotid gland, it might get cut or injured in parotid incisions. Knowledge of this anomalous course may be very important for surgeons doing parotid, maxillofacial and plastic surgeries.

433. Abnormal Course and Termination of Small (Short) Saphenous Vein

P. Abhinitha, K.G. Mohandas Rao, B. Satheesha Nayak, Surekha D. Shetty

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Variations in superficial veins of the lower limb are uncommon. During routine dissection of a cadaver, an abnormal small (short) saphenous vein was observed in the right lower limb of a 50-year-old male cadaver. The origin of the small saphenous vein and its course in the leg was normal. However, instead of draining into the popliteal vein, it continued on to the medial side of the thigh in the superficial fascia posterior to the great saphenous vein and finally joined the great saphenous vein about a centimeter proximal to the saphenous opening. About 2 inches below its termination, the short

saphenous vein was joined by a communicating vein, which was connecting it with the great saphenous vein. The knowledge of superficial veins of lower limb is useful for clinicians during bypass procedures.

434. Abnormal Course and Branching of the Left Testicular Artery in the Posterior Abdominal Wall: A Case Report

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The testicular arteries are slender and long vessels arising from anterolateral surface of the abdominal aorta a little below the renal arteries. Variations of testicular arteries are uncommon. During routine dissection for undergraduate students, we encountered an abnormal course and branching of a left testicular artery in an approximately 60-year-old male cadaver. The variant testicular artery originated from the abdominal aorta at the level of 2nd lumbar vertebra, passed obliquely upward and to the left, and it passed between the splitting and reuniting segments of left renal vein, it took an abrupt bend (kink), and passed downwards. At the level of lower end of the hilum of the left kidney, left testicular artery bifurcated into medial and lateral branches which continued downward toward the deep inguinal ring. In addition, the lateral branch gave off a thin branch about 2 inches below the lower pole of the left kidney which ended in the connective tissue and fat of the posterior abdominal wall. Knowledge of variations in the course and abnormal branching of the testicular artery in this region could be handy for vascular surgeons and urologists, especially during the surgery in the retroperitoneal region.

435. Variation in Branching Pattern of Brachial Plexus and its Clinical Implication

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Aim: The brachial plexus is formed by the ventral rami of spinal nerves C5–C8 and T1. The brachial plexus supplies cutaneous and muscular innervations to the upper limb(s) and any injury at this level can lead to significant disability. The variations in formation and distribution of branches in the brachial plexus were studied.

Material and Method: Forty brachial plexus from 20 cadavers in anatomy department of B.J. Medical College, Ahmedabad were studied.

Results: Out of 40 upper limbs, variations were found in four upper limbs. In one cadaver, we found that median nerve was formed by two lateral roots and one medial root on the right side and there was communication between musculocutaneous nerve and median nerve on the left side. One cadaver, on the right side showed presence of musculocutaneous nerve, which was not piercing coracobrachialis. In one cadaver, on the right side, three variations were found. One variation was that upper and lower subscapular nerves were arising from axillary nerve. Second variation was that there was communication between axillary nerve and radial nerve. Third variation was that medial cutaneous nerve of arm was replaced by a branch arising from intercostobrachial nerve.

Conclusion: It is concluded that knowledge of such variations is essential in evaluation of unexplained sensory and motor loss after trauma and surgical interventions to upper limb. Knowledge of these is important to anatomists, radiologists, anesthesiologists and surgeons.

436. Right-Sided Diaphragmatic Hernia: A Case Report

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Congenital diaphragmatic hernia (CDH) is a developmental malformation, characterized by a part of gastrointestinal tract herniating through a defect in the diaphragm. It is a life-threatening malformation believed to be the consequence of failure of closure of the pleuroperitoneal canal which is usually unilateral, although very rarely it may be bilateral. Incidence of CDH is 1 in 7000 live births with a mortality rate of 50% in prenatally diagnosed cases. However, herniation occurs commonly on the left side (85%) and right-sided CDH is very rare (15%). Here we present a case of right-sided congenital diaphragmatic hernia in a newborn male infant with left-sided shifting of the mediastinum. Left lung was grossly reduced compared to the right. Right side of the diaphragm was poorly developed. The case was found during routine dissection of the fetus as part of a study on birth defect in the Department of Anatomy, Assam Medical College, Dibrugarh.

437. Tetralogy of Fallot: A Case Study

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Tetralogy of Fallot is the most frequently occurring congenital abnormality of conotruncal region and the incidence is about 9.6/10,000 live births. It occurs due to unequal division of the conus resulting from anterior displacement of the conotruncal septum. The displacement of the septum produces 4 cardiovascular alterations. They include: pulmonary infundibular stenosis, a large intraventricular septal defect, an overriding of aorta that arises directly above the septal defect and hypertrophy of the right ventricular walls. A 13-year-

old female patient was reported in the Department of CTVS, OPD, AMCH, Dibrugarh, with increasing dysponea at rest and cyanosis. On investigation the patient was diagnosed with Tetralogy of Fallot. The relevant investigation and findings were discussed during the presentation.

438. Cleft Lip and Cleft Palate: A Case Study

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Assam Medical College and Hospital, Dibrugarh, Assam

Cleft lip and cleft palate are congenital anomaly of lip formation resulting in abnormal facial appearance and defective speech. The incidence of cleft lip is 1/1000 and the occurrence is more in males than females. The incidence of cleft palate is 1 in 2500 births and the occurrence is more in Females than males. A male baby was examined in the Department of Paediatrics with gestation age 37 weeks, who was presented with bilateral cleft lip with cleft palate. The details of the diagnosis were discussed during the presentation.

439. Study of Cyclopia: A Case Report

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Cyclopia is a condition where only one eye is present. The eyes may be partially or completely fused. These defects are caused by a loss of midline tissue that may occur as early as 19–21 days of gestation. A still born fetus was received from the Department of Obstetrics and Gynaecology, AMCH, Dibrugarh. The fetus was seen to be suffering from cyclopia. The case was associated with other congenital anomalies, including absence of nose and nasal cavity, absence of oral cavity and low set ears. Predisposing factors to this congenital anomaly are alcohol, SHH gene defect, abnormality in cholesterol metabolism, etc. Hence, awareness of such conditions and adoption of appropriate preventive measures can reduce maternal and fetal mortality.

440. Accessory Spleen at Tail of Pancreas: A Case Report

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Ectopic splenic tissue can be found in body in 2 distinct forms. Accessory spleens are congenital while splenosis is acquired condition. During routine dissection on a 70-year-old male cadaver, single accessory spleen was found at the tail of pancreas. Histological examination confirmed it to have normal splenic histology. Blood supply was from gastroepiploic and splenic arteries. Knowledge or these splenunculi are essential because they can mimic tumors of kidney and pancreas. In splenectomy for nonhematological causes, accessory spleen should be preserved to prevent infection and sepsis, while splenectomy for hematological causes, it should also be removed.

441. Variations in the Formation of the Cords of Brachial Plexus: A Case Report

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Brachial plexus is a complex structure, variations in formation of roots, trunks, divisions and cords are common. During routine dissection of a 55-year-old male cadaver, a rare case of variation of the brachial plexus characterized by the presence of only 2 cords on the right side was observed. Ventral divisions of all the 3 trunks on the right side joined to form superior cord and posterior divisions of all the 3 trunks joined to form inferior cord, instead of 3 cords, namely lateral, medial and posterior cords, normally. Superior cord represented union of lateral and medial cords. Inferior cord represented posterior cord. The branches of lateral and medial cords were given off by the superior cord; the branches of posterior cord were given off by inferior cord. Similar variation was not observed on the contralateral side. Our aim is to contribute to the existing knowledge of variations in the anatomy of brachial plexus, explaining its morphological and clinical significance.

442. Bilateral Bony Bar at Sigmoid Sulcus: A Case Report

Navneet Kumar, Arvind Kumar Pankaj, Rajesh Kumar Varma, R.K. Deewan, Anita Rani
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The crest, plate and bars such as bony projections may be present between petrous temporal and sigmoid sulcus. The bony connections usually divide the juglar foramen. In oesteology lab of K.G. Medical University Lucknow (U.P.), we found a human skull of unknown sex and adult age having bilateral curve bony plate connecting the inner margin of groove for sigmoid sinus and petrous temporal, both bars were almost identical in shape, size and location. These bony bars were connecting the posterior margin of petrous temporal and posterior margin of sigmoid sinus. These bars were curved bony connection on posterolateral part of sigmoid sulcus. These bars were like a part of a ring-shaped structure. The left side bar was present more laterally than the right bar.

The bony erosions were also seen in floor of sigmoid sulcus. The venous sinus anomalies, dural ossification and intracranial calcifications were considered for bilateral ossification and formation of bar at sigmoid sulcus.

443. Communicating Branch Between Median and Musculocutaneous Nerve: A Case Report

Pooja Jain, Nidhi Gupta, Rima Dada
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Variations in the formation and branching of the brachial plexus are clinically important as they are more prone to injury in the surgeries involving axilla and upper arm. The median and musculocutaneous nerves are branches of the brachial plexus. The median nerve is formed by the union of the terminal branch of the lateral and medial cords of the brachial plexus. It gives no branches in the upper arm and enters the forearm between the two heads of pronator teres. The musculocutaneous nerve, a branch of the lateral cord, pierces the coracobrachialis muscle and runs downward and laterally between the biceps and the brachialis muscles to reach the lateral side of the arm. The present case report describes a communication between median nerve and musculocutaneous nerve in a 50-year-old male cadaver, found during routine educational dissection. The variation was seen in the proximal part of upper arm, before the musculocutaneous nerve pierced coracobrachialis muscle. It is important to be aware of this variation while planning a surgery in the region of axilla or arm on account of its more liability to get injured during operations.

444. Macrodactyly of Second Toe: A Case Report

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Background: Normally the length of second toe in an adult male is 5 to 6 cm from metatarsophalangeal joint to the tip of the toe. The distance from the mid point of first to the second metatarsophalangeal joint is about 2.5–3.5 cm.

Material and Methods: A 45-year-old male was observed in orthopedic O.P.D at A.M.C, Dibrugarh, with an enlarged left second toe with enlarged first interdigital space. Measurements were taken using measuring tape.

Observation: The second toe of the patient was seen to be 8.5 cm long from metacarpophalangeal joint to the tip of the toe. The distance from the mid point of first to the second metatarsophalangeal joint was 7 cm.

Discussion: The parameters observed were compared with similar parameters on the toes made by other authors.

Conclusion: The case has been discussed here for its rarity.

445. Giant Omphalocele: A Case Report

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Background: Omphalocele refers to a congenital defect of the abdominal wall in which the bowel and solid viscera are covered by peritoneum and amniotic membrane. It involves herniation of abdominal viscera through an enlarged umbilical ring. The viscera may include liver, small and large intestines, stomach, spleen or gallbladder. The defect may be very small or large enough so that it contains most of the abdominal viscera. The origin of the defect is a failure of the bowel to return to the body cavity from its physiological herniation during the 6th to 10th weeks. Omphalocele occurs in 2.5/10000 births and is associated with a high rate of mortality (25%) and severe malformations, such as cardiac anomalies (50%) and neural tube defects (40%). Approximately 15% of live-born infants with omphalocele have chromosomal abnormalities. It may also be associated with exstrophy of the cloaca, prematurity (10–50% of cases) and intrauterine growth restriction (20% of cases).

Case Report: A 28-year-old female delivered a 35 weeks live-born female baby in the Obstetrics and Gynaecology Department of Assam Medical College. The baby died after 2 hours of birth. It was sent to the Anatomy Department. The important findings noted were:

External: 1. Herniated abdominal sac covered by membrane, 2. Abdominal wall defect about 8 cm in diameter, 3. Single umbilical artery, 4. Skin sac on either side of a midline opening, 5. Midline skin tag, 6. Imperforate anus.

Internal: 1. Contents of the herniated sac a) liver b) intestines, 2. Exstrophy of the bladder, 3. Exstrophy of the cloaca, 4. Large intestine opened into the bladder, 5. White meconium inside the bladder.

Discussion: The above external and internal findings clarified that the female baby had a giant omphalocele.

446. Bilateral Congenital Polycystic Kidney Disease: A Case Report

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Polycystic kidney disease (PKD) is a genetic disorder characterized by the growth of numerous cysts in the kidneys. When cysts form in the kidneys, they are filled with fluid. PKD cysts can profoundly enlarge the kidneys while replacing much of the normal structure, resulting in reduced kidney function and leading to kidney failure. Two major inherited forms of PKD exist: autosomal dominant PKD is the most common inherited form. Symptoms usually develop between the ages of 30 and 40, but they can begin earlier, even in childhood. About 90% of all PKD cases are autosomal dominant PKD. Autosomal recessive PKD is a rare inherited

form. Symptoms of autosomal recessive PKD begin in the earliest months of life, even in the womb. Most of the congenital polycystic kidney diseases are autosomal recessive and are caused by a mutation in the autosomal recessive PKD gene, called PKHD1. Studies show that the incidence of ARPKD is 1:20,000 live births and is typically identified in the first few weeks after birth. Severity of the disease varies. Babies with the worst cases die hours or days after birth due to respiratory difficulties or respiratory failure. We report a case of bilateral congenital polycystic kidney diseases during dissection of a female fetal cadaver of 34 weeks of gestation. It is not associated with any anomalies of other systems. Some people with autosomal recessive PKD do not develop symptoms until later in childhood or even adulthood. Details were presented during the poster presentation.

447. A Rare Variation of Insertion of Extensor Carpi Ulnaris

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Muscles of forearm and palm are known to show variation in their attachments and these variations are of prime importance to the hand surgeons. While studying deep transverse metacarpal ligament in 60 cadavers, we observed a rare case of variation in the insertion of extensor carpi ulnaris. In the right hand of a male cadaver, the extensor carpi ulnaris muscle after getting attached to the tubercle on the medial side of the 5th metacarpal was showing a fibrous band extending forward to deep transverse metacarpal ligament. Only one case showing such fibrous band to deep transverse metacarpal ligament was reported by Al Quattan and Robertson. The details were presented during conference.

448. A Study on Variations of Brachial Plexus

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Aim: Numerous anatomical variations are present in Brachial plexus, which are clinically significant for surgeons, orthopaedicians, traumatologists, anesthesists and neurosurgeons. This study will provide information about variations of brachial plexus, its clinical significance and the type of variations present in this part of country.

Materials and Methods: The study was undertaken in the Department of Anatomy, Gauhati Medical College, Guwahati, Assam. Twenty embalmed cadavers, i.e., 40 upper limbs were studied for variations of brachial plexus. In the study, roots, trunks, divisions, cords, formation of nerves, level of origin of branches and variations in all these were noted. In 2 cadavers, there were communications between median nerve and musculocutaneous nerve. In 1 cadaver, it was bilateral, which is very rare, in the other cadaver it was unilateral and in the left side. In all 3 cases, the communicating branch from musculocutaneous nerve communicates with the median nerve at the middle of the arm. The length of the communicating branch was measured with the help of measuring tape.

Result and Conclusion: Total three cases of abnormal brachial plexus were found, two cases being in the same cadaver (bilateral), the study will help the anesthetists in axillary block, orthopaedicians to avoid nerve entrapment between the fracture fragments, helpful for general and vascular surgeon and also in proper understanding of some previously unexplained clinical symptoms. The details of the study and the significance were presented in the conference

449. Variations of Subclavian Artery Branches: A Case Report

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The subclavian artery is a major branch of aorta. It arises from aortic arch on the left and from brachiocephalic trunk from the right. Further passes through subclavian groove and continues as axillary artery. Its branches supply diverse areas in the body from the brain to the thorax. First part gives vertebral artery, internal thoracic and thyrocervical trunk, which in turn gives inferior thyroid, superficial cervical and suprascapular arteries. During routine dissection in the Department of Anatomy in JN Medical College, Belgaum, a cadaver showed an unusual range of anatomical variations in the branching of subclavian artery on both sides. On the right side, inferior thyroid artery was observed to arise from subclavian artery directly. On the left side, vertebral artery originated directly from arch of aorta with absence of costocervical trunk. These variations are of interest to anatomists, surgeons and radiologists and suggested that these anomalies must be evaluated preoperatively. These branches are used as cannulation sites for cardiopulmonary bypass procedures and for insertion of intraaortic balloon pumps.

450. Sternal Fissure: A Case Report

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Sternal fissure is an open defect in the body of the sternum as a result of incomplete fusion of bilateral plates of chondrified mesenchymatous condensation during ossification. A case of large sternal fissure was reported from the Anatomy Department, RIMS, Imphal. The fissure is present at the lower third of the mesosternum. Knowledge of such open defect is important and should be remembered during clinical procedures, such as sternal puncture/acupuncture, to avoid fatal complications. The details were discussed at the time of presentation.

451. Superficial Course of Ulnar Artery: A Case Report

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Background: Although ulnar arterial variations are rare, superficial ulnar artery is one of its commonest variations. In same right upper limb, superficial ulnar artery was observed. It originated from the right brachial artery at neck of radius. From its origin, it passed downward in the medial part of forearm in a superficial plane compared to normal ulnar artery. In the hand, the superficial ulnar artery has anastomosis with the superficial palmar branch of the radial artery, creating the superficial palmar arch. The superficial ulnar artery is of special interest to the plastic surgeons, clinicians and anatomists. Absence of palmaris longus muscle is also a common variation. In same right forearm, I observed absence of Palmaris longus muscle. It is one of degenerating muscles, and is of interest in orthopedics, hand and reconstructive surgeries. I hereby present a case of unilateral superficial ulnar artery and absence of Palmaris longus muscle along with a brief review of the literature and analysis of its clinical significance. The clinical significance and the embryological reasons were discussed in the conference.

452. Arnold Chiari Malformation and Syringohydromyelia

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Background: The downward displacement of the cerebellar tonsils through the foramen magnum is called Chiari Malformation. The term usually refers to "type 1 Chiari Malformation," which is classically described as "Adult Onset Chiari" (average age of presentation is 45 years). On April 24, 2012 a 45-year-old female patient was presented in the Department of Neuroanatomy, Narayana Superspeciality Hospital, Nellore with the following complaints: Head ache—2 years; neck pain—2 years; vertigo—1 year; dissociated anesthesia—2 years; ulcers in the tip of the fingers of upper limb and lower limb—1 year. The patient was scanned for peripheral nerve thickness, taken a cervical X-ray and MRI (head and neck).

Impression: Long-segment syringohydromyelia in cervico-dorsal spinal cord. Tonsillar herniation— type 1 Arnold Chiari malformation. Mild dilatation of the 4th ventricle. Posterior disc osteophyte complex with disc protrusion at C4–C5 and C5–C6 IV disc level causing mild anterior thecal sac indentation and mild neural foramina narrowing.

Management: Suboccipital craniectomy and dural graft patch was done. Syringostomy for syringohydromyelia. Symptomatic treatment.

453. Unusual Communication Between Lateral Cutaneous Nerve of Forearm and Median Nerve: A Case Report

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Variations in the brachial plexus and its terminal branches are common. Communication between lateral cutaneous nerves of forearm (LCNF) is a continuation of musculocutaneous nerve and median nerve, which may be of considerable significance to neurologists and orthopaedicians when dealing with nerve entrapment syndromes of the upper limb. The median nerve is formed by union of medial and lateral roots, derived from the respective cords of the brachial plexus. In the arm it is medial to the brachial artery. It enters forearm between two heads of the pronator teres. Musculocutaneous nerve arises from lateral cord of the brachial plexus and innervates muscles of front of arm and continues as lateral cutaneous nerve of the forearm. During routine dissection in an adult male cadaver, an anomalous communication between LCNF and median nerve was encountered in left upper limb. The communicating branch arose from the LCNF just above the elbow, passing downward and medially between radial and ulnar arteries to join the median nerve in cubital fossa. Venkatarama et al. have reported a loop of LCNF through which a perforating vein was passing and connecting the vein accompanying radial artery and median cubital vein. There are several reports on compression syndromes of LCNF. A study by Beldner et al. in 37 cadaveric forearms showed LCNF running parallel to the cephalic vein within the subcutaneous fat without a loop. Compression of the LCNF is an infrequently identified entrapment neuropathy. Entrapment of the LCNF most frequently occurs at the point where the nerve arises from beneath the biceps tendon and pierces the deep fascia. The LCNF may be injured during antebrachial phlebotomy, which is done for both the routine venipuncture and blood donation populations. A case of LCNF entrapment distal to the elbow flexion crease has also been described, but this was attributed to an anatomical variation. The possibility of entrapment of LCNF must be included in the differential diagnosis of lateral elbow pain. Patients usually present with pain around the elbow. Physical examination may demonstrate tenderness over this area, a positive Tinel's sign lateral to the biceps tendon and hypoaesthesia of the anterolateral aspect of the forearm. Some patients may manifest paraesthesia along the volar aspect of the distal forearm. It is also significant to distinguish between forearm paraesthesia caused by disorders of the LCNF and the superficial radial nerve. For any cause of LCNF compression, alternative treatments include resting and general restriction of activities, administration of nonsteroidal anti-inflammatory agents, splinting, use of ultrasound techniques, steroidal injections locally, surgical exploration and decompression. Knowledge of anatomic variations of the peripheral nervous system is helpful in explaining unusual clinical signs and permits correct interpretation of clinical

neurophysiology. The variation of the current study may prove interesting to anatomists and clinicians.

454. The Eyes See Only What the Mind Knows: Evaluation of Audio Visual Aids in Dissection Hall Teaching

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Once standing as a backbone of medical education, dissection hall (DH) teaching and learning is in the midst of a downward spiral, gradually being replaced by a multiple range of special study modules, problem-based workshops, computers, plastic models, prosected specimens and many other teaching tools. Common problem faced in DH are nonavailability of individual instructors for each table, crowding of students in the table where instructions were being given and dwindling interest of students in dissection owing to lack of clear, timely and uniform instruction. The concept of use of audio visual aids (AV) in DH was thus introduced to overcome this problem and to arouse interest in anatomy among the medical undergraduate students. In the poster we have discussed a study conducted to evaluate the effectiveness and the problems faced upon implementation of such AV system in our department. About 94% of students responded that the AV system was useful in DH teaching, 50% students found it difficult to orient to cadaver in LCD screen and 64% students suggested that the teaching staff need more experience in handling the AV system. Suggestions given by students were implemented in improving teaching methodology in DH.

455. Anencephaly: A Case Report

Soram Ingocha Singh, N. Dama Yanti Devi, Deven Singh, Pranab Debbarma
Regional Institute of Medical Sciences & Hospital, Imphal, Manipur

Background: Anencephaly is the commonest congenital anomaly of all birth defects and arises from incomplete closure of neural tube during early embryogenesis. Its incidence in India is 4/1000 births. Such birth defects usually arise due to the various implications of genetic and environmental factors.

Materials and Methods: After taking formal permission from the authority, an abnormal fetus was collected from the Department of Obstetrics and Gynecology, RIMS Hospital, Imphal, Manipur. Fetus was observed externally and internally after dissection of the cranial cavity.

Observation: Externally head was small, presence of skull hair, and eyes were protruded and sutures are fused. Other external anomalies were not present. On dissection of the cranium, cerebral hemisphere and cerebellum were absent.

Conclusion: This case is being reported because of its common occurrence which could be detected by ultrasonography in early development of fetus, and accordingly managements such as medical terminations of pregnancy could be done.

456. Cervical Rib: A Case Report

Thokchom Dineshwar Singh, N. Damayanti
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A cervical rib is a supernumerary or accessory rib from the seventh cervical vertebra. This is associated with a peculiar development of the 7th cervical vertebra, in that there is a separate centre of ossification for the costal element of its transverse process. They occur in approximately 0.5% of the population and more common in female than in male. Onset is from the second to eighth decade with a peak in the fourth decade. A 34-year-old female was found visiting the Medicine OPD, RIMS, Imphal, with the complaint of fullness or mild swelling in the lower part of right side of neck. She also had complaint of weakness and tingling sensation in the right hand and these symptoms were aggravated after doing some works. She also felt her hand clumsy. On giving pressure on the swelling, she felt tingling and electric-like sensation radiating toward the extremity of the hand. On X-ray and CT scan, right sided cervical rib was found. This case is being reported for its common occurrence and usually symptomatic. Quite often, it is underdiagnosed. Their relationship to thoracic outlet syndrome (TOS) is not so constant that the two conditions should be seen as synonymous. Perhaps no more than 10% of people who have cervical ribs develop TOS.

457. A Fetus Associated with Cranium Bifidum—Meningohydroencephalocele: A Case Report

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Aim: To study a case of large cranial bifida associated with meningohydroencephalocele and its embryological significances.

Background: Cranium bifidum is the defects in the formation of the cranium in the squamous part of the occipital bone in median plane of calvaria associated with congenital anomalies of the brain or meninges. When the cranial defect is large along with meninges, part of the brain herniates through it and the protruding brain contains part of ventricles, the anomaly is known as meningohydroencephalocele. Incidence of cranium bifidum occurs approximately 1 in 2000 births.

Materials and Methods: A male stillborn fetus was collected from the Obstetrics and Gynaecology Department,

RIMS, Imphal, after taking formal permission from the authority. The fetus was observed externally and after dissection.

Observation: A large cystic swelling herniated through posterior fontanellae of the occipital bone. On dissection, sac contains fluid and two lobes of cerebral hemisphere, which separated each other by own sac. Cranial sutures are fused and cranial cavity does not contain any brain except upper part of the spinal cord which is connected by the two separate tracts of cerebral hemispheres lie outside the cranial cavity. Spinal cord is traced following dissection posteriorly along with the spinal canal and found that the spinal cord end at T12 level.

Conclusion: The cranium bifidum can be detected by USG in routine antenatal check up at early third trimester of pregnancy. Early diagnosis will be of great importance for the clinicians.

458. Alobar Holoprosencephaly: A Case Report

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Regional Institute of Medical Sciences, Imphal, Manipur

Aim: To study the malformation of brain and its embryological significances.

Background: Holoprosencephaly (HPE) is a congenital anomaly of the central nervous system. Differentiation of cerebrum into cerebral hemispheres occurs around 4–8 weeks of embryonic life. Failure of cleavage of prosencephalon gives rise to holoprosencephaly (arrhinencephaly), a rare group of disorders. The result is a single-lobed brain structure with severe skull and facial defects. The incidence of HPE has been reported 1 in 15000 live births.

Materials and Methods: An abnormal fetus was collected from the Labor Room of Obstetrics and Gynaecology Department, RIMS.

Observation: On external examination, the fetus had microcephaly and orofacial developmental defects. Examination of brain revealed unilobar cerebrum. Median cerebral fissure was absent. The sulci and gyri were minimally developed. A coronal section of cerebrum through the diencephalon revealed a monoventricle, occupying the frontal portion of cerebrum, along with fused thalami and absence of corpus callosum. The roof of the ventricle was formed by a thin rim of cortical mantle. Cerebellum was normal, which was separated from the cerebrum by tentorium cerebelli. Dissection of heart revealed ventricular septal foramen.

Conclusion: HPE can be detected as early as 23 menstrual weeks may be confused with hydrocephalus and hydranencephaly on sonograms. We reported the case because specific prenatal diagnosis of the condition may be very influential in the clinical management of pregnancy. Details of the case were presented at length in the conference.

459. Meningohydroencephalocele: A Case Report

S. Robert Ginlunmang Zou, N. Damayanti Devi
Regional Institute of Medical Sciences, Imphal, Manipur

Background: Meningohydroencephalocele is herniation of the meninges, brain with ventricle which is cause by an ossification defect in the bones of the skull. The most frequently affected bone is squamous part of occipital bone, which may be partially or totally lacking. These defects occur in 1/2000 births.

Materials and Methods: A female fetus of 23 weeks (foot length: 4.3 mm, weight: 550 g) with huge mass in the occipital region of the head was collected from the Obstetrics and Gynaecology Department, RIMS, Imphal after obtaining formal permission from the Ethics Committee, RIMS, Imphal.

Observations: On dissection, the mass were of meninges, brain tissue with ventricles. Other external and internal features of viscera and organs were normal.

Conclusion: An awareness of this condition should prevent attempted biopsy, which might otherwise prove disastrous. Air or contrast cisternography with plain or computerized tomographic radiology would seem to be the investigation of choice.

460. Townes–Brocks Syndrome: A Case Report with Brief Review

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Background: Townes–Brocks syndrome is a rare multiple malformation syndrome characterized by anal, limb, ear and renal anomalies. Only 200 cases were reported in the entire world. The syndrome is an autosomal dominant trait involving the mutation gene SALL1.

Materials and Methods: A male fetus of about 24 weeks (CRL: 220 mm, foot length: 4.5 cm, weight: 600 g) collected from the Department of Obstetrics and Gynaecology, RIMS, Imphal for research purposes after getting formal permission from the Ethics Committee. Dissection was done in the dissection hall of Anatomy Department, RIMS, Imphal.

Observation: Externally pre-auricular tag of the left ear, imperforated anus, pre-axial polydactyly of right hand (6 digits) and preaxial polydactyly of left foot (7 digits), hypoplastic and short left lower limb. On dissection: bilateral renal agenesis, dextrocardia, aplasia of left lung.

Conclusion: Although some symptoms can be life-threatening, people diagnosed with mild form of Townes-Brocks syndrome live a normal lifespan. This is presented because of its rarity.

461. Situs Inversus: A Case Report

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Background: Situs inversus is a congenital positional anomaly characterized by transposition of abdominal viscera and when associated with right-sided heart (dextrocardia) is referred to as situs inversus totalis. Situs inversus viscerum, although rare (1/5000 to 1/10000) is clinically important.

Case Report: A 29-year-old man from Kiyangei, Manipur, was admitted as an emergency case of acute pain abdomen. On investigation, chest radiograph shows dextrocardia with gas shadow under the left dome of diaphragm.

Conclusion: 1. Surgeons must be aware of such anomalies of development to reduce error of diagnosis. 2. Radiological examination has significant value in detection of situs inversus viscerum. 3. To reduce diagnostic error, other procedures such as USG and CT scan can be used

462. Crossed Fused Renal Ectopia in Foetus: A Case Report

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Background: In human, kidneys develop from metanephros. During early development metanephric kidney is sacral and becomes more cranial at a level with second lumbar vertebra at 13 mm of CRL. The changes in the position of developing kidney as age advances are known as ascent of kidney. During ascent, kidney may lie outside the renal fossa causing an ectopic kidney. A kidney crossing to the other side results in crossed renal ectopia with or without fusion. Crossed fused renal ectopia is an unusual type of abnormality in kidney position.

Materials and Methods: During routine dissection of the fetuses in the Department of Anatomy, collected from the Department of Obstetrics and Gynaecology after formal permission from the Medical Ethics Committee, the case of crossed fused renal ectopia in fetus was observed.

Observation: Both the kidneys are in the right lumber region. The left lumbar region is empty. The ectopic kidney is horizontally placed with hilum facing upward and is fused on the lower pole of the right kidney. Details will be discussed during the presentation.

Conclusion: Anomaly of kidney may be associated with other anomalies. Therefore, it is very important to diagnose the anomalies for proper management during intrauterine life. We hope that, this will contribute to imaging study of fetal kidney and its anomalies.

463. Sternal Foramen: A Case Report

Parvathi S.
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The sternum or breastbone is one of the flat axial bones forming the anterior part of thoracic skeleton. It resembles a short sword. The upper part is the manubrium, middle part is the body. The lowest part appears the point of the sword is xiphoid process or xiphisternum. The length of adult sternum in an averagely build individual is about 17.2 cm, which is longer in males that females. The foramen was found in one sternum during routine osteological class taken for the first year MBBS students in academic year 2011–12 in the Anatomy Department. A student (Krupa. K.) from JJMMC, Davangere, came and showed this bone. One oval-shaped foramen of size 0.5 cm × 0.7 cm was present on lower one-third of the body of an adult sternum, such as foramen of sternum is not common. This has been not only a focus of attention of anatomists but also of interest to forensic experts, orthopedicians, pediatricians, cardiothoracic surgeons, physicians because it is very close contact with heart and lungs. Topographical details, clinical significance along with other anomalies of sternum were presented on the poster presentation.

464. Hermaphrodite (Intersex): A Case Report

Parvathi S
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Hermaphroditism/intersex is the presence of intermediate or atypical combinations of physical features that usually distinguish female from male. This is usually understood to be congenital involving chromosomal, morphologic, genital and/or gonadal anomalies, such as diversion from typical XX-female or XY-male presentations, e.g., sex reversal (XY-female XX-male), genital ambiguity, or sex developmental differences. An intersex individual may have biological characteristics of both the male and the female sexes and applied to human beings whose biological sex cannot be classified as clearly male or female. The reproductive or sexual anatomy differs from the typical definitions of male and females; 1 in 2000 for every birth. But some born with subtler forms of sex anatomy variation. While doing supervision "Suverna Arogya Chetana," school children health check-up program comes under NRHM, I found this boy aged about 12 years studying in 7th standerd in a government primary school. The school teacher noticed this for past 4 years. On examination, he has breasts like girls and ambiguous genitalia. He is menstruating for past 4 months. This has been not only a focus of attention of anatomists but also of interest to genetitians, embryologists, pediatric endocrinologists, surgeons, physicians, psychiatrists, forensic experts because it makes very sensitive issue on the boy, family and society. Other details of history, investigations, management, clinical significance, medico-legal importance along with other anomalies of chromosomes were presented on poster.

465. A Case Study of Anencephaly

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A 20-week stillborn was found in obstetric department of VS Hospital with anencephaly. Mother of the baby, aged 22 years, presented with 5-month amenorrhea to the Obstretic Department of VS Hospital for a routine antenatal checkup. On ultrasonography, it was found that the child had anencephaly, pregnancy was terminated for 200-g female child with anencephaly. Incidence of anencephaly is 1 in 4000 births per year. Anencephaly is commonly associated with spina bifida. In this case, no such associated anomalies and any other anomalies found.

466. Subhepatic Appendix

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Aim: The aim of the present study is to explain the varied position of the appendix.

Materials and Methods: The variation was noticed during the routine dissection in the Dept. of Anatomy, SRMCH&RC, Chennai. The length of the appendix was also measured using a cm-scale.

Observation: The position of the appendix was subhepatic with a length of about 10.5 cm.

Conclusion: While approaching the appendix, the surgeons should be aware of the different positions of the appendix.

467. Exomphalos Minor: A Case Report

Payal Kasat, S. Jaiswal, Pritha S. Bhuiyan
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Exomphalos (omphalocele) is a birth disorder that affects approximately one out of every 5,000 live births. During fetal development, the abdominal wall does not develop properly and the contents of the abdomen protrude into a sac through the umbilical cord. The viscera are covered only by a translucent layer of peritoneum and amnion. The sac can vary in size, ranging from small to very large. In omphalocele minor there are only a few loops of gut in the sac, but in omphalocele major, it may contain most of the abdominal organs, including liver. Exomphalos has been linked to other complications such as abnormalities of the heart, lungs, kidneys and trisomy 18. Prenatal diagnosis is possible through an ultrasound examination; however, not all cases are confirmed before birth. If a confirmation is made prior to birth, a cesarean section may be necessary for a safe delivery. If the exomphalos is not diagnosed prenatally, it will be easily confirmed after birth and the doctors will put a wrap around the exomphalos to protect it. Treatment options include surgery to remove the sac and place the abdominal contents where they belong, as well as medications to encourage skin growth. We present a case of a neonate apparently presenting with exomphalos major. Details of this case were discussed during the conference.

468. Branchial Sinus: An Autosomal Dominant Presentation

Payal Kasat, S. Jaiswal, Pritha S. Bhuiyan
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Branchial sinus is a tiny hole in the lower part of the neck formed by incomplete closure of the second branchial arch when it grows down over the third and fourth branchial arches in the embryo. The sinus is frequently associated with a track running up the neck, often as high as the posterior pillar of the fauces in the pharynx (so forming a branchial fistula). The condition is normally observed in children, most often in the first year of life. It presents as a small orifice discharging mucous in the anterior border of the sternomastoid, one-third of the way up from the muscle's origin. Treatment is by surgical excision, dissecting the fistula out as high as possible. We present a case of a 1-year-old female child presenting with bilateral branchial sinus with genetic predisposal. Details of this case and the treatment were presented during the conference.

469. Arterial Variations in the Arm: A Case Report

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Variations in the arterial anatomy of the upper extremities are quite common. The branches of the axillary and brachial arteries more often show a variant pattern. The axillary artery normally gives rise to superior thoracic artery from its first part, thoracoacromial and lateral thoracic arteries from its second part, anterior and posterior circumflex humeral artery, subscapular artery from its third part. Further, axillary artery continues as brachial artery, which then gives rise to profunda brachii, superior and inferior ulnar collateral arteries in the arm. During routine dissection, we found that the brachial artery in the arm gave rise to a large common arterial trunk just below the lower border of teres major muscle. This common trunk then divided into profunda brachii, posterior circumflex humeral and superior ulnar collateral arteries. The profunda brachii artery was then passing through the lower triangular space along with the radial nerve. The pos-

terior circumflex humeral artery was largest and curled upward winding round the lower border of teres major muscle to reach the surgical neck of the humerus to accompany the axillary nerve. No posterior circumflex humeral artery arose from the third part of axillary artery. Awareness of these variations may serve as a useful guide for both radiologists and vascular surgeons. It may help to prevent diagnostic errors, influence surgical tactics and interventional procedures and avoid complications during surgeries.

470. Study of Incidence of Supracondylar Process of Humerus

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The supracondylar process of the humerusis a hook-like, bony spine of variable size that project downward and medially from the anteromedial surface of the humerus. It is found 5–7 cm above the medial epicondyle to which it may be joined by a fibrous band (named Ligament of Struthers). Through the arch thus formed pass the median nerve and/or the brachial artery. This study documents the incidence of the supracondylar process of thehumerus in Indian subjects. The present study was done in 565 dry humeri of unknown sex and age obtained from the Department of Anatomy, B.J. Medical College, Ahmedabad. The supracondylar process was measured using digital verniercaliper. In the present study, the supracondylar process was seen in 3 humeri (0.53%). All were in the form of a spine projecting average 4 mm from the anteromedial surface and the distance of the tip of supracondylar process from the medial epicondyle was average 5.5 cm. The supracondylar process is a rudimentary homologue of the supracondylar foramen found in lower animals. In human beings, though it is very rare, when present it has potential for fracture and/or important neurovascular structures such as median nerve and brachial artery entrapment. The knowledge of the presence of supracondylar process is important for orthopedic surgeons, anthropologists and radiologists in day-to-day clinical practice.

471. Extensor Digitorum Brevis Manus Muscle: An Anatomical Variant

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During routine dissection of the left hand of a female cadaver, a variant muscle was found arising in the fourth osseofascial compartment beneath the extensor retinaculum. It presented a prominent muscle belly on the dorsum and terminated by two tendons which joined the dorsal digital expansion of middle finger on its ulnar side. This muscle could be considered as extensor digitorum brevis manus muscle. This sort of aberrant muscles could cause fourth compartment syndrome characterized by chronic dorsal wrist pain. They pose a surgical problem with such symptoms and are easily mistaken for other dorsal wrist pathology. These variant muscle tendons are also significant in tendon transfer or graft surgeries.

472. VACTERL Syndrome: A Case Report

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We report the findings of a full-term female fetus that was undertaken for routine dissection and mounting for the departmental museum. It was seen to be associated with full spectrum of VACTERL syndrome features. On dissection, we found multiple congenital anomalies that involved various organ systems. VACTERL/VACTER associations typically defined by the presence of at least 3 of the following congenital malformations: vertebral defects, anal atresia, cardiac defects, tracheo-esophageal fistula, esophageal atresia, renal anomalies and limb defects. There is no specific chromosomal or genetic abnormality identified with VACTERL syndrome. But VACTERL features can be seen associated with some chromosomal defects, such as trisomy 18. VACTERL association specifically refers to the structures derived from the embryonic mesoderm and is caused due to multiple factors. The embryological basis of this syndrome was discussed.

473. A Varying Branching Pattern of Brachioradial Artery: A Case Report

K. Hima Sarika, Rajanigandha Vadagaonkar, Divvy Premchandran, Vasudha V. Saralaya
Centre for Basic Sciences, Kasturba Medical College, Manipal University, Mangalore, Karnataka University, Karnataka

We report a high origin and an unusual course taken by the radial artery in the left upper limb of a 49-year-old male formalin-fixed cadaver during a routine undergraduate dissection in the Department of Anatomy, Kasturba Medical College, Mangalore. In the present case, a higher bifurcation of the brachial artery was seen at the proximal one third of the front of arm at the level of insertion of coraco-brachialis muscle in the left upper limb. The superficial brachioradial artery originated from the medial aspect of the brachial artery and coursed superficially and obliquely in the arm and forearm from medial to lateral side, crossing laterally to the anatomical snuff box. There was an additional arterial ring noted around the base of the thumb. Distal to the origin of the radial artery the brachial artery continued as ulnar artery in the cubital fossa. The knowledge of variations in the origin of the radial artery is important in various clinical procedures

of vascular, diagnostic reconstructive surgeries and in interpretation of angiographic images. The embryological basis and its clinical implications were discussed.

474. Neurovascular Variation in the Femoral Region: A Case Report

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Centre for Basic Sciences, Kasturba Medical College, Manipal University, Mangalore, Karnataka

Aim: To describe the variation in the branching pattern of profunda femoris artery and femoral nerve

Materials and Methods: The study was undertaken during the gross anatomy dissection for undergraduates at KMC, Mangalore. Dissection was performed on 24 extremities of 12 embalmed cadavers.

Observations: A rare vascular pattern was observed during the dissection of femoral region. The lateral circumflex femoral artery took its origin directly from the femoral artery, rather than its usual origin, i.e., from profundafemoris. The nerve to Sartorius, nerve to rectus femoris and one of the intermediate cutaneous nerves of thigh was arising from posterior division of femoral nerve.

Conclusion: The femoral region of thigh is frequently accessed by radiologists and surgeons for various clinical procedures. Anatomic knowledge of variations in femoral artery and its branches is required to minimize the complications during surgeries.

475. Variation in the Branching Pattern of First Part of Axillary Artery

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Bidar Institute of Medical Sciences, Bidar, Karnataka

Aim: To study the course and variation in branching pattern of first part of the axillary artery.

Materials and Methods: During the routine dissection in a male cadaver in Department of Anatomy, BRIMS, Bidar, we found that the first part of the axillary artery on the right side was giving 2 branches.

Result: Normally, the first part of axillary artery gives only one branch, i.e., superior thoracic artery. But in the present case, the first part of axillary artery on right side gave 2 branches, one was superior thoracic artery and the other branch was running posteriorly continuing below the clavicle.

Conclusion: The first part of axillary on the right side was giving 2 branches. Knowledge of such variation is important for vascular surgeons, orthopedicians, cardiologists, which will help in doing surgeries in this region. The details of this study were dealt at the paper presentation.

476. High Origin and Superficial Course of Radial Artery

Rajni Thakur, M. Goyal, C. Banerjee

Pt. J.N.M. Medical College Raipur, Chhattisgarh

The aim of this study is to report the variation of the radial artery in its origin and superficial course. During routine dissection in the Department of Anatomy, Pt. J.N.M. Medical College, Raipur, a higher bifurcation of radial artery, the axillo-radial from the axillary artery on the left side of upper limb of a male cadaver was observed. Since the axillo-radial artery was superficial throughout its course until it reached the palm, it is known as superficial axillo-radial artery. The incidence of this type of vascular pattern can be a result of development anomaly during the formation of blood vessel of the upper limb. Arterial variations of the upper limb are more common and have long been received the attention of clinicians and vascular surgeons during diagnostic processes.

477. Variation in the Insertion of Trapezius Muscle: A Case Report

Rajni Thakur, M. Goyal, C. Banerjee

Pt. J.N.M. Medical College Raipur, Chhattisgarh

A rare case of the insertion of the trapezius muscle was found during routine dissection in the Department of Anatomy, Pt. J.N.M. Medical College, Raipur. The muscle was present on the left side of trapezius, inserted in the deltoid tuberosity of humerus. This muscle resolved into a tendon of deltoid muscle and get inserted into deltoid tuberosity. Fibers were directed downward and laterally. This muscle resolved into a tendon of insertion of trapezius in shaft of posterior surface of humerus. It was supplied by fibers from spinal accessory nerve.

478. Subhepatic Cecum: A Case Report

Deepak Arvind Patil, N.G. Herekar, V.V. Phad

Government Medical College, Miraj, Maharashtra

Intestinal malrotations are due to developmental abnormality that may lead potentially life-threatening conditions such as intestinal obstruction. During routine dissection of abdominal region, in a 92-year-old male cadaver we observed the cecum and appendix are lying higher up in right lumbar region below the lower border of liver. The right iliac fossa contains coils of small intestine and terminal part of the ileum. The dissection was carried out carefully and it was observed that the position of cecum was subhepatic. Dissection was also carried out to see whether other developmental gut or vascular anomalies are present. Past history of patient and cause of death was checked from the departmental record

and hospital record. Details were discussed at the time of conference.

479. Absence of Musculocutaneous Nerve: A Case Report

Prasanna Shravan Gaydhanker, N.G. Herekar
Government Medical College, Miraj, Maharashtra

Anomalies of the brachial plexus and its terminal branches are common. Unusual neural variations in the right upper limb were noted during routine dissection in a 64-year-old male cadaver. The musculocutaneous nerve was absent. Median nerve was formed in front of axillary artery by union of medial and lateral roots. In addition to that, there was an extra root coming from the medial cord that joins with the median nerve. This nerve gives a branch, which supplies biceps, brachialis muscle and then it becomes cutaneous in the forearm. The rest of the course of median nerve was normal. This variation is unilateral with no other neural variation observed in forearm and hand. Details were discussed at the time of the conference.

480. Bilateral Additional Contribution from Medial Cord in Median Nerve Formation

Charushila V. Bhingardeve, A.S. Katti, N.G. Herekar
Government Medical College, Miraj, Maharashtra

Variations in branching pattern of brachial plexus are common, but its bilateral presentation is rare. During routine dissection in a 70-year-old male cadaver, unusual neural variations in both upper limbs were noted. The median nerve was formed in front of axillary artery by union of its medial and lateral roots. After a short course, median nerve gives a branch, which pierces coracobrachialis muscle and takes a course similar to musculocutaneous nerve. The medial cord, after giving medial root of median nerve, gives a branch that joins again with the median nerve. Further course of median nerve in arm, forearm and hand was normal. The variation was bilateral, and details were discussed at the time of conference.

481. Elongated Styloid Process

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Gauhati Medical College, Guwahati, Assam

Background: The styloid process is a slender, pointed bony projection directed antero-inferiorly from inferior aspect of the temporal bone. It develops from 2 centers at the cranial end of second pharyngeal arch cartilage. Upper tympanohyal center appears before birth and fuses with the petrous part during the first year. While the lower stylohyal center appears shortly after birth but ossifies slowly and fuses with the upper part after puberty. Length of styloid process varies from a few millimeter to 2.5 cm. Upper part is ensheathed by tympanic plate. Muscles and ligaments are attached to the lower part. It is covered laterally by parotid gland. Facial nerve crosses its base and external carotid artery crosses its tip. Medially the process is separated from the beginning of the internal jugular vein by attachment of stylopharyngeus.

Aim: To find out the relation between length of styloid process and its associated complications.

Materials and Methods: A 32-year-old female patient attended the Department of ENT of Gauhati Medical College with throat pain along with difficulty in swallowing and chewing for 2 months. She underwent thorough clinical examinations and investigations.

Results and Observations: It has been found that her both styloid processes are elongated.

Conclusion: Elongated styloid process is an anatomical variation as it may sometimes injure nearby important vessels and nerves**.** Details of this case were discussed during the presentation.

482. Single Hole in a Sternum

Hrishikesh Talukdar, Malamoni Dutta
Gauhati Medical College, Guwahati, Assam

Background: The sternum develops from a pair of longitudinal mesenchymal condensations, known as sternal bars, that form in the ventrolateral body walls at the end of 6th week. At 7th week sternal bars meet along midline and begin to fuse. Fusion commences at cranial end of sternal bars and progress caudally. It ossifies in cranio-caudal succession from the 5th month until shortly after birth. Sternal bones ossify from cartilaginous precursors. Failure of fusion of those mesenchymal masses leads to centers of ossification being double with a hole in the sternum or sometimes a cleft sternum.

Aim: To find out developmental anomaly associated with the sternum.

Materials and Methods: Thirty-five human sternum from cadavers were studied in the Department of Anatomy, Gauhati Medical College.

Results and Observations: Out of 35 sternal bones, 1 bone was found to have a hole over manubrium area.

Conclusion: A sternal hole or foramen is an important anatomical variation because needle insertion in this area without prior investigation may lead to fatal complications. Details of this were discussed during the presentation.

483. Osteophytes in Talus Bone

Alakesh Gogoi, K.L. Talukdar, Sandeep Madaan
Gauhati Medical College, Guwahati, Assam

Background: Osteophytes are outgrowth of bone tissue found around joints.

Aim: To observe the osteophytic growth in talus bone.

Materials and Methods: A talus bone was studied in the Department of Anatomy, Gauhati Medical College. It was observed that the bone had osteophytic growth around its neck.

Results and Observation: Osteophytes are usually found around hip joint and the knee joint, but in our present observation, it was found around the neck of talus.

484. Surgical Anatomy of Frontal Sinus Outflow Pathway: A Cadaveric Study

Tulika Gupta, Anjali Aggarwal, Daisy Sahni
Postgraduate Institute of Medical Education and Research, Chandigarh, Punjab

Aim: A detailed anatomical knowledge of variability in the drainage pathway in relation to the frontal sinus is a prerequisite to successful sinus surgery.

Materials: We have studied 32 mid-sagittal cadaveric heads.

Methods: The following parameters are required: drainage site of the sinus in relation to the uncinate process, attachment of the uncinate process, pneumatization of the agger nasi and morphometric measurements for localization of the frontal ostium during endoscopic surgery.

Results: The frontal sinus drainage was anterior to the uncinate process in 59.4% and posterior to it in 40.6%. In majority of cases (59.4%), the uncinate process was found attached to the lamina papyracea. The mean diameter of the frontal ostium was 4.6 ± 1.6 mm. The angle formed by the plane of frontal ostium to floor of the nose was 260 ± 5.90; distance of the frontal beak to the anterior nasal spine was 46.5 ± 5.7 mm, while the distance of the frontal beak from the columella was 48.7 ± 4.8 mm. The corresponding angle between the frontal beak to the nasal floor (at the anterior nasal spine) was 700 ± 50, while this decreased to 56.60 ± 7.50 when columella was the reference point. Pneumatization of the agger nasi was seen in 90% of specimens. The mean distance of the anterior ethmoidal artery was 9.0 ± 1.2 mm from the frontal beak and 8.4 ± 1.8 mm from the posterior rim of the frontal ostium.

Conclusions This morphometric data will be of help in endoscopic surgery for accurate and safe negotiation of the frontal sinus drainage tract and for avoidance of vascular injury.

485. Ossification of Anterior Longitudinal Ligament and Supraspinous Ligament in Thoracic Vertebrae

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J.J.M. Medical College, Davangere, Karnataka

Aim: An anatomical study of a dry-bone specimen comprising six thoracic vertebrae held together by ossified anterior longitudinal and supraspinous ligaments.

Material and Methods: Morphological examination was undertaken on a dry-bone specimen comprising six thoracic vertebrae held together by ossified anterior longitudinal and supraspinous ligaments. The specimen was subjected to plain radiographic study.

Observations: Gross examination revealed a tortuous mass anteriorly along the sides of the vertebral bodies holding them together. The gross appearance of the mass was like that of candle wax dripping down the spines. The spinous processes were also found to be held by similar tortuous mass. The intervertebral disc space was found to be maintained, and zygoapophyseal joints were found to be free. The intervertebral foraminae and vertebral canal appeared normal. The anteroposterior and lateral views of radiographs showed the mass to be of bony nature with a radiodense line paralleling the longitudinal axis of the vertebrae. The intervertebral disc space was found to be maintained.

Conclusion: The present observation of ossification along the anterolateral aspect of the vertebral body involving more than four thoracic vertebrae, supraspinous ligament ossification, maintained disc space, free facetal joints, separation of the ossified mass from the body and candle-wax-dripping appearance favor the diagnosis of Forestier's disease, otherwise known as Diffuse Idiopathic Skeletal Hyperostosis (DISH). DISH is an idiopathic rheumatological abnormality in which exuberant ossification occurs along the ligaments. DISH affects middle-aged and elderly persons and is often asymptomatic, or is associated with mild dorso-lumbar pain and/or some restriction of spinal mobility.

486. Ectrodactyly/Split Hand: A Case Report

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Mandya Institute of Medical Sciences, Mandya, Karnataka

Background: Split-hand/split-foot malformation is a rare limb malformation with median sclefts of the hands and feet and aplasia/hypoplasia of the phalanges, metacarpals and metatarsals. When present as an isolated anomaly, it is usually inherited as an autosomal dominant form. Its incidence has been reported to be about 1 in 90,000 babies with no sex predilection. Two expressions of SHFM occur, one with isolated involvement of the limbs, known as the nonsyndromic form, and the second, the syndromic form with associated anomalies, such as tibial aplasia, mental retardation, ectodermal and craniofacial findings, orofacial clefting and deafness. Five different genetic mutations are known to be associated with SHFM. Type I, the most frequent variety, is due to a mutation on chromosome 7 in a region that contains 2 homeobox genes, DLX5 and DLX6. The syndromic form has a variable degree of expression. The nonsyndromal SHFM limited to the hands and feet usually follows the pattern of inheritance of a regular autosomal dominant gene with a high penetrance.

Scope: To review of the literature, understand the etiology and embryologic basis of development of ectrodactyly.

Ectrodactyly Case: A 40-year-old male with ectrodactyly was taken for the study from the clinical department, MIMS, Mandya. The details of the case were discussed and presented in the poster session.

487. Modified Pesticide Spray Machine as Embalming Machine

B.K. Drakshayini, V. Usha, J.Y Kadam, Murali
SIMS, Shimoga, Karnataka

Embalming process is the technique used for preserving dead bodies. Use of embalming techniques and embalming fluids is prevailing since the ancient Egyptian period, which has been evolving until today. After the discovery of formaldehyde in 1866, bodies were embalmed by traditional gravity-pressure method. Now electric current dependent embalming machine (power pressure) is used to inject the embalming fluid. In our country, embalming is done for anatomy dissection. It is also done sometimes when there is delay in funeral process.

The necessity of electric power for embalming machine is often disadvantageous because of frequent power cuts. To circumvent these problems, we tried an alternative method. We thought of using pesticide spray machine that will provide pressure for injecting the embalming fluid. The nozzle with spray cap, however, posed the problem. It was modified for our purpose. Its spray cap was removed and replaced with the thread welded with a 15-gauge needle. This new method has several advantages. No electricity is required as pesticide spray machine works on manual hand pump. Therefore, embalming can be done even during power failure. It can be easily portable and less expensive compared to expensive embalming machine. It is time saving compared to the traditional gravity-pressure method. The effect of embalming is comparable to the electric embalming machine and gravity-pressure method.

488. Occipitalization of the Atlas: A Case Report

B.K. Drakshayini, V. Usha
SIMS, Shimoga, Karnataka

Background: Skeletal abnormalities at the craniovertebral junction have been recorded for many years in morphological and clinicoradiological studies. Occipitalization of the atlas is one among them. It may be symptomatic or asymptomatic. Symptomatic patients exhibit the first neurological signs and symptoms usually in the second or third decade.

Aim: To enlighten the implications of occipitalization of the atlas.

Materials and Methods: During the routine osteology class for first year MBBS students (2011-2012 batch) in the Department of Anatomy, Shimoga Institute of Medical Sciences, Shimoga, we found a specimen showing occipitalization of atlas.

Results: The specimen showed complete fusion of the atlas with the occipital bone. Neurological symptoms associated with occipitalization off the atlas are attributed to ligamentous laxity of the transverse ligament. Its implications were discussed in the presentation.

Conclusion: Occipitalization of the atlas may result in compression of the spinal cord or actual indentation of medulla leading to neurological symptoms. The clinical implications of occipitalization of atlas may be beneficial to the neurosurgeons and radiologists in day-to-day clinical practice.

489. Variation in the Branching Pattern of Medial Pectoral Nerve

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Bidar Institute of Medical Sciences, Bidar, Karnataka

Aim: To study the variation in branching pattern of medial pectoral nerve.

Materials and Methods: Among the 13 cadavers dissected routinely for undergraduates, variation in branching pattern of medial pectoral nerve was observed on the left side in an adult male cadaver.

Result: In a male adult cadaver, medial pectoral nerve on the left side was taking origin from medial cord, passed on the deep surface of pectoralis minor muscle and divided near its lateral border into 2 branches, one for pectoralis minor and other for pectoralis major.

Conclusion: An understanding of variation of medial pectoral nerve remains important for planning surgery in pectoral region.

490. Embryological Basis of Cleft Palate: A Case Study

Arun P. Chepte, M.V. Ambiye, Jitesh Gujaria
T.N. Medical College and B.Y.L Nair Charitable Hospital, Mumbai, Maharashtra

An 8-year-old girl presented with symptoms of nasal twang in voice at the Department of Pediatrics Surgery in T.N.M.C. & B.Y.L. Nair Ch. Hospital, Mumbai. On examination, she was diagnosed a case of posterior cleft palate and referred to Department of Plastic Surgery. This poster aimed to discuss the embryological basis of the defect and its treatment.

491. Communication of Muscular Fibers Between Brachialis and Brachioradialis Muscles: Lateral Head of Brachialis Muscle?

Motiram Khandode, Sachin Jagtap, Sumedh Sonavaneh, M.V. Ambiye, Jitesh Gujaria

T.N. Medical College and B.Y.L Nair Charitable Hospital, Mumbai, Maharashtra

Variations of the communications between median nerve, musculocutaneous nerve and ulnar nerve at the level of brachial plexus are common. However, their associations with communicating fibers between brachialis and brachioradialis muscles are rare.The present study describes a case of unilateral (right sided) communicating fibers between brachialis and brachioradialis muscles associated with communications between median nerve, musculocutaneous nerve and ulnar nerve. It was observed in around 60-year-old Indian male cadaver during routine classroom dissection. This case reports median nerve at its emergence gives communicating branch to ulnar nerve, and musculocutaneous nerve also gives communicating branch to median nerve at the level of insertion of coracobrachialis muscle. In addition to this, some lateral fibers of the brachialis merges with brachioradialis muscle, suggesting a small lateral head of the brachialis muscle and radial nerve passes between these 2 heads. It is important to be aware of such variation while planning a surgery in the region of arm and forearm.

492. Absence of Musculocutaneous Nerve: Case Report

Pranjali Rathod, Mehera Bhoir

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During routine dissection of a male cadaver, we observed absence of musculocutaneous nerve on the right side. Lateral cord gave lateral pectoral nerve and lateral root of median nerve. Median nerve was formed by joining of lateral root coming from lateral cord and medial root coming from medial cord. There was small communication between lateral root and medial root. Muscles of anterior compartment of arm (coracobrachialis, bicep brachii, brachialis) were supplied by muscular branches from the median nerve. One of branch from the median nerve crosses from medial to lateral side below bicep brachi muscle to continue as lateral cutaneous nerve of the forearm.

493. Meningomyelocele with Hydrocephalus: A Case Report

Shraddha Bhadarge, Mehera Bhoir

Topiwala National Medical College, Mumbai, Maharashtra

Background: Meningomyelocele is a major developmental disorder due to incomplete closure of spinal arch. Its incidence has been reported to be about 1 in 1000. It presents with a cystic swelling protruding through defect in vertebral arch containing spinal nerve roots, causing marked loss of motor and sensory function below the level of lesion as a paralysis, defective sensation of bladder and rectum, and 80–90% cases most commonly associated with hydrocephalus. It can be prenatally detected by maternal serum AFP level and on USG study. Folic acid and vitamin supplants taken in periconceptional period have shown to reduce incidence of neural tube defect by 70%. Meningomyelocele can be surgically repaired after birth and hydrocephalus is drained by ventriculoperitoneal shunt. We report a newborn female baby having meningomyelocele with hydrocephalus and a cystic swelling of 6×4 cm at lumbosacral region of the back, hypotonia and absent reflex in both lower limbs. It also has positive sunset sign, wide and open anterior and posterior fontanelle.

494. Variation in Renal Hilar Structures and an Additional Renal Artery: A Cadaveric Case Report

K. Mogra, A. Gupta, S. Shekhawat, R. Garg

S.M.S. Medical College, Jaipur, Rajasthan

The present case report describes the anomalous arrangement of hilar structures in the left kidney and an additional branch from the main renal artery to its superior pole and left suprarenal gland in a 54-year-old male cadaver during routine dissection of abdomen in the Anatomy Department of S.M.S. Medical College. According to conventional description in standard anatomy textbooks, at the hilum usually the renal vein is the anterior most with renal artery posterior to it and pelvis of kidney lying further posteriorly. Classically, a single renal artery supplies each kidney. Near the hilum of kidney each renal artery divides into anterior and posterior branches, which in turn divides into number of segmental arteries supplying different renal segments. But in the present case, left renal artery with its anterior and posterior divisions was found in front of renal vein with one additional branch, i.e., superior polar artery which arose approximately 0.5 cm away from the main origin, run superolaterally to reach upper pole of left kidney and supplying it and left suprarenal gland. Knowledge of hilar variation is useful for laproscopic surgeons during nephrectomy, which is done in a limited field of vision during exploration and treatment of renal trauma, renal transplantation, etc.

495. Cerebral Vessels Hypoplasia: A Case Report

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

Sri Balaji Medical College and Hospital, Chennai, Tamil Nadu

Congenital vertebral artery (VA) hypoplasia is a rare embryonic variation in the posterior circulation of the brain. The prevalence of this type of congenital variation was reported

to be 2–6%. Studies have shown vertebral artery hypoplasia to be a contributing factor of acute ischemic stroke in posterior circulation territories. Transverse sinus hypoplasia is a rather common congenital variation found during magnetic resonance imaging (MRI) among normal population. A 29-year-old female patient presented with right-sided upper and lower limb weakness of 2 days' duration. There were no notable associated risk factors such as hypertension, diabetes, hyperlipidemia, and cardiac arrhythmias. Magnetic resonance imaging report of the patient showed ischemic changes over the anterior one-third of posterior limb of the left internal capsule. During the course of investigation we found an interesting abnormality, the presence of two coexisting abnormalities, i.e., the hypoplasia of left vertebral artery as well as hypoplasia of the left transverse sinus. In brain, the course of venous drainage system does not follow that of the arterial system. The presence of such an anomaly in this patient is an interesting finding. Usually vertebral artery hypoplasia is a predisposing factor that leads to posterior circulation stroke, but in this case the patient had developed anterior circulation stroke study, which makes the case more unique.

496. Dextrocardia with Situs Inversus: A Case Report

Gourav D. Thakre, Vaishali Inamdar, D.S. Joshi, Anuja Deshmukh, Vaibhav Anjankar, Dilip G. Mhaisekar, Shrinivas Barade**

Department of Anatomy and Department of Pulmonary Medicine*
Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra

An 18-year-old boy came to the pulmonary medicine OPD with the symptoms of repeated chest infections. He was admitted in IPD. During investigation, the chest X-ray showed Dextrocardia. Further evaluation on ultrasonography of abdomen shows picture of situs inversus. Dextrocardia with situs inversus is a rare condition occurring in about 1 in 10000. The condition should be diagnosed earlier to avoid confusion in diagnosis and to avoid complications during operative procedures. Details of the case were discussed at the time of presentation.

497. Unilateral Anomalous Branching Pattern of External Carotid Artery: A Case Report

Gourav D. Thakre, Vaishali Inamdar, D.S. Joshi, Anuja Deshmukh, Vaibhav Anjankar, Uddhav Mane

Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra

During routine dissection of a 60-year-old female cadaver, we found anomalous branching pattern of the left external carotid artery. Normally, external carotid artery gives 3 anterior, 2 posterior, 1 medial and 2 terminal branches, but in this case all the branches were arising in pairs from different trunks of external carotid artery. Such presentation is rare. Anatomical knowledge of origin, course and branching pattern of external carotid artery will be useful to surgeons and interventional radiologist when operating or doing procedures in the head, neck and face region. Details of the case were discussed at the time of presentation.

498. Anomalous Branching Pattern of Aortic Arch

Pradnyesh N. Panshewdikar, Anuja Deshmukh, D.S. Joshi, Gourav Thakre

Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra

Increasing activity in the fields of cardiac and vascular surgeries has served to revive interest in developmental anatomy of aortic arches and great vessels derived there from. Here, in Dr. S.C.G.M.C, Nanded, during a demonstration of dissected heart specimen to undergraduate students, an abnormal origin of left common carotid artery from the initial most part of brachiocephalic trunk was found. We revived previous literature where we came to know that such variation appears in 0.2% people, which has embryological, clinical and surgical importance. Details were discussed in the conference.

499. Multiple Variations in Arterial Pattern of Right Upper Extremity

Syed Imran, D.S. Joshi, Gourav Thakre, Vaibhav Anjankar, Vaishali Inamdar

Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra

During routine dissection for undergraduate students of 2012–2013 batch of Dr. S.C.G.M.C., Nanded, we found multiple variations in arterial pattern in right upper extremity in a 60-year-old male cadaver. Left side showed normal arterial pattern. The variations include: common trunk originating from the second part of the axillary artery; higher division of axillary artery into superficial brachial artery and deep brachial artery; and variation in formation of superficial palmar arch. Presence of such multiple variations in arterial pattern is worth consideration during reconstructive and vascular surgeries of upper extremity after trauma. Details were discussed at the presentation.

500. Bilateral Unusual Origin of Musculocutaneous Nerve and Third Head of Biceps Brachii

U.H. Syed Abrar, Anuja Deshmukh, Sonal Thakur, D.S. Joshi, M.M. Ansari, Vishal Tekale

Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra

During routine dissection of female cadaver of age around 60 years for undergraduate students at Dr. S.C.G.M.C., Nanded,

batch 2012–2013, we found bilateral unusual origin of musculocutaneous nerve, which was arising from median nerve below the level of insertion of coracobrachialis without piercing it. The nerve was having the normal course and a branching pattern. During dissection, we also noted the third head of biceps brachii bilaterally. Such variations are important for clinicians and surgeons. Details were discussed at the presentation.

501. Omphalocele: A Case Report

Sagar Torasakar, Seema Khambatta

T.N. Medical College and B.Y.L. Nair Charitable Hospital, Mumbai, Maharashtra

Congenital omphalocele is a persistence of herniation of abdominal contents into the proximal part of umbilical cord. Herniation of intestine into the cord occurs in approximately 1 in 5000 births and herniation of liver and intestines in 1 in approximately 10,000 births. The origin of defect is a failure of bowel to return to body cavity from its physiological herniation during 6th to 10th week of intrauterine life. The covering of hernia sac is epithelium of umbilical cord. In the present case, loops of intestine and liver are seen in the hernial sac.

502. Supernumerary Nipple Arising from the Nipple: A Rare Case with Developmental Explanation

*Jadab Chatterjee, A. Saha, S. Biswas**

Midnapore Medical College, Midnapur, West Bengal, *NRS Medical College, Kolkata, West Bengal

A woman aged 28 years presented with something hanging from left nipple and growing longer since childhood. The other nipple was fine. Breast development and secondary sex characters were normal. No other breast in milk line. Details were presented in the conference.

503. Variant Adductor Muscle Complex of Thigh: A Case Report

Upasna, Ashwani Kumar, Gurdeep Singh Kalyan, Harsimarjit Kaur

Department of Anatomy, Government Medical College, Patiala, Punjab

Aim: To study variations in the origin and insertions of muscles of adductor group of thigh

Material and Methods: The study was done on 30 lower limbs of embalmed cadavers in the Department of Anatomy, Government Medical College, Patiala. Careful dissection was done to study the origin and insertion of adductor group of muscles of thigh. Their nerve supply was traced. Their variations were noticed and photographed.

Results: Combined origin of adductor longus and pectineus from the front of pecten pubis and front of pubis was seen. The nerve supply was from femoral nerve and anterior division of obturator nerve. Their insertion was normal. Adductor brevis had normal origin but was seen in two parts. The nerve supply was from the anterior division of obturator nerve. A transverse muscular slip was observed beneath the adductor brevis. The fibers were attached to the front of inferior pubic ramus and merged with aponeurosis of adductor magnus. The nerve supply was from posterior division of obturator nerve. The variation observed was bilateral.

Conclusions: Variant adductor muscle complex of thigh occurred due to greater or less fusion of different muscles into which the adductor group is divided. The supernumerary muscle or muscular slip present formed as a result of detachment from the superficial layer of obturator externus during the process of ontogeny. Adequate anatomical knowledge of possible muscular variations is needed for the proper performance of surgeries and reconstructions.

504. A Rare Anomalous Artery Originating from Axillary Artery

J. Sumalatha, T. Sobha Devi, V. Subhadra Devi

Sri Venkateswara Medical College, Tirupathi, Andhra Pradesh

During routine cadaveric dissections in the Dept. of Anatomy, Sri Venkateswara Medical College, Tirupathi, A.P. we encountered a rare anomaly in an adult male cadaver in the right upper limb. The third part of the axillary artery divided into two major arterial stems, named according to their localization as deep brachial artery and superficial brachial artery (brachial artery proper). Deep brachial artery passed at first in between the two roots of median nerve, and later deep to lateral root of median nerve. The deep brachial artery gave the posterior circumflex humeral artery, anterior circumflex humeral artery, subscapular artery, and profunda brachii artery. It terminated at the lower part of arm by dividing into superior ulnar collateral artery and inferior ulnar collateral artery. It continued its course in the arm lateral to the median nerve. The superficial brachial artery is larger in caliber than the deep brachial artery and gave muscular branches in the arm region. In the cubital fossa, it gave the ulnar and the radial arteries. Its relation with median nerve is normal. This case is an anomaly of the axillary artery that has been rarely documented in the literature (0.12–3.2%). Accurate knowledge of the normal and variant arterial anatomy of the axillary artery is important for surgeons and specialists using radiodiagnostic techniques. The improved knowledge would allow more accurate diagnostic interpretations and surgical treatment.

505. Abnormal Relation Between Piriformis and Sciatic Nerve: A Case Report

S.P. John, A.M. Tarnekar, M.R. Shende
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The aim of this study is to report anatomic variation in sciatic nerve in a cadaveric dissection. During routine undergraduate dissection in a middle-aged male cadaver, we found that the sciatic nerve divided in buttock into common peroneal and tibial nerve. Then the common peroneal nerve pierced the piriformis muscle and divided the muscle into two parts and the tibial nerve passed below the muscle. Common peroneal nerve descended laterally in the thigh and gave a branch to short head of biceps femoris and thereafter distributed to the muscles and skin on the anterolateral aspect of the leg and dorsum of the foot. Tibial nerve descended medially and gave branches to upper part of hamstring muscles arising from the ischial tuberosity while it is still in the buttock and upper part of the thigh. It continued into the leg and foot to supply muscles and skin of the posterior aspect of the leg and sole of the foot. Coccygodynia and sciatic pain have been attributed to abnormal relations between the piriformis muscle and the sciatic nerve; so awareness of such variation is helpful for assessment.

506. Polycystic Kidney with Extra-Renal Manifestation in a Male Cadaver

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Sawai Man Singh Medical College, Jaipur, Rajasthan

Objective: To present the case of autosomal dominant polycystic kidney disease with well-defined extra-renal manifestation.

Results: Following anomalies were observed in a 42-year-old male cadaver. Both the kidneys were affected and studded with multiple large cysts. Single pancreatic cyst on the body, but absence of liver cyst. Aberrant renal artery originated from abdominal aorta just above its bifurcation, crossed the inferior vena cava and entering into the respective hilum. Right testicular vein bifurcated and drained into inferior vena cava and right renal vein as well. Spleen appeared small sized. Right suprarenal gland was fused with kidney of the same side. The thoracic aorta with aneurysm of size approximately 7.5 cm in length and 5.5 cm in diameter, and 1 cm above the diaphragm. Psoas minor muscle on both sides. Pelvis of right kidney arose from the lower pole in front of the aberrant renal artery.

Conclusion: Cysts that were observed signified abnormal development of collecting tubules. Supernumerary vessels result from persistence of embryonic vessels. As renal arteries are functional end arteries, therefore division of an aberrant lower pole artery during surgery leads to infarction. Hence knowledge of cyst and these aberrant renal arteries is essential for surgeons while operating and treating patients.

507. Four Roots of Median Nerve and Their Surgical and Clinical Significance

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During the routine dissection, it was found that right axilla median nerve along with its normal medial root and lateral root had two additional roots from lateral cord of brachial plexus. These two variant roots crossed the axillary artery from lateral to medial side and joined the main trunk of median nerve. In the left arm the formation of median nerve was as usual. The distribution of the variant median nerve was normal in arm, forearm and palm. The arterial pattern in the arm (axillary and brachial arteries) was also normal. Variations in median nerve has been reported by many investigators, but such variation in which four roots of median nerve compressing the axillary artery is rare. Knowledge of such variations is essential for surgeons dealing with surgery in axilla and upper arm.

508. Rare Case of Higher Bifurcation of Brachial Artery into Brachioulnar Artery

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Shri Vasantrao Naik Government Medical College, Yavatmal, Maharashtra

An unusual case of higher bifurcation of brachial artery is reported during the routine dissection of a 15-year-old male cadaver. It was found that in the middle of right arm brachial artery bifurcates into brachial artery proper and brachioulnar artery. In the arm the brachioulnar artery lies lateral to ulnar nerve and medial to median nerve. Then it runs superficially into the cubital fossa and most medial structure in the fossa. It enters the forearm and lies over the flexor carpi ulnaris. Finally, it crosses the flexor retinaculam and into the palm ends by forming the superficial palmer arch. The brachial artery proper after entering into the cubital fossa divides near the neck of radius into superficial radial artery and deep and small ulnar artery. Accurate informationof these variations is significant for the surgeons during vascular and reconstructive surgery of upper limb.

509. Fused Cervical Vertebrae: A Case report

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Jamia Millia Islamia, New Delhi

Fusion of the cervical vertebrae (FCV) is a rare abnormality, characterized by joining (fusion) of 2 or more spinal bones in the neck (cervical vertebrae), which may be congenital or acquired. During demonstration of cervical vertebrae for the BDS students in Jamia Millia Islamia, New Delhi, it was observed that 2nd cervical vertebra was fused with the 3rd

cervical vertebra. The bodies, arches and spines of the vertebrae were completely fused together. Congenital FCV is one of the primary malformations of chorda dorsalis believed to occur during the development of the occipital and cervical somites. The cause of this anomaly is often a combination of environmental and genetic factors effecting around the 3rd week of intrauterine life. Acquired FCV is generally associated with tuberculosis and other potentially serious diseases such as juvenile rheumatoid arthritis, trauma and other infections. Clinically, the condition may lead to certain neurological problems depending on the severity of the block. It can also exert stress on the inferior and the superior intervertebral joints and can lead to an abnormal angle in the spine. The condition of block vertebra is reported to coexist with some syndromes; for example, Klippel-Feil Syndrome. Persons with fused cervical vertebrae may present with decreased range of motion of the neck and head, particularly extension, flexion and lateral flexion.

510. Congenital Diaphragmatic Hernia: A Case Report

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Diaphragmatic hernia is a defect or hole in the diaphragm that allows the abdominal contents to move into the chest cavity. Treatment is usually surgical. We found a case of 3-month-old baby with congenital diphragmatic hernia, at L.T.M.M.C.&G.H., Sion, in the Pediatric Surgery Department, where there was an upward shift of the left side diaphragm, with multiple air-filled spaces, indicating intestinal loops in thoracic cavity on left side. Details were discussed in the conference.

511. Higher Division of Sciatic Nerve: A Case Report

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Lokmanya Tilak Municipal Medical College & GH Hospital, Sion, Mumbai, Maharashtra

Sciatic nerve is the thickest nerve in body. It leaves the pelvis through greater sciatic foramen below piriformis and divides into tibial and common peroneal component at superior angle of popliteal fossa. However, it may divide proximally in pelvis and two components of it enter gluteal region by different route through greater sciatic foramen. During routine, cadaveric dissection, in the Department of Anatomy, Lokmanya Tilak Municipal Medical Collage & GH, Sion, Mumbai, we found a case of higher division of sciatic nerve. Normally, it divides at upper angle of popliteal fossa. In this case, 2 divisions of nerve were originating separately, leaving the pelvis through greater sciatic foramen, 1 below the piriformis muscle and the other through the piriformis. Such variation is important from surgical and anatomical point of view.

512. Phocomelia: A Case Study

*Soniya Bhaurao Parchake, Arun P. Kasote, M.M. Meshram, Nilesh Keshav Tumram**

Department of Anatomy, Department of FMT*, Government Medical College, Nagpur, Maharashtra

A 9-day-old female infant was brought to our hospital for postmortem examination. Her parents abandoned her in an orphanage after birth. She survived for 9 days with H/o phocomelia with acyanotic heart disease with small muscular ventricular septal defect. During postmortem, external examination showed rudimentary upper and lower limbs. On internal examination, no major organ defect was observed. The case highlights the morphological defect in such individuals and challenges that may exist due to the neglect of such child by their parents. Such individuals with congenital defects need for special care.

513. Unilateral Unrotated Kidney

Smita Singh Banerjee, Vaishali Paranjape, Vasanti Arole

Dr. D.Y. Patil Medical College, Pimpri, Pune, Maharashtra

In an adult male cadaver, in the dissection hall of Dr. D.Y. Patil Medical College, Pimpri, left renal vascular anomaly was noted. Structures found in the hilum from superficial to deep were the ureter, 1 renal artery and 2 renal veins. The ureter was anteroinferior to the vessels, renal artery anterosuperior to the vein. At the lower pole of this kidney 1 vein and 2 accessory renal arteries were seen, one artery arising from abdominal aorta and the second one was a branch from inferior mesenteric artery. The vein seen at the lower pole of kidney drained in to inferior vena cava and traversed behind the common iliac vessels and ureter. Along with the abovementioned observations, the hilum of the left kidney also faced anteriorly. The complete understanding of the variations in renal vascular anatomy has its importance in exploration and treatment of renal trauma, renal transplantation, renal vascular reconstruction for congenital or acquired lesions, renal artery embolization, conservative radical renal surgery and surgery for an abdominal aortic aneurysm. Variations may go unnoticed until discovered during ultrasonography, venography, operative maneuvers or finally at autopsy.

514. Jarcho Levin Syndrome: A Rare Case

Smita Singh Banerjee, Dinesh Patel, Vasanti Arole, P. Vatsalaswamy

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Background: The Jarcho Levin syndrome is a clinico-radiological entity, which was first described by Jarcho and Levin

in 1938. It is a rare genetic disorder characterized by distinctive malformations of vertebrae and ribs together with pulmonary disorders and a spectrum of associated abnormalities. The syndrome is mostly autosomal recessive disorder, associated with mutation in the DLL3 gene. Jarcho Levin syndrome represents a spectrum of short trunk, skeletal dysplasia with variable involvement of the vertebrae and ribs. Initially considered to be lethal, it is now accepted as compatible with life in its milder presentations. Knowledge of the syndrome could be helpful for the genetic counseling of the parents.

Materials and Methods: A 20 weeks aborted female fetus from the Department of Obstetrics and Gynaecology, Padmashree Dr. D.Y. Patil Medical College, Pimpri, Pune, was thoroughly studied in the Department of Anatomy. Family history together with drug history and obstetrical history were noted in detail. It was photographed and evaluated radiologically.

Observations: We report a case of a 20 weeks female fetus showing a multitude of abnormalities, such as · hydrocephalus, meningomyelocoele, spina bifida, and congenital bilateral talipes equino varus.

Discussion: One of the most serious vertebral defects is the result of imperfect fusion of the vertebral arches. Such an abnormality known as spina bifida may involve only the bony vertebral arches, leaving the spinal cord and meninges intact. In some cases it may be associated with meningocele or meningomyelocele. Hydrocephaly develops in virtually every case of spina bifida cystica. Congenital talipes equinovarus may be an associated abnormality.

515. A Case Report on Bilateral Sternalis Muscles: A Mysterious Muscle

Monika Srivastava, Asha Dixit, Vandana Sharma, Sonia Baweja, Abhijeet Yadav
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Background: Sternalis is a mysterious strap-like muscle present in approximately 3–4% of population. Its awareness among surgeons and radiologist is imperative as it may lead to misdiagnosis and have huge clinical implications.

Aim: To study anatomical and morphological characteristics of the study muscle.

Materials and Methods: A formalin-preserved male cadaver was incised in the mid sternal line. Bilateral strap muscles were seen in the parasternal region. The area was cleaned and properly visualized. Subsequently, it was measured and photographed with proper labels.

Results: Muscles were present on the anterior wall of the thorax. Both had an aponeurotic origin. The tendon of the left side was intermingled with sternocleidomastoid while the right one was intermingled with the muscles fibers of the pectoralis major of both the side. Neurovascular supplies of both the side were from the intercostal nerves and vessels.

Conclusion: Dissected muscles were sternalis muscles. They were straight muscles that were present in the parasternal area with separate origins and insertions with no boney attachment as a panniculous carnosus muscle.

516. Variation in the Origin of Lateral Circumflex Femoral Artery

Kashyap Sachin Dinesh, A.P. Kasote, M.M. Meshram
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Variation in the origin of profunda femoris artery and its branches such as lateral circumflex femoral artery (LCFA) and medial circumflex femoral artery (MCFA) are frequently accessed by surgeons and radiologists. It is preferred and is easily accessible for catheterization in large number of patients in the present modern era of interventional radiology. The knowledge of its variations is important for vascular reconstructive procedures in proximal leg, preventing flap necrosis, plastic and reconstructive surgeries etc. While dissecting a cadaver in the Department of Anatomy, Government Medical College, Nagpur, a variation in the branching pattern of lateral circumflex femoral artery was observed. Usually LCFA is a branch of profunda femoris artery, but in this case it originated from the femoral artery. This kind of variation is seen in 8.33% of cases.

517. Split Median Nerve: A Variant at the Carpal Tunnel

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Background: Anomalies of median nerve have been described and can be classified into four types: a) Motor branch variations, b) distally arising accessory branch, c) high division of median nerve, d) proximally arising accessory branch. Hence, the present study for knowledge about the possible variations in median nerve.

Aim: To observe for any variation in median nerve.

Materials and Methods: Thirty-two upper limb specimens from the Department of Anatomy, Bangalore Medical College and Research Institute, Bengaluru, were dissected and observed for any variation in the median nerve while it entered the carpal tunnel.

Results: In two upper limb specimens, the median nerve split proximal to flexor retinaculum.

Conclusion: Variable anatomy of median nerve could help to avoid incomplete decompression at operations for carpal tunnel entrapment and in repair of traumatic injuries of wrist. During endoscopic carpal tunnel release, the split median nerve at the wrist may cause common digital nerve injury, thereby forcing the surgeon to have a better knowledge of variation in median nerve anatomy at the carpal tunnel.

518. A Study of Two Cases of Skin Anomalies

Arun Kumar S. Bilodi
Mahatma Gandhi Medical College, Pondicherry, Tamil Nadu

Aim: To report two important cases of anomalies of skin, namely. i) Xeroderma pigmentosa and ii) colloidin baby.

Place of Study: These two cases of anomalies were studied in the Dermatological Outpatient Departments of major hospitals of Kolar and Bengaluru District.

Period of Study: These cases were studied during the year 2009–2010.

Materials and Methods: The above two cases of dermatological anomalies that constituted the materials for the present study. Case l: A boy aged 9 years came with history of pigmentation all over the body with diminution of vision in both eyes. He was the third child born to his consanguineous parents. There was history of anomaly in the family but exact details were not known. There was no history of drug intake during first trimester, neither hypertensive nor diabetic. No other anomalies were observed in his body. Case 2: A newborn child was examined in the Pediatric Outpatient Department of major hospital of Kolar. On examination, this child had transparent skin all over the body with shrill voice of crying. This child also had fish-mouth like known eclabium. At some place skin had peeled off but most of the places this transparent skin was adherent to the body. There was also no history of drug intake during first trimester, but mother was hypertensive but not diabetic. No other anomalies were observed in his body. These two cases were discussed and correlated with the available literature.

519. Unusual Finding of Third Coronary Artery in Human Cadaver

Firdaus Nausheen Shaikh, M.M. Meshram
Government Medical College, Nagpur, Maharashtra

An intimate knowledge of the anatomy of coronary arteries, the "Crown" of the heart, is a self-evident prerequisite for a complete understanding of the coronary artery disease or for more intelligent planning of surgery. The heart is supplied by two coronary arteries arising from ascending aorta. Right coronary artery arises from anterior aortic sinus and left coronary artery from left posterior aortic sinus. The right conus artery is usually the first ventricular branch of the right coronary artery. Most frequently it arises from the proximal part of the right coronary artery. Sometimes it directly arises from the anterior aortic sinus. In such cases, it is called as third coronary artery, which is present in 36%. The existence of right conus artery bridges collateral circulation between the right and left coronary system, which is really significant in ischemic changes of heart. This extra coronary artery may be a boon for the person having it. This artery when present may help in the establishment of partial identity of an individual, if antemortem record and angiography are available. In the present case, the third coronary artery is traced from its origin from ascending aorta by manual dissection.

520. Variation in the Roots of Median Nerve

Vrinda Hari Ankolekar, Antony Sylvan D'souza
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Variation in the formation of brachial plexus is a known fact. During the routine dissection of a male cadaver aged 55 years, for the undergraduate students, we came across a unilateral variation in the formation of the median nerve in the right upper limb. The median nerve showed the usual lateral and medial roots arising from the lateral and the medial cords, respectively. It also received an additional root from the musculocutaneous nerve, which represents its third root. A communication was also seen in between the median and musculocutaneous nerves in the front of the middle of the arm. This type of variation is of academic interest for the anatomists and of clinical importance for the surgeons in performing surgeries in the axilla and also in the front of the arm.

521. Abnormal Origin of First Lumbrical Muscle in Hand: A Case Report

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Background: Lumbrical muscles, though small in size, have significant role to play in the intricate movements of the fingers, they are quite unique in their position as they connect the flexors of the digits to the extensors. Therefore, they flex the digits at the metacarpophalangeal joints and extend at the interphalangeal joints. Abnormal origin of lumbricals may significantly contribute to the aetiology of carpal tunnel syndrome.

Materials and Methods: During routine dissection for medical undergraduates in the Department of Anatomy, J.J.M. Medical College, Davnagere, we encountered a case of abnormal origin of first lumbrical muscle in the right hand of a 70-year-old embalmed male cadaver.

Observation: The first lumbrical muscle was quite bulky, it originated from the lateral side of the tendon of flexor digitorum profundus for the index finger and the proximal attachment extended into the carpal tunnel. The muscle was inserted into the dorsal digital expansion of the index finger. The total length of muscle was 7.5 cm, of which 5.5 cm was fleshy and 2 cm was tendinous. Maximum width of the fleshy part was 0.7 cm.

Conclusion: As proximal attachment of the lumbricals extends into the carpal tunnel, it can cause compression of median nerve and predispose to the development of carpal

tunnel syndrome. Clinicians and hand surgeons should be aware of such variations.

522. An Unilateral Rectus Sternalis Muscle: Rare but Normal Anatomical Variant of Anterior Chest Wall Musculature

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During a routine dissection of pectoral region, a rare but normal variation was observed in the anterior chest wall musculature as a vertical strip of muscle. This muscle was rectus sternalis (also called as sternalis, rectus thoracis). It was present unilaterally at the right side in anterior chest wall superficial to pectoralis major muscle. The details of rectus sternalis muscle in this case report may help clinicians in interventional procedures, prevent diagnostic errors and avoid complications during any surgery of the pectoral region.

523. Variation in the Branching Pattern of Axillary Artery: A Case Report

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Shri V.N. Government Medical College, Yavatmal, Maharashtra

During routine dissection, we observed arterial variation in the right upper limb of a cadaver. The second part of the axillary artery divided into 2 equal caliber stems, deep and superficial. Deep stem passes between two roots of median nerve and gives 5 branches; the subscapular, anterior circumflex humeral, posterior circumflex humeral, profunda brachii and superior ulnar collateral artery. The superficial stem adopted its course superficial to median nerve and then divided into the ulnar and radial artery at elbow. The clinical implication of such a variation has been discussed.

524. Attitudes of Anatomists Toward Cadaver Donation

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Body donation is defined as the act of giving one's body after death for medical research and education. Anatomy learning without hands on training of dissection on human bodies is never considered perfect.

Cadavers and donated bodies remain a principal teaching tool for anatomists and medical educators teaching gross anatomy. There is insufficient number of cadavers in anatomy education in Maharashtra. This is because of very few cadaver donations and decreased number of unclaimed bodies. Increasing the number of cadaver donation is the probable solution. Anatomical professionals know better than anyone else that donated bodies are a valuable asset to anatomical science and medical education. They highly value voluntary donations since a dearth of bodies negatively affects their profession. Although anatomists encourage people to donate bodies, the attitude of anatomists toward donating their own bodies is not well known. In this study, the attitude of anatomists in Maharashtra toward cadaver donation was evaluated. A semistructured pretested questionnaire designed to assess the attitude of the anatomists toward cadaver donation was sent to the anatomists of Maharashtra by post and e-mail. Results were discussed at the time of presentation.

525. Unilateral High Bifurcation of Brachial Artery: A Case Report

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Background: Brachial artery is the continuation of the axillary artery begins at the distal border of teres major and ends about a centimeter distal to elbow joint by dividing into radial and ulnar arteries. One of the major variations is a high proximal division. The variations in brachial artery are most commonly observed in the upper third of the arm. The knowledge of anatomical variations of the brachial artery is essential for the surgeons to carry out procedures in the arm.

Material and Methods: During routine dissection in the first year MBBS at the Department of Anatomy, J.J.M. Medical College, Davangere, an unusually short segment brachial artery with high division was observed in the right arm of a 50-year-old male cadaver near deltoid tuberosity.

Case Report: A short segment of brachial artery was noted in the right arm showing normal relations with adjoining structures. In the present study, brachial artery bifurcated at the level of deltoid tuberosity into superficial small caliber radial artery and the main trunk continued as ulnar artery of large caliber accompanied by venae comitantes. Before its bifurcation profunda brachii arose normally from the brachial artery, it entered the posterior compartment of arm. No other variations were observed. Further details pertaining to morphometry and course will be elaborated during presentation. Dissection of left upper limb revealed no unusual variation.

Conclusion: The knowledge of short segment of brachial artery in the upper arm and its high bifurcation into radial and ulnar arteries is the most common variation. However, knowledge of such variation is helpful for vascular surgeons and orthopedician to carry out the surgical procedures in the arm.

526. Abnormal Formation of Median Nerve in Arm with Lateral Cord Piercing the Coracobrachialis

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The median nerve is one of the commonest nerve showing variations from the level of its formation to its termination. This is an important region where anesthetist, plastic surgeon and oncologist experience problems more frequently due to variations, and lack of knowledge of these variations may lead to mismanagement. The incidence of distal formation of median nerve was more common (8.5%, Uysal et al., 2003; 12%, Matejcik 2003; 2.1%, Mohammed and Badawoud, 2003). During dissection of axila and arm of an adult male cadaver in our dissection hall, Department of Anatomy, Government Medical College, Nagpur, we encountered abnormal formation of median nerve in the right arm with lateral cord piercing the coracobrachialis. In this case, lateral cord directly pierces coracobrachialis, and then it gives branch for the formation of median nerve.

527. Variations in the Branching Pattern of Celiac Trunk

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The authors report a rare variation in the branching pattern of celiac trunk. The present case was observed during the dissection classes of abdomen for the medical undergraduates, in the Department of Anatomy at Melaka Manipal Medical College, Manipal University, Manipal. An approximately 45-year-old male cadaver showed the following variations in the origin and branches of the celiac trunk. The celiac trunk had two main branches; hepatosplenic trunk and left gastric artery, instead of the 3 classic branches. The left inferior phrenic, left superior suprarenal and left gastroepiploic arteries originated from the left gastric artery. The knowledge of these variations is important in laparoscopic surgery and surgical operations of the liver. It is vital to know the variations of hepatosplenic trunk during radiological investigations related to liver, spleen and stomach.

528. Otocephaly: A Rare First Arch Syndrome

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A case of otocephaly was reported in 26+4 weeks female fetus during routine fetal autopsy at Government Medical College, Chandigarh. Mother was 25 years old, second gravida. The first child is one year old normal male baby. Present pregnancy resulted in spontaneous abortion. Antenatal history, past history, family history and the medical history of the mother was not suggestive of any etiological factor responsible for the defect. The external examination showed two vessels in umbilical cord. There was anteroposterior lengthening of skull; mouth present in the form of a proboscis with small opening in the centre. The right external ear was absent. The left pinna was low placed and had small tags. The anal opening was absent. On internal examination, the oral cavity was small with a small mandible. The tongue was absent. The thoracic cavity was small. The left lung was absent. The right lung had only single lobe. Heart was dilated with normal position of the major vessels. In abdominal cavity, gut was opening in a dilated cloaca-like chamber. X-ray examination revealed small hypoplastic mandible and maxilla. Otocephaly is a rare lethal syndrome of microstomia, agnathia and ear anomalies. It is assumed that failed mesenchymal migration of the maxillary prominence and atrophy in the development of the mandibular prominence due to an insult to the neural crest cells results in the defect. Other associated anomalies are holoprosencephaly, skeletal, genitourinary, cardiovascular system, endocrine gland hypoplasia/absence. The differential diagnosis includes treacher collins syndrome, goldenhar syndrome and mobius syndrome. The etiology, incidence, causative factors of this case were discussed in the light of available literature.

529. Caudal Regression Syndrome: A Case Report

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A case of caudal regression syndrome was reported in 20 weeks' fetus during routine fetal autopsy at Government Medical College Chandigarh. Mother was 24 years old, second gravida. The first pregnancy terminated in spontaneous abortion 1 year ago at home. The cause of that abortion and sex of the fetus was not known to parents. Present pregnancy also resulted in spontaneous abortion. Medical history of the mother revealed hypothyroidism for which she was on medication. Antenatal history was otherwise normal. Past history and family history was not suggestive of any etiological factor responsible for the defect. The external examination showed 2 vessels in umbilicus. There was anteroposterior lengthening of skull. The anal opening was absent. The lower limbs were fused in thigh region with a small appendage attached to this on the left side and also terminated in foot. The right foot had 5 toes and the left foot had 3 toes. No external genitalia was seen. The anal opening was absent. On internal examination, the gut was opening in a dilated cloaca-like blind chamber. Kidneys were absent on both sides. X-ray examination revealed small sacrum, femur, tibia in both the legs. Fibula was

absent bilaterally. Caudal dysgenesis syndrome and caudal regression syndrome are broad terms that refer to a constellation of caudal congenital anomalies affecting caudal spine and spinal cord, hind gut, urogenital system and the lower limbs. The etiology, incidence, causative factors of this case were discussed in the light of available literature.

530. Variation in the Branching Pattern of Inferior Gluteal Artery and Posterior Cutaneous Nerve of Thigh: A Case Report

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As inferior gluteal artery plays an important role in vascular surgeries, i.e., for advancement flapping, for rotation flapping and perforater flapping, knowledge of variations in it becomes significant for surgeons. We report a case of a variation in the inferior gluteal artery where a branch of it is encircled by posterior cutaneous nerve of thigh. It was observed in a 65-year-old embalmed male cadaver during routine dissections in the Department of Anatomy, Kasturba Medical College, Mangalore, affiliated to Manipal University. Nerve loops around the arteries become significant during cutaneous or fasciocutaneous flap surgeries. In the present report, the clinical significance of the inferior gluteal artery and posterior cutaneous nerve of thigh were discussed.

531. Diffuse Idiopathic Skeletal Hyperostosis (DISH)

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Aim: Study of pelvis with diffuse idiopathic skeletal hyperostosis.

Materials: Intact pelvis procured from graveyard.

Methods: Study of gross anatomy of pelvis and X-ray study.

Results: The following features are observed in this pelvis:

1. Ossification of symphysis pubis.
2. Ossification of sacroiliac joint.
3. Ossification of sacrotuberous and sacrospinous ligament.
4. Ossification of transverse acetabular ligament.
5. Ossification of anterior longitudinal ligament of spine giving rise to candle-wax dipping down appearance.
6. Fusion of lumbar vertebrae L4 and L5.
7. Extra bone formation seen in iliac crest, anterior superior iliac spine and anterior inferior iliac spine.

Conclusion: The above features are suggestive of diffuse idiopathic skeletal hyperostosis (DISH). Lumbar vertebrae are involved in 68–90% of effected individuals. The etiology, pathophysiology, differential diagnosis, complications, treatment and prognosis were discussed at the time of presentation.

532. Confirming the Diagnosis of Turner's Syndrome with V-Cell Line: A Case Report

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Turner's syndrome is one of the most common chromosomal aneuploidy seen in humans with incidence of 1:2000 newborns affecting females. Approximately 60% patients with Turner's syndrome have 45X karyotype while remaining show X chromosome abnormality including Mosaicism. In 6–9% cases, normal or structurally abnormal Y chromosomes or Y-derived sequences are detected. We report a 19-year-old girl being evaluated for primary amenorrhoea. Cytogenetic analysis of peripheral blood lymphocytes revealed 65% 45X, 10% 46XX and 25% 46XY. Detection of Y-cell line is important in view of 10–30% higher risk of developing gonadal tumors. Prophylactic gonadectomy is recommended to patients of Turner's syndrome with V-chromosome mosaicism and ovarian dysgenesis.

533. Bilateral High Origin of Terminal Branches of Brachial Artery: A Case Report

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A case of bilateral high origin of terminal branches of brachial artery were found during routine dissection of cadavers in practical classes for medical students in North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences, Shillong, Meghalaya. The right and left brachial artery divided into superficial and deep branches in relation to median nerve, in the upper side of the arm. The deep artery was located posteromedial to the median nerve. At the lower side of the arm, median nerve crossed the deep branch of brachial artery anteriorly and the artery became lateral to the median nerve and reached the cubital fossa. In the cubital fossa, it passed beneath the bicipital apponeurosis and deep to both the heads of pronator teres muscle and gave common interosseous artery, which divided into anterior and posterior interosseous and the main trunk followed the normal course of ulnar artery. The superficial branch of brachial artery, which was anteromedial to the median nerve at the upper part of arm, became lateral to the median nerve and deep branch of brachial artery and thus reached the cubital fossa. In the cubital fossa, it passed deep to the bicipital apponeurosis and descended just beneath the brachioradials muscle and followed the normal course of radial artery. These developmental variations were thoroughly discussed and

compared with previously published findings and highlighted their clinical importance.

534. Extensor Pollicis and Indicis Communis: A Rare and Interesting Supernumery Muscle Anatomically and Phylogenetically

Abhijeet Yadav, Asha Dixit, Vandana Sharma, Sonia Baweja, Monika Srivastava

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Aim: To throw light on the anatomy and morphology of the study muscle: extensor pollicis and indicis communis, which is still a less understood entity.

Materials: Dissecting instruments, measuring tape, thread, labels, paint and clean cloth.

Methods: Dissection of the right upper limb of a female cadaver as a routine procedure was performed. The area was cleaned properly. Abnormal muscle was thoroughly studied and measured.

Results: In the present cadaver, the muscle under study existed between normal extensor pollicis longus and extensor indicis and then the supernumerary tendon of the study muscle emerged from the fourth dorsal compartment of extensor retinaculam and divided into two branches, one going toward triangular expansion of pollex and other toward dorsal digital expansion of the index finger.

Conclusion:

1. Extensor pollicis and indicis communis is a very rare muscle with its occurrence ranging from 0.17% to 6%.
2. It is such an interesting muscle that after so many years of its discovery it holds its position in the list of both extensor pollicis longus and extensor indicis variants.
3. Important for both anatomists and morphologists.
4. Very important for surgeons for reconstructive procedures.

535. Multiple Pectoralis Major Transmutations in a Male Cadaver

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Gandhi Medical College, Bhopal, Madhya Pradesh

Aim: The aim of this study is to (i) have the knowledge of different variations of pectoralis major muscle, (ii) understand the morphology of pectoralis major muscle. Knowledge of the variation is important for anatomists and also for surgeons and physicians.

Materials: Dissecting instruments, measuring tape, thread, labels, paint and clean cloth.

Methods: Routine dissection procedure for pectoral region was performed on a male cadaver, during which we came across multiple transmutations in pectoralis major muscle.

Results: Multiple variations in pectoralis major muscle were noted, which include: 1. Decussatioin of pectoralis major fibers in the region over manubrium sterni; 2. Clavicular fibers of pectoralis major were continuous through out there entire extend with those of deltoid along with obliteration of deltopectoral groove; 3. Pectoralis major fibers of both sides were intermingled with right sided sternalis muscle.

Conclusion: The pectoralis major is liable to many slight transmutations and therefore knowledge of these variations of the pectoralis major is desirable for anatomists, physicians and surgeons as their presence can hamper in the diagnosis and treatment of an individual.

536. Muscle Coracabrachialis Not Pierced by Musculocutaneous Nerve Bilaterally: A Very Rare Finding

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Aim: 1. To bring this rare variation into light for anatomists 2. To revisit the morphology of coracobrachialis 3. Knowledge of this variation should be known to neurologist, surgeons and orthopaedicians

Materials: Dissecting instruments, measuring tape, thread, labels, paint and clean cloth.

Methods: Routine dissection procedure for pectoral region and arm was performed on a female cadaver, during which we came across this rare variation. Nerve was carefully traced throughout its course and distribution.

Results: Musculocutaneous nerve coming from the lateral cord of brachial plexus did not pierce coracobrachialis muscle on the right as well as on the left side as it was expected. Importance of this finding lies in the fact that this variation ranges from 1.7% to 9.3% in individual according to different authors. The nerve supplied brachialis and biceps brachii by its muscular branches. Whole nerve from its origin to termination was studied thoroughly.

Conclusion: 1.It is phylogenetically a very important finding. 2. The knowledge of this variation is important for anatomists, morphologist, surgeons, physicians particularly neurologists.

537. A Case of Cloacal Developmental Anomaly Presented as Atypical Genitalia

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A case of a genotypically female child presented with a phallus, accessory phallic urethra, uterus, normal urethra, normal vagina, normal gonads and normal anal opening. Patient diagnosed initially as virilized female and had no other congenital malformation. Mother had no signs of virilization and there was no history of androgenic drug intake in antenatal period. Hormonal assays were normal. The embry-

ogenesis of this condition involves complex interactions between the mullerian duct and urogenital sinus rather than hormonal causes.

538. Variant Bicipital Aponeurosis: Functional and Clinical Significance

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The bicipital aponeurosis, also called lacertus fibrosus, is a band of fibers arising from the tendon of biceps brachii muscle getting inserted onto the upper part of the posterior border of ulna. The function ascribed to the aponeurosis is of protection of the median nerve and the brachial artery which pass deep to it. The bicipital aponeurosis also plays an important function of drawing the posterior border of the ulna medially during supination of the forearm. Various clinical cases have been reported implicating the aponeurosis in causation of various clinical conditions, such as median nerve entrapment, compression of brachial artery, pronator syndrome, etc. We present a report of three cases of variant of the bicipital aponeurosis, which might be of clinical and functional significance. The cases include thickened tendinous slips bordering the aponeurosis, an accessory brachialis forming the aponerosis and the aponeurosis giving rise to some muscle fibers that join externsor carpii radialis muscle.

539. Histomorphology of Trabeculated Urinary Bladder: A Case Report

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Trabeculation of urinary bladder is a common complication of benign prostatic hyperplasia (BPH). The musculature of the urinary bladder is hypertrophied so as to overcome the bladder outlet obstruction, resulting in a trabeculated appearance of the urinary bladder. In the present study, a case of trabeculated urinary bladder was found in one of the cadavers, an elderly male aged 79 years, during routine dissection of pelvis by the students. The urinary bladder was seen to be large in size as compared to normal bladder, measuring 16.2 cm (length from base of bladder to apex), its widest width measured 7 cm and vertical height at the base of bladder measured 5.2 cm. All measurements were taken with a measuring scale. Well developed large trabeculae were seen criss-crossing the walls of the bladder on its inner surface. Small pieces of the bladder were excised from its walls. Seven-µm thick paraffin sections were stained with hematoxylin and eosin and Masson's trichrome stains and examined under light microscope. As benign prostatic hyperplasia commonly affects elderly men above 50 years of age presenting with symptoms of bladder outlet obstruction, therefore the present case report was studied to understand the effects of benign prostatic hyperplasia on the musculature of the urinary bladder.

540. Morphological and Morphometric Analysis of Infraorbital Foramen: A Study on Dried Skulls

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Objectives: An accurate knowledge of the maxilla-facial foramen is essential for clinicians performing endoscopic surgeries and regional nerve blocks. This study aims to analyze the morphological and morphometric variations of infraorbital foramen in relation to gender and position in dry skulls of adult individuals and presence of any accessory infraorbital foramen.

Materials and Methods: Fifty-three male skulls and 28 female skulls were analyzed. The shape of the infraorbital foramen was noticed and the relative position of the infraorbital groove and infraorbital canal and their measurements was also noted. The distance from the anterior nasal spine (ANS) to the centre of the infraorbital foramen (IOF), the distance from the lower rim of the orbital cavity to the centre of the infraorbital foramen and the angle from the ANS to the IOF and the line from the ANS to the IOF were measured and tabulated. The accessory infraorbital foramen was also subject to analysis with regard to number, shape, length and transverse diameter. Comparisons were made between genders and sides of the skull, and the statistical analysis was carried out through the Student's *t*-test.

Results: Significant variations were found among the gender group in relation to positioning and angulations of the IOF. Also, the presence of accessory infraorbital foramen shows its significant changes in shape and its measurements.

Conclusion: These results are essential to perform the nervous blockage and the surgical procedures in the periorbital section in order to avoid to some damage to the neuorvascular structures crossing this foramen.

541. Anatomical Study of the Pterygospinous and Pterygoalar Bony Bar and Its Enclosed Foramen in Dried Crania and its Clinical Relevance

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Objectives: The ossification of the intrinsic ligaments of the sphenoid bone has been reported in the literature. The

presence of bony bar by ossification of the pterygospinous ligaments and pterygoalar ligaments has clinical significance in the infratemporal fossa contents. The purpose of this study is to analyze the prevalence of ossification of this bony bars and assess morphometrically the pterygospinous (Civinini's) foramen and pterygoalar (crotophitico-buccinatorius).

Materials and Methods: A total of 90 human skulls from the Department of Anatomy, Asan Memorial Dental College and Hospital and other medical colleges in Chennai were used to assess the lateral pterygoid plate of the sphenoid bone and the presence of total or partial ossification in pterygospinous ligaments and pterygoalar ligaments.

Results: Of the 90 samples, 4% of the skull showed well-expanded lateral pterygoid plate, 5.55% showed complete ossification and 62.22% showed partial ossification of the pterygospinous ligaments and 1.11% showed complete and 12.22% showed incomplete ossification of the pterygoalar ligaments. The size of the crotophitico-buccinatorious foramen is much less compared to that of Civinini's foramen.

Conclusion: The presence of the ossifications must be considered in the therapeutic procedures that are performed in the infratemporal region, to eliminate the entrapment of mandibular nerve and chorda tympani nerve in assessing pain affecting the territory innervated by the mandibular nerve.

542. Gross Morphological Changes of Placenta Associated with Intrauterine Growth Retardation of Fetus

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Aim: The aim of the present study is to compare the morphological parameters from both normal placentae and intrauterine growth retardation placentae, and make an attempt to establish a relationship between placental morphometric parameters with IUGR.

Materials and Methods: This study was performed on 100 human placentae. The placentae were obtained from mothers who gave birth at the Meenakshi Medical College and Research Institute, Kanchipuram, preserved in a 10% formalin solution.

Parameters: Placental weight, fetal weight, maternal surface area, fetal surface area, number of cotyledons, length of umbilical cord, thickness of the cord, site of insertion of the cord.

Results: In the present study, the following results are obtained. There is a significant reduction in placental weight of IUGR and fetal weight of IUGR babies, maternal and fetal surface area of IUGR placentas and also in the number of cotyledons. There is no significant reduction in the length and thickness of the umbilical cord. There is a marked variation in the site of the insertion of the umbilical cord.

Conclusion: In conclusion, intrauterine growth retardation fetuses were frequently associated with morphologically abnormal placentas. Therefore, we suggest that visualizing the placenta during antenatal period by ultrasound or color Doppler imaging is useful to assess the status of fetus in utero and institute the appropriate measurements at an early stage to reduce risk to the mother and fetus.

543. Morphometric Analysis of the Malleus: A Study of 50 Bones

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Aim: To study the morphological features and to do the metrical analysis including the variations of malleus.

Materials and Methods: Present study was done on 50 malleus bones (right = 25, left = 25) by exposing the middle ear cavity with the help of hammer, fine-edged chisel and bone cutter. Morphological observations were made by using magnifying lens. Metrical analysis was done on an ECG recording paper (scale = 1 mm). Electronic weighing balance was used for measuring the weight of the bones.

Results:

a) A prominent lateral process was the most constant feature in all the bones.
b) Most of the variations were seen in the anterior process and head of malleus.
c) Length and weight of left-sided bones dominated over the right ones.
d) A maximal range difference of 4 mm was found between the smallest and the longest variety.

Conclusions: The morphometric analysis of malleus may help in understanding various middle ear pathologies. It may aid the ENT surgeons in ossicular replacement surgeries.

544. Renal Artery Variation and its Clinical Implication: A Case Report

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A rare renal artery variation was found in a 50-year-old male cadaver. There was pre-hilar division of right renal artery. Right renal artery showed early division into two branches upper and lower. Upper branch found traversing to the lower pole and lower branch found traversing to the hilum, thus upper branch crossing the lower branch. This anomalous pattern of renal vasculature is important in renal transplantation surgeries, laparoscopic surgeries and radiological procedures. Its clinical implication was discussed during poster presentation.

545. Frontal Encephalocele

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Background: Neural tube defects (NTDs) are the most common of all human birth defects. Such complex congenital malformations occur due to failure of closure of neural tube during first few weeks of embryonic development. They are commonly classified as "OPEN" and "CLOSED."

Case Report: An attempt is made to present four cases of frontal encephalocele, a form of NTD through poster presentation. All these four cases belong to pediatric age group. They have been reported as children of tea plantation workers, hailing from tea gardens of upper Assam.

Discussion: Defects of frontal encephalocele may exhibit geographical distribution. In the north-east region of India, such cases are more commonly seen amongst children of tea plantation workers. Probable contributory factors need to be studied. The study is currently under process and the details were displayed and discussed at the time of presentation.

546. Conjoined Twins: Parapagus

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Conjoined twins also called Siamese twins are a rare congenital anomaly with uncertain etiology. There is an estimated incidence of 1 in 50,000 to 1 in 1,00,000 in total births. Unfortunately, many of them are stillborn or die shortly after birth and the true incidence becomes 1 in 2,00,000 live births. These are monozygotic monochorionic twins that occur due to abnormal and incomplete division of embryonic cells in second week after amniotic sac is formed. The conjoined twins are described according to the region as craniophagus, thoracophagus, pyophagus, cephalo-thoracophagus, parapagus. We came across a case of live preterm vaginal delivered female conjoined twins in Shri V.N. Govt. Medical College, Yavatmal. These conjoined twins had parapagus with two heads (dicephalus), sharing two upper limbs (dibrachius) as well as two lower limbs (dipus) but with separate CNS, CVS and respiratory system.

547. Bilateral Variation in the Branching Pattern of Axillary Artery

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Accurate knowledge of the normal and the variations of axillary vessels is a prerequisite for correct diagnosis for vascular radiologists, surgeons and clinical anatomists. During routine dissection for undergraduate students in about 45-year-old embalmed male cadaver, in Dept. of Anatomy, M.K.C.G. Medical College, Berhampur, Odisha, bilateral variation in the branching pattern of axillary artery was encountered. In this case, axillary artery had seven branches and most of its branches arising from a common trunk. Thoraco-acromial artery was the first branch arising from the first part, no branches from the second part and the third part had anterior circumflex humeral artery and a common trunk which had five subbranches. This kind of variation should be taken in mind during the routine surgical and electrophysiological procedures.

548. Sirenomelia: A Rare Case Report

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During routine delivery conducted at Zenana Hospital, Berhampur, a newborn with a rarest congenital anomaly (sirenomelia) was observed, who died few hours after birth. The specimen was shifted to the Dept. of Anatomy, M.K.C.G. Medical College for academic purpose. Cases of sirenomelia are reported to be 1 in 70,000 births. In this case, there is fusion of both the lower limbs with the toes fringing at the distal edge of the sympodium. However, the number of toes are found to be 6 (3×2). Also, the popliteal fossa present at front. However, no other gross superficial anomalies in the head, chest and upper limb are observed. The details were discussed during presentation.

549. High Division of Sciatic Nerve: A Case Report

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Sciatic nerve which is formed within the pelvic cavity from sacral plexus leaves the pelvic cavity via greater sciatic foramen below piriformis, runs along the back of the thigh to divide into tibial and common peroneal nerve at the superior angle of popliteal fossa. During routine dissection in a female cadaver, aged about 30 years, on the left limb we observed two components separately leaving the pelvic cavity, the common peroneal nerve passing above piriformis and tibial nerve below piriformis. The nerve on the right side was normal.

Variations are commonly observed for the point of division of sciatic nerve into its major components. Normally when the two components remain separate from the beginning, the common peroneal nerve leaves the pelvis by passing through the piriformis. The nerve leaving above piriformis is relatively rare.

550. Anomalous Location of Right Lung: Two Case Reports

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Normally right lung is divided by an oblique and a horizontal fissure into upper (superior), middle and lower (inferior) lobes. During routine dissection, we came across two cases of anomalous libation of right lung. In each case, an additional incomplete horizontal fissure was found in the lower lobe, extending from posterior border to cut the oblique fissure opposite the original horizontal fissure. Different types of anomalies in location of lung studied earlier by different authors were compared with our case and its possible causes are discussed. Prior awareness and anatomical knowledge of the presence of accessory fissures and lobes in the lungs may be important for clinicians and radiologists.

551. Left-Sided Azygos Vein: A Case Report

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Azygos vein which normally starts as lumbar azygos from inferior vena cava continues into thorax by passing through the aortic opening and runs in the right side, finally draining to superior vena cava by arching over the hilum of right lung. Hemiazygos vein which stars from the left renal vein ends in azygos vein through transverse anastomosis at the level of 8th thoracic vertebrae. During routine dissection we came across a rare anomaly of left-sided azygos vein which is formed by the union of right and left lumbar azygos on the left side at the level of 10th thoracic vertebra. The vein thus formed ran throughout on the left side of the vertebral column in the thorax, and deviated to the right at the level of lower border of T4 to end in the superior vena cava. The lower intercostal veins drain to the corresponding lumbar azygos vein. The upper intercostal veins of the right side crossed to the left over the vertebral column to drain to the azygos vein. The corresponding vein of the left side opened to the azygos vein through a common trunk. This rare anomaly could be due to persistence of left embryonic azygos vein and regression of right embryonic azygos vein.

552. Cryptorchidism

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Early diagnosis and management of undescended testicle are needed to preserve fertility and improve early detection of testicular malignancy. During routine dissection of the inguinal region in an adult male cadaver in the Dept. of Anatomy, S.C.B. Medical College, Cuttack, we found bilaterally undescended testes. The testes were present in the normal path of descent but were in abnormal positions. Both the scrotal sacs were found to be empty.

553. A Sign of Evolution: Absent Palmaris Longus

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Any form of modifications in size and shape of an organ in a living being is important because it is an excellent indicator of the process of evolution. Dissection of 21 adult cadavers of either sexes were carried out in the Department of Anatomy, S.C.B. Medical College, Cuttack, during three years (2009–2012) as part of routine dissection teaching for undergraduate students. During which we observed that in one adult male cadaver, the palmaris longus muscle was absent on both side. There were no other anomalies associated with it. Moreover, a phylogenetically degenerating muscle, the palmaris longus, has received growing interest for its role in constructive surgery.

554. Third Head of Biceps Brachii: A Case Report

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Biceps brachii is classically described as a double-headed muscle found in the anterior aspect of the forearm. The long head originates from the supraglenoid tubercle of the scapula and the short head from the tip of the coracoid process. During routine dissection of upper limb in a 70-year-old male cadaver, a bilaterally symmetrical third head was found deep to the other two heads. This third head had a fleshy humeral origin between the insertion of coracobrachialis and the upper part of the origin of brachialis. All the three heads were supplied by the musculocutaneous nerve and they united together to form three different tendons before insertion. The most lateral was inserted to the radial tuberosity, the middle one formed the bicipital aponeurosis separating the brachial artery from the medial most tendon, which was directly inserted to the posterior border of ulna. In the same cadaver, musculocutaneous nerve had bilateral origin from the median nerve at the mid-arm level.

555. Rare Multiple Variations of Vessels and Nerves in Cadaver's Upper Limb and its Clinical Importance

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Aim: To analyze different variations, correlate with embryological basis and applied aspects in medicine and surgical interventions.

Materials and Methods: During our routine dissection in the Department of Anatomy, S.S.I.M.S & R.C, Davanagere, Multiple variations were found in two cadavers of 34 limbs.

Results: In one of the cadavers, some variations were observed:

1) Unusual branching and distribution pattern of musculocutaneous nerve: Fromlateral cord:
   a) one branch pierces coracobrachialis and joins median nerve;
   b) another branch joins median nerve without piercing coracobrachialis.

   Thus, formed common trunk, which gives: i) muscular branches to biceps brachii and brachialis and ii) lateral cutaneous nerve of forearm.
2) Vascular variations were also found in course and branching of axillary, brachial and ulnar artery.

In another cadaver, high division of median nerve was observed.

Conclusion: Variations in nerve are usually secondary to vascular variations. This unusual pattern of musculocutaneous nerve is not only included under Le Minor Classification, it is also observed in different studies. According to the literature musculocutaneous nerve joins median nerve in 2%. Knowledge of such variations is important from surgical point of view during decompressive fasciotomies, debridements and fracture reductions. Compression of median and ulnar nerve is differential diagnosis to radiating pain of upper limb. Further, different types of variations, incidence, clinical correlation, embryological basis were discussed during presentation.

556. Anomalous Extensor Digitorum Brevis Manus

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Background: In normal anatomy there is no muscle on the dorsum of the hand, except for the long extensor tendons of digits. Rarely may we see a small muscle belly on the dorsum, which is called as "extensor digitorum brevismanus."

Materials and Methods: The material for the present study comprises 36 upper limbs of adult human cadavers, irrespective of their sex and age. The study was done by dissection method.

Observations and Results: During routine dissection of upper limb for first year medical students, in a 53-year-old female cadaver, we found a soft swelling on the dorsum of hand, after dissection this anomalous extensor muscle was found on the dorsum of the hand. This anomalous muscle was originating from the dorsal wrist capsule beneath the extensor retinaculum of the wrist at the fourth compartment through which extensor digitorum, extensor indicis, posterior interosseous nerve were passing. The insertion of the muscle was into the extensor hood of the index finger. The muscle was supplied by the posterior interosseous nerve.

Conclusion: As this anomalous muscle may cause fourth compartment syndrome, which may be confused as dorsal wrist ganglion, EDBM should be included in the differential diagnosis of soft tissue masses on the dorsal aspect of the wrist and hand and may be diagnosed by MRI.

557. Anomalous Origin of First Lumbrical Muscle

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Background: Muscular anomalies of upper extremity could be a cause of peripheral nerve disorders. Although variations in the attachments of lumbrical muscles have been commonly reported, lumbrical muscle with an additional origin in the forearm is not much discussed.

Materials and Methods: The material for the present study comprises 36 upper limbs of adult human cadavers, irrespective of their sex and age. The study was done by dissection method.

Observations and Results: During routine dissection of upper limb for first year medical students, we observed a case where the first lumbrical arouse from additional tendon of flexor pollicis longus and also from flexor digitorum profundus beneath the flexor retinaculum. In addition to this, head of flexor pollicis longus muscle was also present. The clinical implications of these muscular anomalies in nerve entrapment were discussed.

558. Unilateral Accessory Parotid Gland: A Case Report

Sudeepa Das, B.K. Dutta, R. Biswal, C.L. Sarangi, M. Panda, P. Baisakh, S. K. Seth
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Congenital absence or rudiment major salivary glands, especially of the parotid glands, are a rare entity. Aplasia of parotid glands has been described alone or in association with abnormalities of other salivary glands, first branchial arch developmental disturbances and other congenital anomalies, such as lacrimo-auriculo-dento-digital syndrome, mandibulofacial dysostosis and ectodermal dysplasia. Absence is most commonly unilateral, and may be associated with accessory or rudimentary glandular tissue. There are several reported cases of isolated patulous Stensen's duct causing air insufflations in the glands and recurrent parotid gland enlargement. However, in the literature there is no reported case of association of rudimentary parotid gland with a patulous Stensen's duct. This work aims at reporting an interesting and unusual presentation of unilateral accessory parotid gland with an accessory duct opening into Stensen's duct.

559. Bilateral Erb's Palsy: A Case Report

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Erb's palsy is a comparatively uncommon finding in today's institutional and LSCS predominant deliveries. Unilateral Erb's palsy infants are born due to difficult vaginal deliveries leading to injury to ipsilateral upper trunk of Brachial Plexus. But we report this uncommon case of bilateral Erb's palsy in a 1-day-old newborn who was admitted in NICU of SCB Medical College and Hospital after a breech delivery. The baby was also having fat necrosis in the cheek and abrasion wounds in neck region, indicating extensive birth trauma that might have caused this bilateral Erb's palsy.

560. Model of Ventricular System of Human Brain: A Teaching Tool

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A metallic model of the ventricular system of the human brain was made to teach the undergraduate students of Gauhati Medical College. This model will be helpful in better understanding of the 3D structure. This model has added advantages as it can be used in department as well as outside the department as a teaching tool. Details were discussed in the conference.

561. Study of Lip Prints Patterns and its Application in Personal Identification

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Background: In the present time, crime cases are increasing at a tremendous rate. It is high time for law enforcement agencies and forensic science researchers to get active and look seriously for new methods that could provide better evidences. Very few people know that similar to fingerprints, even the lip prints of a person can be instrumental in identifying a person positively. External surface of lips has many elevations and depressions forming a characteristic pattern called Lip Prints; examination of which is referred to as Cheiloscopy.

Aims: To study various patterns of lip prints in different individuals and to determine the level of significance of proportion of cases in various lip-print-pattern groups. Also, to evaluate permanency of lip prints by comparing the lip prints from initial pattern after one year.

Materials and Methods: Samples of lip prints was taken from 200 individuals of 18–65 years of age group. Out of 200 individuals, 50 subjects chosen randomly (25 males and 25 females) were taken to study the permanence of lip prints. To simplify the lip patterns, each lip was divided into 3 equal parts. A horizontal line divides upper lip from lower lip and two vertical lines divide each lip into equal 3 parts. As for upper lip there are upper right, upper middle and upper left. Combinations of groove patterns for each part of lip were studied on the basis of classification given by Yasuo Tsuchihashi (1974).

Results: Detailed results were displayed in poster presentation at the conference.

562. A Case Study of Rare Anomaly of Bifurcated Rib and Costal Cartilage

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A bifid rib (sternum bifidum) is a rare congenital abnormality of rib cage, which occurs in 1.2% of humans with an overall prevalence of about 20% of all congenital rib anomalies (Wallanasirichaigon et al). It is usually unilateral. Bifid ribs are usually asymptomatic and are often discovered incidentally by chest X-ray. Bifid ribs usually occur isolated but can also occur in genetic disorders such as Gorlin-Goltz syndrome, Jobs syndrome and Kindler syndrome. Bifid ribs may also be intrathoracic (Type 2 Kamono Classification). Incidental rib abnormalities are usually asymptomatic; however, some patients may have a fibrous diaphragmatic attachment that can cause a restrictive ventilatory defect and neurological difficulties causing pain. Bifid ribs may be associated with deformities of a vertebral body, more frequently on the right side. Ribs are made by proximal and distal costal segments, proximal ribs develop from notochord and distal ribs arise from surface ectoderm around 4th–6th week of fetal life and are controlled by *Paxl* gene and *Hox* gene. We report a case in which an anomalous ribbon-like bony structure emerges from the junction of costal cartilage and 5th rib; 5th rib appears to be formed in the cartilage part. The space between the two branches was filled with normal intercostal muscles. However, the intercostal nerve and vessels didnot branch toward the upper branch, but only ran along the lower margin of the lower branch of bifid rib. Knowledge of bifid rib is important in differential diagnosis of thoracic pathologies and during K-wire fixation in rib fracture patients and to avoid unnecessary thoracotomy in wrong impression of fractures.

563. Symmetrical Variations in the Branching Pattern of Abdominal Aorta: A Case Report

S. Tiwari, R. Verma, S. Kataria.

Maulana Azad Medical College, New Delhi

Information regarding anatomical variations in the branching pattern of great vessels of the abdomen, including ab-

dominal aorta, celiac trunk, mesenteric and renal arteries is imperative for planning surgical procedures and interpreting interventional radiological imaging. During routine cadaveric dissection, we came across a combination of arterial variations in the branching pattern of abdominal aorta. First, both the renal arteries were accompanied by accessory renal arteries, which were bilaterally symmetrical in many respects: (i) Both the accessory arteries were related anterior to the main trunk of renal arteries, (ii) both gained entry into the kidney through the hilum (anterior to the hilar structures) and not from any of the poles, and (iii) both the accessory arteries exhibited a similar branching pattern inside the substance of the kidney. Second, both the inferior phrenic arteries were arising from the celiac trunk, instead of the abdominal aorta, and were slightly more tortuous than usual. Presence of such major artery variations assumes great clinical importance today as the use of interventional radiological procedures is on the rise. Moreover, all major abdomino-pelvic surgeries, including oncologic resections (of pancreas and liver) and renal transplantation demand an accurate account of the entire vascular apparatus, and particularly of any such possible deviations.

564. Accessory Sulcus of Liver: An Anatomical Study and Its Clinical Implications

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Aims and Objectives: To study the presence of accessory sulcus (AS) in the embalmed cadaveric livers, and compare it with the normal liver.

Materials and Methods: The present study was conducted on 20 embalmed cadaveric livers in the Department of Anatomy, Veer Chander Singh Garhwali Government Medical Sciences from September 2009 to March 2012, in order to observe the presence and pattern of anomalous AS. All intact cadaveric liver were taken for the study. Liver with features of cirrhosis or any damage was excluded from the study.

Results: Out of the 20 liver specimens studied, we observed the presence of AS in only 4 specimens (20%). The AS was located in the right, anterior and inferior surfaces of the right lobes in different specimens.

Conclusions: The AS of the liver is one of the rare anomalies. Research studies had mainly described the diaphragmatic sulci in the liver; however, the rare reports related to the presence of AS in the inferior surface of the right lobe of the liver may prove to be beneficial to the radiologist in interpreting CT images and also to hepatobiliary surgeons. The AS may be due to a developmental defect, or may be acquired as a result of pressure by any superficial structure.

565. Anomalous Origin of Vertebral Artery: A Case Report

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Arterial derangements are a common finding within the thorax. During the routine dissection procedures, in a male cadaver, the left vertebral artery was seen to be originating from the arch of aorta instead of from the subclavian artery. As usual the right vertebral artery was originating from the right subclavian artery. Precise knowledge of such variation is of paramount importance to the cardiologist and cardiothoracic surgeons for their routine investigative procedures and reconstructive surgeries. This variation can also be attributed to embryological basis. Action of circulatory factors, chemoattractants and chemoreceptors, along with anomaly of the cardiac progenitor cells and defective migration has probably led to this type of anomaly.

566. A Case of Congenital Syndromic Hydrocephalus: Was it a Subtype of "Game-Friedman-Paradice Syndrome"?

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Human hydrocephalus is a disorder of abnormality in CSF flow or resorption, which has been classified in pertinent literature as congenital and acquired. Congenital hydrocephalus can present as isolated phenomenon, which is commoner; or with associated anomalies affecting other organs disturbing physiology, presenting as syndrome. A case has been described here with congenital fetal hydrocephalus, hypoplastic lungs with supernumery libations and large left lobe of liver compared to right. So far, in the literature review this case has been postulated as a subtype of "Game-Friedman-Paradice syndrome".