24. Morphological study of plantaris muscle

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Plantaris (PM) arises from the lower part of the lateral supracondylar line and the oblique popliteal ligament. It has a small fusiform belly ending in a long slender tendon, and crosses obliquely, in an infero-medial direction, between gastrocnemius and soleus and is inserted into the calcaneous, just medial to the tendo-calcaneous tendon. Functionally, it is of less importance as a plantar flexor and is considered to be a vestigial muscle. The plantaris muscle shows variations like total absence, either unilaterally or bilaterally. In this present study, tendinous origin of the muscle in a single specimen was demonstrated along with usual morphological study of PM.
Material and Method: During regular routine dissection in the department, the popliteal region and posterior compartment of leg from both sides of 18 adult human cadavers (36 inferior extremities) were displayed. Dissection of plantaris muscle from its origin to insertion was done and measurements were taken with the help of measuring tape and photographed for records. Observations were analyzed and discussed.
Results and Conclusion: In this present study, unilateral and bilateral absence of plantaris muscle was found in 8.33% and 2.77% of cases; it had a tendinous origin in 2.63% and in majority of cases (88.88%) the usual origin and insertion of the plantaris muscle were demonstrated. A unique case, the tendinous origin of plantaris muscle, was demonstrated which showed an intermediate state between the usual type (small muscle belly with long tendon) and complete absence of muscle, suggesting that during the evolution process, the well-developed state of the muscle in monkeys gradually become a vestigial entity in human being.

25. Variations of the fissures of human lung – A cadaveric study

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Objective: To study the variations of fissures of human lungs of both sides.
Materials and Methods: In the present study, 20 pairs of lungs were collected from adult human cadavers from the Department of Anatomy and Department of Forensic Medicine, Gauhati Medical College, Guwahati, after getting formal permission from Institutional Ethical Committee. The specimens were then preserved in 10% formalin and observed for presence and completeness of natural fissures. The anomalous fissures and their patterns were also noted and the specimens were photographed.
Results: In the present study, we found the normal pattern of lung fissures on both sides along with incomplete, absent and accessory fissures.
Conclusion: The knowledge of the lung fissures is necessary in lobectomies and segmental resection as well as for appropriate interpretation of chest skiagrams, CT scans and MRIs. Hence, the present work was carried out to gain further insight into the fissural pattern of the human lungs. The details of the work will be dealt during the presentation.

26. Anatomic landmarks to simplify safe percutaneous subclavian venous catheterization

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Objective: The technique of percutaneous catheterization of subclavian depends upon the localization of subclavian vein. The objective of the study was to see relationship of subclavian vein with the surrounding landmarks, so as to increase the possibility of venous access.
Methods: Dissection of infraclavicular region of 32 formalin-fixed adult cadavers placed in supine neutral position simulating clinical practice was done to expose subclavian vein. The point on the lower border of clavicle crossed by the center of subclavian was marked. Distance of this point from deltopectoral groove, tip of coracoid process and sternoclavicular joint was measured. Diameter of vein at this point, angle between the vein and clavicle subtended at this point, length of clavicle and the depth of vein from the skin were measured.
Results: The vein was lying at the junction of medial and middle third, medial third, middle third of clavicle in 58%, 35% and 7% cases, respectively. The ratio of distance from the center of vein to sternoclavicular joint (VJ) divided by the length of the clavicle (LC) was 0.23–0.40 and 0.27–0.43 on the left and right sides, respectively. The diameter of vein varied from 10 to 17 mm and average angle between the vein and the clavicle was $38 \pm 5.6^{\circ}$. The vein was present at an average distance of 46 ± 5.9 mm from deltopectoral groove and 16.7–2.5 mm deep to skin. There was no statistically significant difference in right and lift sides.
Conclusion: The data obtained in this study would simplify percutaneous subclavian venous catheterization by infraclavicular approach.

27. A study on the anatomical pattern of the circle of Willis of human brain with special reference to its variations

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Aim: To study variations of the circle of Willis.
Materials and Method: Brains from cadavers in post-mortem dept. of G.M.C.H. were collected and kept in 10% formalin for at least 2 weeks. Brains affected by cranial trauma, cerebral hemorrhages, cerebral neoplasms and head shot were excluded. Permission from institutional ethics committee was taken. Circle of Willis at the base of the brain was dissected and its variations studied. Their line diagrams were drawn and pictures were taken.

Results: Circle of Willis with duplications e.g., of anterior communicating artery, oblique anterior communicating artery, fenestrations' abnormal origins and terminations, etc. were found.
Conclusion: Variations are common in the circle of Willis and this knowledge would be helpful to neurosurgeons, vascular surgeons, etc.

28. Weight and volume of the thyroid gland in north Indian population

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Objective: This study was done to find out the changes in the weight and volume of the thyroid gland in different age groups. The age groups are Group A – up to 20 years, Group B – 21–50 years and Group C – above 50 years.
Methods: The study was conducted on 60 human thyroid glands in the Department of Anatomy in collaboration with department of Forensic Medicine, Pt. B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak in North Indian population. The weight was measured by digital weighing balance and the volume was measured by water displacement method.
Results: The study revealed that the mean weight of the thyroid gland was found to be in Group A as 10.11 ± 3.90 g, Group B as 15.25 ± 4.05 g and Group C as 12.95 ± 2.89 g. The mean volume of the thyroid gland was found to be in Group A as 9.42 ± 3.43 ml, in Group B as 14.23 ± 3.41 ml and in Group C as 11.70 ± 2.49 ml.
Conclusion: The study concluded that the mean weight and volume of the thyroid gland was found to be higher in Group B (21–50 years) followed by Group C (above 50 years) and then followed by Group A (below 20 years).

29. Anatomy of prostate of adults in Manipur

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Objectives: To assess the normal dimensions and volume of prostate to form a baseline reference value of healthy adult Manipuri subjects and to delineate the normal and borderline cases from the benign prostatic hyperplasia (BPH) by ultrasonography.
Materials and Methods: The present study was carried out in 208 individuals, age ranging from 21 to 80 years, who attended the Radiology department, Regional Institute of Medical Sciences, Imphal, Manipur, for abdominal ultrasonography. Permission from the concerned authority and approval from the Institutional Ethics Committee were taken prior to the study. Informed consent was also obtained from the participants. Prostate dimensions were measured by using the model Medison SONOACE X8 ultrasound machine with a curvilinear 3.5 MHz transducer. Volume of prostate was calculated by using the prolate ellipsoid formula:

$$\text{Prostate volume} = (\text{anteroposterior diameter} \times \text{transverse diameter} \times \text{vertical diameter}) \times \frac{\pi}{6}.$$

Results and Observations: There were 162 healthy adults and 46 BPH cases. The mean age, mean weight, mean height and mean BMI were 47.56 years (±14.50 SD), 60.69 kg (±5.47 SD), 164.03 cm (±5.61 SD) and 22.54 kg/m^2 (±1.42 SD), respectively. Mean prostate volume was 16.53 ml (±5.06 SD) for healthy prostates and 43.15 ml (±13.51 SD) was the mean volume for BPH cases.
Conclusion: The present study shows that total prostate volume has a strong significant relationship with age. Our study will provide the dimensions and volume of prostate for the Manipuri people, which will be useful in assessing this organ for any pathological enlargement or reduction in clinical practice.

30. Ethical & legal issues in medical genetics

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Background: Ethical issues in human genetics pose more challenges because genetic identity impinges not only on the individual but also on the extended family and society in general. The fundamental ethical principles of autonomy, beneficence, non-maleficence and justice are not full proof because limitations arise due to apparent conflicts between the principles. Hence an acceptable ethical framework needs to be worked out that can balance the principles one against another.
Practical Approach to Ethics in Medical Genetics: Ethical issues need to be considered if the benefits are maximised and the harms minimised from the increasing ability to use genetic testing to analyse an individual's genetic information. The ethical issues generally arise from: *The shared nature and ownership of genetic information*. The doctor's ethical responsibilities include balancing the privacy and confidentiality of the individual and prevention of harm to others. In patients of balanced translocations and X-linked recessive disorders, confidentiality cannot be limited to the patient and close family relatives must understand carrier status (that they could be also carriers) and therefore the risk of having a affected baby. *Limitations of genetic testing*. The genetic tests are diagnostic (prenatal and newborn screening) and predictive (for late-onset dominant autosomal disorders). Treatment options are limited for genetic disorders, and moreover, these diagnostic tests cannot predict the severity and the age of onset of the disease. To inform a child about adult-onset dominant autosomal disorders will be unethical as it leads to social discrimination and should ideally be postponed till the child reaches the age of consent. The prenatal and screening tests should aim to provide maximum information to the patient so that they can make an "informed choice" of having a baby.