

ABSTRACTS

Award Paper

1. Hepatotoxic Changes Induced By Prenatal Administration of Olanzapine in Swiss Albino Mice

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Introduction: Olanzapine is an atypical antipsychotic drug approved by FDA for the treatment of psychotic disorders. Although atypical antipsychotics have limited evidence for teratological risk, there are reports of altered fetal growth, both increased and decreased, with maternal atypical antipsychotic use. However its effect on fetal liver is yet to be ascertained.

Materials and Methods : Pregnant albino mice was given olanzapine in the dose of 0.2 mg/kg and 2mg/kg from 6th to 12th day of gestation and control mice was fed distilled water during the same period. On day 19th the mice was sacrificed and fetuses were taken out. The liver of fetuses were dissected, formalin fixed, processed and stained with H&E for histological study.

Results: On gross examination liver of 2mg/kg group showed marked reduction in size of liver. On histological examination in both the treated groups there is decreased density of haemopoietic cells as well as hepatoblasts. The progenitor cells and hepatoblasts shows degeneration with pyknotic nuclei, karyolysis and karyorrhexis.

Conclusion: olanzapine causes hepatotoxicity in fetus if given to mother during pregnancy and should be used with caution in pregnancy.

2. Anatomical Study: The left main coronary artery and its branching pattern

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The coronary artery has two branches; the left coronary artery and right coronary artery. The left coronary artery has wide variation in its branching pattern. The purpose of present study was to determine the variations in the left main coronary artery and those of its branches in 35 heart samples taken from a group of the population from eastern part of U.P. and surrounding states including western Bihar, Jharkhand, Chhattisgarh, Madhya Pradesh and Nepal. Heart specimen were collected from the department of Forensic medicine and department of anatomy, Institute of medical sciences, Banaras Hindu University. Hearts were dissected to see coronary artery pattern specially left coronary artery.

The main trunk of Left coronary artery on anatomical evaluation had no single branching pattern. In 18 cases bifurcation (13 male, 5 female) trifurcation in 12 specimen, (10 male, 2 female) quadrifurcation was observed in 4 specimen (4 male, 0 female) and pentafurcation in one

(1 male). The percentage of branching pattern of LCA exhibited bifurcation pattern in 51.42%, trifurcation 34.28%, quadrifurcation 11.42%, pentafurcation in 2.85%.

Left anterior interventricular artery in 3 specimens reaches till the apex but more often turning around the apex into the posterior interventricular groove. The left circumflex artery terminated at left border in 37.14%, obtuse border-cruve 51.42%, at cruce 8.57%, cruce-acute border 2.85% and none of the specimen at right border. Myocardial bridging in left anterior interventricular artery territory total of 16 cases 14 were of male and 2 female

3. Study Of Arterial Pattern Of Normal Placenta By Corrosion Cast Method And To Correlate It With Its Surface Area

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Abstract: The aim of our study is to find out the arterial pattern of normal placenta by corrosion cast method and to correlate arterial pattern with the surface area. Two types of arterial patterns were found – Dispersed and Magestrial.

Method : 20 normal placenta were collected from labour room, Obstetrics and Gynecology department, S.N.M.C. and Lady Lyall Hospital, Agra. Exclusion criteria were hypertension, anaemia, diabetes, chronic renal failure in mother.

Injection Technique used for preparing cast. 15-20 ml of butyl butyrate dye (dissolved in acetone) was injected in umbilical arteries. Red in right umbilical artery and blue in left. Surface area was calculated by graph method.

Results : 70% placenta (14 in number) were of dispersed variety and 30% (6 in number) were of magestrial variety. Mean surface area was 326.56 centimeter square in dispersed variety and 262 centimeter square in magestrial variety. Maximum and minimum surface area in dispersed variety was 452 and 201 centimeter square. Maximum and minimum surface area in magestrial variety was 333 and 191 centimeter squares.

Conclusion : Dispersed variety were found in more number of cases. Surface area was greater in dispersed variety than in magestrial type.

Radio Anatomy

1. MRI Study of Degenerative Disc Disease in Lumbar Spine

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Introduction: The degenerative disc disease (DDD) is a common cause of low back pain (LBP) leading to physical disability. It occurs due to repetitive pathological trauma of

the “three-joint complex” of the spine (end-plate-disc-end-plate and the two facet joints). With the advancement of science and technology the replacement of inter-vertebral disc (IVD) is, currently possible and gaining acceptance. However since degeneration sets in not only at the IVDs but also at the two facet joints, it is imperative to study the frequency of concurrent occurrence of degenerative changes at the three joint complex. Hence the aim of present study is to assess prevalence of facet joint arthrosis in degenerative disc disease on MRI study of lumbar spine of lumbago patients.

Material & Method: For the present study 39 individuals with low back pain of age group 20-60 years, male(n=18), female (n=21) of NCR Delhi region were imaged with MRI and images viewed using K-Pacs software.

Results: The degenerative disc disease in form of disc herniation and decreased marrow space was commonly seen in lower lumbar region and was always associated with arthritic changes of corresponding facet joints. DDD was seen in 18 cases at joint level L5-S1, in 21 cases at vertebral level L4-L5 and in 15 cases at vertebral level L3-L4.

Conclusion: The degeneration of disc is maximum in the region of highest mechanical stress on the spine, viz: the lower lumbar region. A common sequelae of disc disease is facet joint arthrosis. Hence, arthrosis of facet joints should be analysed before planning for surgical replacement of IVDs for better post operative results.

2. A Study of Complete Fetal Posterior Cerebral Artery through MRI - Incidence and Clinical Significance

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Objective: Usually the PCA arises from the basilar artery, when the PCA originates from the ICA; such a condition is designated as fetal variant of the PCA (fPCA). It is further classified into complete fetal PCA (cfPCA) when the posterior cerebral artery originates completely from the ICA. The objective of the present study was to assess the prevalence of complete fetal variant of posterior cerebral artery in this part of population and compare those results with available data in literature.

Material and Method: GE OPTIMA MR 360(1.5 T) was used for obtaining the MRA. 92 MRA were reviewed, of the 92 subjects 70 were male and 22 female, aged between 20 - 75 years.

Result: Complete fetal PCA (cfPCA) was found in 6.5%. This variation was observed on the right side in 2.1% subjects and on left side in 4.2%. The males showed a predilection for this variation (4.2%) as compared to females (2.1%).

Conclusion: This variation occurred predominantly on the right side and showed a male dominance in this part of population.

3. Study Of Computed Tomographic Morphology Of Scaphoid

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The orientation of the carpal bones is such that their irregular morphologies can be utilized to some mechanical advantage. Their design is a compromise between motion and stability, allowing a unique combination of precise positioning and stability over a large range of motion. 60 human hands of adult male and female of age group (19-45 yrs) were selected for Computed Tomography (CT) in the study. We found in the type one wrist the capitate head was evenly positioned between either pole of the scaphoid with the wrist in a neutral position. In the type two wrists the capitate head was proximally positioned along the ulnar aspect of the scaphoid. This was observed as a proximal pole smaller in area and shorter in length than the distal pole. This may be used to identify wrist type and therefore apply a suitable course of treatment for the type of motion the carpal bones are likely to exhibit. This may improve the post-operative outcomes of surgical procedures aimed at improving wrist dysfunction.

4. Magnetic Resonance Angiographic Investigation of Azygous alias Monkey Type Anterior Cerebral Artery – Incidence and Clinical Significance

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Introduction: Azygous anterior cerebral artery (ACA) is one of the extremely rare variant occurring in the A2 segment of ACA, where the bilateral A1 segments unite together to form a single midline trunk. This trunk supplies both ACA territories. It has been also referred to as the unpaired pericallosal stem artery, unpaired anterior cerebral artery, common anterior cerebral trunk and azygous pericallosal artery.

Material and method : 1.5 T (GE OPTIMA MR 360) was used for obtaining the angiographs, 114MRA were reviewed., 90 male and 24 female, aged between 20 -75 years.

Result: The Azygous type anterior cerebral artery was present in (3.5%), in (1.75%) a long trunk depicting the classical Azygous anterior cerebral artery was present, while in (1.75%) a short median stem was present.

Conclusion: This type of presentation is a risk factor for development of aneurysm in distal part of ACA due to alteration of hemodynamics, sometimes this variation may be associated with vascular or nonvascular neurological anomalies like arteriovenous malformations, defects of septum pellucidum, Holoprosencephaly, meningocele.

5. Extramural Uncinate Process Cells: A Computed Tomographic Study

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The frontal, ethmoid, sphenoid and maxillary bones are the major osseous structures related to nose. Pneumatization of these bones results in a complex set of air cells, the paranasal sinuses. The anatomy of paranasal sinus is highly complex and variable. Therefore, in performing procedures such as functional endoscopic sinus surgery, intranasal orbital decompression, and transsphenoidal hypophysectomy, detailed knowledge of regional anatomy is very important. Computed tomography (CT) gives excellent anatomical soft tissue and bony detail of the paranasal sinuses and is the investigation of choice for the radiological diagnosis and evaluation of nasal and sinus diseases before surgery. Sinonasal anatomy was assessed in computed tomograms of 100 individuals (62 males and 38 females) between the age group of 15 years to 60 years. Study was conducted in Departments of Anatomy and Radiodiagnosis, King George's Medical University, UP, Lucknow. Extramural uncinata process cells were observed in 4 (2 unilateral, 2 bilaterally). Pneumatization of the uncinata process is due to the extension of sinus air cells within the anterosuperior portion of the uncinata process and may cause osteomeatal obstruction, narrowing of the infundibulum and impaired sinus ventilation.

6. A Study Of Transverse Cerebellar Diameter By Ultrasonography In 2nd Trimester Fetuses And Correlation With Gestational Age Of Fetuses, In Western Uttar Pradesh.

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Introduction: The evaluation of the posterior fossa of the fetal cranium has been accepted as part of the routine obstetric ultrasonographic (USG) examination. The size of the cerebellum or transverse cerebellar diameter (TCD) is important because it is a useful biometric parameter in estimating gestational age (GA) in the second trimester. TCD may be a more reliable predictor than biparietal diameter, since the posterior fossa is not affected by external pressure including fetal malposition, breech presentation or oligohydramnios, which may induce distortion of the fetal head. TCD can reliably be used in cases of femur achondroplasia where femur length is unreliable. Because TCD seems unaffected by intrauterine growth restriction (IUGR) measuring TCD is especially advantageous when IUGR is suspected or when GA is uncertain.

Aims And Objective:- To study Transverse cerebellar diameter by ultrasonography in 2nd trimester fetuses and correlate it with gestational age of fetuses, in western Uttar

Pradesh.

Material And Method:- Woman having Pregnancy between 14 to 24 weeks were considered for Ultrasound Examination. Patients who had any complication of pregnancy were not included in the study

Result:- The Karl Pearson correlation coefficient between gestational age & transverse cerebellar diameter was found to be -0.9543.

p-value is < 0.001 which was Highly significant.

During 14 to 24 weeks of gestation- transverse cerebellar diameter in mm was found equivalent to gestation age of fetus.

In Intra Uterine Growth Retarded Fetuses: - The value of measurement of Transverse Cerebellar Diameter was less than the normally grown fetuses, but statistically significant.

Conclusion:- In the normal & Intra Uterine Growth Restricted Fetuses the Transverse Cerebellar Diameter Increases with advancing age. Transverse Cerebellar Diameter Shows linear relationship with Gestational Age. This study shows highly significant correlation between Transverse Cerebellar Diameter & Gestation age in normal & intra uterine growth restricted fetuses.

7. Linear CT- Scan Lateral Ventricle Ratios Correlated To Diameters Of Cerebrum

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Introduction: Lateral ventricles of brain are enlarged with normal ageing, neurodegenerative diseases and in hydrocephalus. On Computerized tomography (CT), ratios of the width of ventricles to the width of skull or brain are probably the most easily made and reproducible ventricular measurements. Therefore, an attempt has been made here to correlate these ratios to the diameters of the cerebrum, as a part of PhD thesis work of 1ST author under the supervision of 2nd, 3rd, and 4th authors.

Aim: To study the lateral ventricles of brain by computerized tomography with the objective of (1) establishing the range of parameters for the diagnosis of mild ventricular dilatation. (2) Correlating these parameters with anteroposterior (AP) and transverse (TD) diameter of cerebrum, if any.

Material and Methods : A Retrospective study of 60 near normal CT scans-(head) collected from the department of Radiology and Imaging, G.B. Pant Hospital, (patient age 5 to 70 yrs) submitted to morphometric measurements of ventricles by Dicom Image software and data evaluation. Using axial views of cerebral hemispheres, Frontal Horn Ratio (FHR), Bicaudate Ratio (BCR), Evan's Ratio (ER), Bifrontal Ratio, Bioccipital Ratio and Cella Media Ratio

(CMR) were calculated and correlated to AP and TD of cerebrum using Pearson's correlation coefficient.

Results : Mean FHR was found to be .30 \pm .04 with (min .17 and max .50). Mean of BCR was found to be .12 \pm .03 with range from .05 to .21. Evan's Ratio was found to be .27 \pm .035 with ranges between .14 to .34. Correlation coefficient (r) between FHR and AP, TD was found to be -.11 and -.01 respectively. Mean cella media ratio was 0.22 \pm 0.04. Correlation coefficient between CMR and AP, TD was 0.38 and 0.27 respectively. Bifrontal ratio and Bioccipital ratio were 0.29 \pm 0.04 and 0.42 \pm 0.05 with r being 0.25(AP), 0.27(TD) and 0.13(AP), 0.03(TD) respectively.

Conclusions: There is very mild negative correlation between FHR and AP whereas none with TD. Maximum correlation was between CMR and AP whereas negligible between Bioccipital ratio and TD.

8. Anatomical Variations of Transverse Sinus: Magnetic Resonance Venographic Study

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The use of cerebral Magnetic Resonance Venography (MRV) is increasing in frequency as a noninvasive means of evaluating the intracranial venous system. This technique is particularly useful in the diagnosis of venous sinus thrombosis. Fifty patients (males=24; females=26) were selected for study with normal neurological status whose disease conditions did not seem to affect intracranial venograms. According to age, the study population was categorized into two groups i.e. ≤ 40 and > 40 years. Image findings of right and left transverse sinus were recorded. Four patterns of transverse sinus were observed i.e. dominant, non-dominant, co-dominant and flow-gap. The cumulative incidence of dominant pattern was 48% (36% on right and 12% on left side); non-dominant was also 48% (12% on right and 36% on left side); co-dominant was 50% and flow-gap was 36%. No significant association was seen for any of the comparisons, except that prevalence of flow-gap type of transverse sinus was significantly higher in older females.

9. Duplication Of Gall Bladder: Sonographic Detection Of A Rare Anomaly

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Congenital anomalies of gallbladder (GB) are rare findings in patients with symptomatic cholelithiasis or acute cholecystitis and may cause clinical and diagnostic problems or may be a trap for the unwary surgeon. Prevalence of duplicated GB has been reported as 1:4000 in autopsy studies of humans. Duplication of the gall bladder

may result from a split primordium or from an extra primordium. Several classifications have been proposed according to anatomic or embryologic development of the gallbladder. High degree of awareness through preoperative investigations and intraoperative cholangiography are necessary for preventing inadvertent damage to the biliary ductal system in these cases. By using Ultrasound (US), Endoscopic retrograde cholangiopancreatography (ERCP) or MR cholangiography (MRC) such cases can be diagnosed preoperatively. We report the presence of a double gallbladder in a 45 year old female as seen during routine ultrasound screening for complaints of pain abdomen. No surgical intervention was done for asymptomatic double gall bladder.

Gross Case Reports

1. A Rare Case Of Giant Gall Stone

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Introduction: Gall stone disease (cholelithiasis) is a well-known entity of gall bladder pathology. Its incidence is increasing with the change in our lifestyle and food habits. It occurs more in females than males and after the age of 40 years. Clinically it presents as acute cholecystitis with patient complaining of pain in right hypochondrium, vomiting, fatty dyspepsia etc.

Case Report: An 11 year old pre pubertal girl came to the surgical emergency of Primus hospital, New Delhi with history of acute upper abdominal pain, vomiting and mild jaundice. Ultrasound abdomen revealed a large echogenic area in the region of gall bladder suggesting cholelithiasis. Mild dilatation of CBD was also seen. Patient was prepared for a laparoscopic cholecystectomy but the procedure was unsuccessful due to altered anatomy of the region by adhesions and giant sized stone. So open cholecystectomy was undertaken. A big distended gall bladder with a giant stone within it was seen, pressing CBD from outside.

Discussion Formation of gall stone is a common feature of humans as a result of super saturation of bile constituents exceeding their maximum solubility. Some important factors playing pivotal role in stone formation are 1) peculiar histological structure of gall bladder, 2) genetic factor 3) environmental factors & food habits. Presence of crypts of Luschka in the mucosal lining of gall bladder provide a nidus for the deposition of bile salts, cholesterol and bile pigments. A gene named Lith 1 gene affecting cholesterol metabolism along with some important environmental factors like hypercholesterolemia, diabetes, obesity are considered to influence stone formation considerably. Most of the time the stone is cholesterol in its chemical composition. The gall stone generally presents as acute cholecystitis. It may slip into CBD leading to the formation of choledocolithiasis which causes its intramural obstruction. However, sometimes if the gall stone is of giant size, it may cause extramural CBD obstruction. In routine case of choledocolithiasis the treatment of choice is removal of stone

by ERCP. But if there is a giant gall stone causing extramural obstruction of CBD, than the treatment of choice is open cholecystectomy. This study also provides as one of the anecdotes of the conventional Courvoisier's law.

2. Anomalous High Origin Of Profunda Femoris Artery And Its Clinical Implications – A Case Report.

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The femoral artery, a continuation of external iliac artery is the main artery that supplies lower limb. It begins behind the inguinal ligament (mid inguinal point) and continues into popliteal artery as it passes through hiatus magnus. Anatomical variations concerning femoral artery are widely described but reports about the high origin of profunda femoris artery are few. In the present paper one such case of high anomalous origin of profunda femoris artery (deep femoral artery) have been reported. These variations gains great clinical importance during radiological and surgical procedures concerning femoral artery and its branches.

Also peripheral arteriograms are commonly used these days for evaluation of peripheral occlusive arterial diseases, arterial status in trauma, demonstration of the vascularity of malignancies etc. The accessibility of femoral artery to catheterization and thereby to investigation of any arterial system in the body is well established. The profunda femoris artery is used for arteriography, ultrasound and doppler imaging, digital subtraction angiography and magnetic resonance imaging. The ever expanding scope of interventional radiology reaffirms the importance of this case report.

3. Variation In Testicular Vein & Renal Vasculature

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During routine dissection of a middle aged male cadaver certain variations in the renal vasculature and testicular veins were observed. On the left side there was an additional renal artery arising from the aorta. Also there was an accessory renal vein that drained directly into the I.V.C. In the right side the testicular vein drained into the renal vein which normally drains into the I.V.C. The possible embryological basis and clinical implications of the variations will be discussed at the conference.

4. Ossified Pterygospinous Ligament-A Case Report

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A case of bilateral ossified pterygospinous ligament has been found in a skull during routine study of bones. Pterygospinous ligament extends from the pterygospinous process of the lateral lamina of the pterygoid process of the sphenoid bone, to the spinous process of the sphenoid bone,

in the infratemporal fossa. Occasionally pterygospinous ligament ossifies and in such cases between its upper border and the base of the skull, a foramen is formed known as pterygospinous foramen. Anomalies involving the pterygospinous ligament may not only be of academic interest but also be beneficial for maxillofacial and dental surgeons and in the anesthetic treatment of mandibular nerve entrapment and for therapeutic treatment of trigeminal neuralgia.

5. Bilateral Origin of Superficial Ulnar Artery: A Rare Variant

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Background: Variations in upper limb arterial vascular anatomy evoke considerable interest to surgeons as well as to vascular radiologists. Most of the anomalous patterns although cause no functional consequences, occasionally some of these arterial variations may cause serious problems in a wide range of clinical situations. The most frequent described anomaly in numerous cadaver and clinical studies is unusually high origin of the radial artery from the brachial artery, followed by the superficial ulnar artery, which replaces the normal ulnar artery. The incidence has been reported to be 0.7% to 9.38% of cases according to few authors. Although unilateral presence of this anomaly is not common, bilateral cases of a superficial ulnar artery are even rare. **Material & Methods:** During routine dissection for medical undergraduates in a medical college of northern India, an unusual ulnar artery arising from the brachial artery bilaterally was observed in a 63 year old female cadaver. The level of origin was different on both sides but termination, course and relations were same. Both the arteries had superficial course in the whole arm and upper two third of forearm. These bilateral ulnar arteries were termed as superficial ulnar arteries due to their subcutaneous or superficial course. The course, relation and branches of these arteries were studied. **Conclusion:** In the present case report, a rare anomaly of high bilateral bifurcation of brachial artery with superficial course of the ulnar arteries in both forearms was observed. Its clinical and embryological significance will be discussed.

6. Variation In Origin, course And Distribution of The Celiac Trunk And Its Branches.

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The celiac trunk (Truncus coeliacus), firstly observed by Haller in 1756, is the first collateral visceral branch of the abdominal aorta. Normally, It gives rise three branches, i.e. left gastric artery, common hepatic artery and splenic artery. During the routine dissection, a rare variation in origin, course and distribution of the celiac trunk and its branches were observed in a 50-year-old male cadaver.

In the present variation revealed that there are two common

sub-trunks has been arisen from the celiac trunk, i.e. hepatopancreatic and gastrosplenic sub-trunk. The hepatopancreatic sub-trunk gives two branches, i.e. pancreatic and common hepatic artery. The pancreatic artery travelled along the anterior border of pancreas and supplies to its corresponding areas. The common hepatic artery divides into two terminal branches, i.e. proper hepatic and gastroduodenal artery, both run their normal course. The gastrosplenic sub-trunk, after its origin from left side of the celiac trunk, travels upward and gives left gastric artery and the main trunk continues as splenic artery, which crosses the anterior aspect of the left half part of the pancreas and then divides into two terminal branches near the hilum of spleen. The other branches of the splenic artery are short gastric, left gastroepiploic artery etc originate from their corresponding sites. This anatomical variation would provide useful information during surgical and radiological intervention.

7. Bilateral Early Branching of Renal Arteries Associated With Presence of an Accessory Renal Artery and Superior Polar Artery: A Case Report

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Proper knowledge of variations of the arteries supplying the kidney is essential not only to the anatomists but also to the surgeons.

In the present case we observed that:

- (1) Bilateral early branching of the renal arteries,
- (2) Presence of accessory renal artery on the left side,
- (3) Presence of superior polar artery on the right side.

Further details will be discussed at the time of conference.

8. A Variation in Origin of Abductor Digiti Minimi and Its Clinical Significance: A Case Report

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Background: Abductor digiti minimi is situated on the ulnar body of the palm of the hand and it forms the hypothenar eminence. Guyon's canal or the carpal ulnar neurovascular space has been defined as the tunnel extending from the palmar carpal ligament at the proximal edge of the pisiform bone to the hamulus of the hamate bone. The ulnar nerve may be compressed within the Guyon's canal by anomalous muscles or ulnar artery thrombosis. Various studies have reported the frequency of aberrant Abductor digiti minimi in approximately 22 to 35% of hands.

Material and methods: During routine cadaveric dissection for undergraduate medical students, unilateral variation in the origin of abductor digiti minimi was noted on the left upper limb of a 77 year old male cadaver.

Result: The variant abductor digiti minimi in the present

case study was composed of two well – defined medial and lateral heads. The medial head originated from the pisiform bone. The lateral head arose from the Palmaris longus tendon and crossed over the ulnar nerve and ulnar artery in the Guyon's canal. The two heads fused to form a muscular body that was attached to the ulnar side of the base of the fifth proximal phalanx. No variation in the right upper limb was observed. It is innervated by the deep branch of ulnar nerve.

Conclusion: Knowledge of variations of the abductor digiti minimi is useful to surgeons as this distinct morphology may potentially lead to ulnar nerve entrapment in Guyon's canal.

9. Unilateral Higher Division Of Sciatic Nerve – A Case Report

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The Sciatic Nerve which is the thickest nerve in the human body is the continuation of the upper band of the sacral plexus. It has two divisions- Tibial and common Fibular Nerve, which are attached together by fibrous sheath. The nerve leaves the pelvis via Greater sciatic foramen below the Piriformis and then divides at the apex of Popliteal fossa and supply greater part of the lower limb, however, it may divide within the Pelvis and the two components may leave the Pelvis through different routes. This variation can lead to entrapment neuropathy called 'Piriformis syndrome'.

While doing routine dissection in the Department of Anatomy, Hind Institute of Medical Sciences, Safedabad, Barabanki, (U.P.) in an adult male cadaver, unilateral higher division of sciatic nerve (inside the pelvis) on the right side was observed.

Such type of high division of Sciatic nerve may result in Sciatica, nerve injury during deep intramuscular injection in Gluteal region and unsuccessful Sciatic nerve block in anaesthesia and so on. So the knowledge of the variations in division & course of Sciatic nerve may help surgeons and all those who are concerned to avoid complications and plan their intervention in a better and more effective way.

10. Musculus Sternalis- A Rare Case Report

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Musculus sternalis is a variant chest wall muscle found in its anterior wall along the side of sternum. During routine dissection of 75 years old male cadaver, we observed a muscle just lateral to the midline superficial to the sternum in the right side of anterior chest wall. The muscle was lying superficial to the pectoralis major muscle. It took origin as muscular slips from 4th, 5th and 6th costal cartilage on the

right side, soon became tendinous and coursed upward in between the origins of pectoralis major muscle of both sides in the median plane of sternum. It continued upwards to the sternal notch and attached to the sternal head of sternocleidomastoid muscle of both the sides. Some fibers of both pectoralis major muscle were also arising from this muscle. The shape of this muscle was giving a characteristic Y shape pattern like a "tie". It derived its blood supply through small branches of right 2nd to 5th intercostal vessels and nerves of the right 2nd to 5th intercostal spaces. Knowledge concerning the variations of chest wall musculature is imperative for surgeons, radiologists and anatomist.

11. Bilateral Variation in Origin of Sternocleidomastoid Muscle A Report from Cadaveric Dissection

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Aim of study: Sternocleidomastoid is an important landmark for division of anterior and posterior triangle of neck. Morphological variations of it must be kept in mind while approaching the region for any surgical intervention to avoid complications. Moreover an extra belly can be utilized for myocutaneous flap in this region.

Material and Methods: During routine dissection of head and neck region on a 65 yr old female cadaver, the region of neck was exposed. Variation in origin of Sternocleidomastoid muscle was observed bilaterally.

Results: Instead of two heads, Sternocleidomastoid muscle originated by four heads. On right side there were two sternal and two clavicular heads. Similarly on left side it originated by four heads, one sternal and three clavicular.

Conclusion: As Sternocleidomastoid is a landmark muscle of neck, variation of its attachment becomes important from surgical and academic point of view. Details of the study and its clinical implication will be discussed during the presentation.

Abstract - Poster

1. Foramen of Sternum –a Case Report

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Introduction: The sternum or the breast bone is a flat axial bone forms the median part of the anterior thoracic wall. It resembles a short sword. It has three parts the upper is the manubrium, the middle part is the body and the lower part is the xiphoid process or xiphisternum. The average length of the adult sternum is approximately 17.2 cm and which is longer in males than females. Mesosternum (body) of the sternum ossifies from four sternabrae and due to incomplete fusion leading to sternal foramen.

Case Report: The foramen was found in one sternum during routine osteology class for first year MBBS students

in the year 2014, in the anatomy department of the Rohilkhand Medical College and Hospital, Bareilly. The location of the foramen was noted from both the anterior and posterior surface of the sternum. The circular foramen was present in the lower 1/3rd of the body of the sternum. The edges were smooth, well ossified, rounded and covered by cortical bone. The length and width of the sternal foramen were 6mm and 5mm respectively and the size was measured by using sliding caliper. The distance of the foramen from the midpoint of manubriosternal joint to the upper margin of foramen was 6.4cm and from the midpoint of the xiphisternal joint to the lower margin was 2.8cm. The distance from the right lateral margin was 2.2cm and from the left lateral margin was 2.3cm. Such a foramen in an adult sternum is very rare.

Conclusion: The sternal hole or foramina is an important anatomical variation due to incomplete fusion. It has significant clinical importance as it is close to vital organs like heart, lungs and great vessels. Knowledge of such sternal variations is important to clinicians to prevent the fatal complications during the bone marrow aspiration in the lower part of the body of the sternum.

2. Interparietal(Inca) Bone –a Case Report

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Introduction: Anomalies are commonly seen in all regions of human body and are of considerable significance. The squamous part of occipital bone consists of two parts, supraoccipital and interparietal. The interparietal portion ossifies intramembranously and in rare cases may be separated from the supraoccipital part by a suture, it is then called as the interparietal or the inca bone. The interparietal bone, one of the nonmetric variants has been reported by other workers in other global region. It is however not very common and its incidence varies.

Result: Out of 36 skull studied in the anatomy department of Rohilkhand medical college, Bareilly, India, in one skull a non metric cranial variant was detected

Discussion: Occurrence of interparietal bone is rare. Srivastava, in a study of 620 skulls found complete separate interparietal bone in 3 skulls with an incidence of 0.8% . Yucel et al., in a study of 544 skulls, found the incidence of 2.8%. Saxena et al., in a study of 40 nigerian skulls found the presence of interparietal bone in only one skull with an incidence of 2.5%. Marathe et al. found the presence of inca bone in 5 out of 380 skulls from Central India with an incidence of 1.315%. Earlier studies in Central and South Asian region estimated the frequency of all types of inca bone in Tibetan and Nepalese to be 0.0732, Assamese and Sikimise 0.0635, East Indian 0.0403, South Indian 0.0056, Northwest Indian 0.0514 and Kazakhs population to be 0.0 respectively. Berry et al. reported 2.9 to 4.6% incidence in

American population of South West coast. Hanihara & Ishida found frequency distribution of inca bones in Turkey to be 1.59%.

Conclusion: Knowledge of inca bone in human skull may be useful to neurosurgeons, orthopedic surgeons, anthropologists, radiologists and forensic experts.

3. Variation In Placental Attachment of Umbilical Cord

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Sri Ram Murti Smarak Institute Of Medical Sciences, Bareilly

Aim: To evaluate the variations in umbilical cord attachment to placenta by dissection method.

Materials and Methods: Placenta for this study were obtained from the OBG Department and collected in the Department of Anatomy SRMS IMS. The placentae were washed, cleared, dissected and site of placental attachment to umbilical cord were observed. Variations in the type of insertion were noted and various measurements were recorded.

Results: Majority of the placentae showed central and eccentric attachments of the cord. Few abnormal placentae were observed with velamentous and marginal insertions of the umbilical cord.

Conclusion: Abnormalities in placental attachment of umbilical cord can result in various complications of pregnancy and adversely affect the foetal outcome as well. Knowledge of the variations in attachment of the umbilical cord is very significant and of extensive use to obstetricians as well as anatomists. Frequently abnormal cord insertions may be associated with intrauterine growth retardation, preterm labour and congenital abnormalities.

4. Gross Anatomical Study of Caudate Lobe of Liver

Dr. Stuti Srivastava, Dr. Virendra Kumar

Shri Ram Murti Smarak- Institute of Medical Sciences, Bareilly.

Aim: To study the morphological variation of caudate lobe of liver.

Materials and Methods: This study was undertaken on 30 cadaveric liver available in the Department of Anatomy of Shri Ram Murti Smarak Institute of Medical Sciences Bareilly in terms of length, maximum transverse diameter, shape, external variations of caudate lobe of liver using vernier caliper.

Results: The triangular caudate lobe presents only caudate process and no papillary process. The apex of the triangle was facing towards the superior border and base towards the porta hepatis.

The sides of the triangle: right:43.92mm, left:51.19mm and base(transverse diameter):19.63mm.

Conclusion: Knowledge and awareness of these anomalies is useful to the morphologists and anatomists for variants. It

is also important for Embryologists for developmental variations, Clinicians for the diagnosis and management of hepatic diseases, Surgeons during segmental resection of liver and Radiologist when interpreting liver radiological findings.

5. Morphometry of stylomastoid foramen and its clinical application in facial nerve block

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Background: Stylomastoid foramen is an important site for Nambath facial nerve block. Exact localization of foramen holds the key to success, thus decreasing the complications. Wide racial variation exists in position of stylomastoid foramen in different population groups. **Aim:** The aim was to study the morphometry of stylomastoid foramen and its location with respect to nearby anatomical landmarks. **Materials and Methods:** A total of 100 dry skulls (60 male and 40 female) were studied to locate the position of center of stylomastoid foramen (CSMF) with respect to tip and anterior border of the mastoid process and jugular foramen (JF). Along with this angle between antero-posterior line passing through the tip of the mastoid process and line joining the tip with stylomastoid foramen was also measured.

Result: In 83.51% sides of skulls, the most common position of foramen was found to be anterior to the line passing through anterior border of the mastoid process. The mean distance of center of foramen from the tip of the mastoid process was 15.26 ± 1.4 mm on right and 14.32 ± 1.8 on the left side ($P < 0.001$) and from JF was 12.28 ± 1.9 mm and 12.96 ± 2.1 mm on the right and left sides, respectively ($P < 0.01$). The position of CSMF was found at an angle of $66.57^\circ \pm 2.6^\circ$ and $65.96^\circ \pm 1.8^\circ$ on the right and left sides, respectively from the tip of the mastoid process. **Conclusion:** This study makes possible the identification of the exact position of stylomastoid foramen and its application in facial nerve block.

6. Awareness Of Voluntary Body Donation Among General Population: A Survey Report

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Introduction: Number of medical colleges in India is increasing from last few years. Also demand for cadavers for dissection and research purposes is growing. However, there is an insufficient supply of donated cadavers available for dissection. Present study was undertaken to assess the awareness of voluntary body/ organ donation programmes among general population and their willingness to donate.

Materials & Methods: A total of 320 adult individuals from Moradabad city (Uttar Pradesh) participated in a survey by structured pre tested questionnaire composed of questions regarding awareness of body donation programs, and

willingness to donate.

Results: Detailed results will be discussed at the conference.

Conclusion: Efforts should be undertaken to change the attitude and knowledge regarding body/ organ donation of the wider Indian society to overcome the current shortage of cadavers. This is possible through awareness campaigns and those prospective donors' beliefs and customs should be addressed appropriately.

7. Normal Retinal Nerve Fibre Layer (RNFL) Thickness in Indian Population: Optical Coherence Tomogram

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Purpose: To determine the effects of age, optic disc area, ethnicity, eye, gender, and axial length on the retinal nerve fibre layer (RNFL) in the normal human eye as measured by optical coherence tomography.

Design: Cross-sectional observational study.

Participants: Twenty-five normal subjects 10 to 65 years old.

Methods: Peripapillary Fast RNFL scans performed by FD-OCT with a nominal diameter of 3.46 mm centered on the optic disc were performed on both eye of each subject.

Results: The RNFL thickness varies from 100µm to 315µm from periphery or ora serrata to fovea. The mean RNFL at fovea, at inner macula, at outer macula and at ora serrata were $235.95 \pm 21.91 \mu\text{m}$, $304.84 \pm 22.12 \mu\text{m}$, $286.25 \pm 20.57 \mu\text{m}$ and $111.64 \pm 12.6 \mu\text{m}$ respectively.

Conclusions: Retinal nerve fiber layer thickness, as measured by OCT varies significantly with age, ethnicity, axial length, and optic disc area. These variables may need to be taken into account when evaluating patients for diagnosis and follow-up of glaucoma, myopia induced glaucoma and myopia particularly at the lower boundary of the normal range.

8. Comparative study of foot arch index among Indian and Nigerian students.

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Foot forms an important support for the body which continually endures high ground reaction forces generated during activities of daily living. Repeated excessive loading may stretch ligaments beyond their elastic limit damaging soft tissues and increasing the risk of foot pathology. The skeletal anthropometric parameters are also influenced by a number of factors producing variations between different geographical areas. Therefore the present was undertaken to correlate foot arch index with body mass index among

Indian and Nigerian students.

Methodology: A total number of sixty students comprising of (30 males and 30 females) aged between 18 to 25 years were randomly selected. The parameters obtained from the participants included height, weight, and body mass index. Foot arch index was calculated from foot prints taken on a graph paper.

Result: the findings will be presented.

Conclusion: the findings from this study may act as data base in anthropometric studies for future references.

9. Absence Of Lumbricals – A Case Report

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The human hand is a revolution in evolution. Indeed the lumbricals of the hand by producing flexion at the metacarpophalangeal joints and extension at the interphalangeal joints helps in writing, stitching and any other forms of precision work. The index and middle finger lumbricals are unipennate muscles originating from the radial side of the FDP tendon. The ring and small finger lumbrical muscles arise from bipennate muscle bellies on the adjacent surfaces of the FDP tendons, pass volar to the interpalmar plate ligament, and distally insert into the radial side of the lateral band of the extensor tendon. From origin to insertion, the lumbricals pass volar to dorsal. The origins and insertions of the lumbrical muscles vary considerably among individuals. Materials and methods: During routine dissection for undergraduate medical students in the Department of Anatomy, SRMS IMS Bareilly, we observed one of the rare anomalies of lumbricals that is absence of lumbricals in hands. Results: We observed bilateral absence of lumbricals during routine dissection. It is one of the rare anomalies. In the left hand, 3rd and 4th lumbricals were absent and 1st and 2nd lumbricals were present and their origin and insertion is normal. In the right hand all 4 lumbricals were absent. Conclusion: This type of variation is interesting not only to anatomists, but also to orthopedic surgeons, physiotherapists, and radiologists. The above reported variation may be significant for the hand surgery.

10. Some Bony Variations In Cranium

Dr. Renu Agarwal

D.J. College of Dental Sciences And Research

1. Interparietal bone it is large triangular bone located at apex of squamous occipital. This represents part of occ. bone which ossifies in membrane above highest nuchal lines. Occasionally it fails to fuse with rest of bone

2. Sutural bones : also called Wormian bones. these are small irregular bones found in the region of fontanelles. These are most common at lambda, and at asterion, in frequent at pterion and rare at bregma. These are formed by additional ossification centres and are common in hydrocephalic skulls.

3. **Tegmen tympanii:** is a part of petrous temporal bone .It is present in middle cranial fossa .It has a downturned edge which is seen in the squamosotympanic fissure and divides it into petro tympanic and petro squamous fissures.

4. **Metopic suture:** frontal bone ossifies in two halves. At birth these remain separate at a mid line suture called metopic suture. this is replaced by bone by two years after birth. In 2-8% remnants of metopic suture are seen at glabella.

5. **Ossified carotido- clinoid ligament :** this ligament is sometimes present between middle clinoid and anterior clinoid processes, rarely it becomes ossified. Terminal part of internal carotid artery passes through the foramen thus formed between ligament and body of sphenoid .

6. **Ossified pterygo spinous ligament:** pterygo spinous ligament is present between pterygo spinous process from posterior border of lateral pterygoid plate and spine of sphenoid rarely it gets ossified.

11. Shape of External acoustic Meatus in north Indian crania (Predominantly Harynavi)

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Department of Anatomy, PGIMS, Rohtak, Dr. P. Raghavan Visiting Sr. Scientist school of archaeology Australia

It is a matter of common experience that in dealing with crania of different racial types, an impression of racial affinity and differences may often be introduced. Skeletal non-metric variables are widely used for such studies. Genetic factors and the usefulness of non-metric traits in population studies were conducted by many workers. In spite of the similarities exhibited on superficial morphological or physical characteristics on various ethnic groups in India, there are considerable numbers of variations observed among the Indians 84 non-metric traits of the north Indian crania are studied. For the study 150 complete skulls (115 males, 35 females) were used. The crania were retrieved and available in the department of Anatomy, Pt. B.D. Sharma PGIMS Rohtak. The current investigation will focus only on the shape of external auditory meatus. Shape of external auditory meatus was oval/ ellipse in most of the cases in north Indian crania specially on left side. When data of two sexes was compared it was surprising to observe that in 100% cases shape of meatus was either oval of ellipse and nerve round on the left side. In the present study shape of external auditory meatus was observed as oval of ellipse in most of the cases specially on the left side and this feature is mongoloid in our population. Present study has proved that in addition to Caucasoid and Negroid features, crania of present series have some resemblance with Mongoloid too. Study of shape of meatus will help in racial identification in medico legal cases.

2. The Dehiscent Facial Canal

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Accidental injury to the facial nerve where the bony canal defects are present may result with facial nerve dysfunction during otological surgery. Therefore, it is critical to know the incidence and the type of facial nerve dehiscences in the presence of normal development of the facial canal.

An incidental tympanic segment dehiscence of facial nerve canal has been encountered by our team during middle ear exploration in a 35yrs old male patient with otosclerosis.

A study has been done earlier to review the site and the type of such bony defects in 144 patients operated for facial paralysis, myringoplasty, stapedotomy, middle ear exploration for sudden hearing loss, and so forth, other than chronic suppurative otitis media with or without cholesteatoma, middle ear tumors, and anomaly. Correlation of intraoperative findings with preoperative computerized tomography was also analyzed in 35 patients. Conclusively, one out of every 10 surgical cases may have dehiscence of the facial canal which has to be always borne in mind during surgical manipulation of the middle ear. Computerized tomography has some limitations to evaluate the dehiscent facial canal due to high false negative and positives.

13. Nasal Dermoid –A Case Report

Varun Singh

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Nasal dermoid is a rare developmental anomaly. Unlike other craniofacial dermoids, the nasal lesions can present as a cyst, a sinus, or a fistula & may have an intracranial extension. The incidence is estimated at 1:20000 to 1:40000 births. Pathogenesis involves the incomplete obliteration of neuroectoderm in the developing frontonasal region. Progressive enlargement of a nasal dermoid can cause soft tissue and skeletal deformity, local infection, meningitis and brain abscess. Timely diagnosis is essential and surgical excision is the only therapeutic modality. A 13 yr. Old girl came to our OPD with complaint of hair emerging from an oval shaped depression present on the bridge of the nose & also complained of occasional discharge of pus & serous material. She did not complain of any watery discharge or headache. On enquiry, the patient did not give history of increase in size of lesion or discharge on coughing or crying. On examination, an oval depression measuring in size of 1X3 cm. was present on the upper 1/3 of nasal bridge and tufts of hair were seen emerging from the depression. This case was diagnosed by our team as Nasal dermoid sinus cyst.

14. Quadrifurcation Of Celiac Trunk: An Unusual Anatomical Variation.

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The celiac trunk or truncus coeliacus, is the first major branch

of the abdominal aorta. It is one of the three anterior/ midline branches of the abdominal aorta. The three main divisions of the celiac artery are left gastric artery, common hepatic artery and splenic artery. The additional branches of the trunk may include the inferior phrenic artery, gastroduodenal artery, middle colic artery, dorsal pancreatic artery, Jejunal or duodenal branch.

We present an unusual case report of celiac trunk with four divisional branches. This anatomical variation has important bearing in the abdominal surgeries as vascular patterns are important in the planning and performance of all upper abdominal surgical procedures for appropriate vascular ligation and anastomosis.

15. Double Ureter And Duplex System

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Guided by: C.S.Ramesh Babu, Muzaffarnagar Medical College, Muzaffarnagar

Dr. O.P. Gupta, Dr. OP Gupta Imaging Center, Meerut.

Duplex collecting system is one of the most common congenital urinary tract anomalies present in 0.7 % of normal adult population. Duplex kidney is defined as the renal parenchyma with two pyelocalyceal systems. Partial duplication is the duplex kidney drained by bifid ureter – two ureters that unite before opening into urinary bladder. Complete Duplication - single renal parenchyma that is drained by two ureters draining separately into urinary bladder. Embryologically duplication occurs when two ureteric buds arise from a single mesonephric duct. Two cases of duplex collecting system is presented. In the first case partial duplication was observed on right side in a 36 year old female. Two pyelocalyceal systems drain the duplex kidney and join to form a single ureter at L-4 level (Bifid ureter; ureter fissus). In the second case in a 30 year old male double ureters (complete duplication) draining the duplex left kidney was seen with the ureter draining the upper pole opening inferomedial to the ureter draining the lower pole according to the Weigert-Meyer Rule. Clinically such duplication anomalies may remain asymptomatic in some cases or may be associated with obstructive uropathy, lithiasis and vesicoureteral reflux in some.

16. Fetal Type Posterior Cerebral Artery

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Arterial supply of cerebral hemispheres is considered to include an anterior circulation formed by Internal Carotid artery (ICA) and its branches and a posterior circulation formed by posterior cerebral artery (PCA) branch of vertebro-basilar system. The two circulations are communicating with each other through Posterior Communicating artery (PCoMA) at the base of brain forming the Cerebral Arterial Circle of Willis. PCoMA

connects the ICA on each side with the PCA thus connecting anterior with posterior circulation. If PCA arises as a branch of ICA then it is called as “Fetal type PCA” in which P-1 segment of PCA is absent or narrower than the PCoMA.

Prevalence of fetal type PCA varies from 4.4 % to even up to 40 %. This variant is more common unilaterally than bilaterally. It is more common on the right side and in males. Two cases of partial fetal type posterior cerebral artery were observed in two brains removed from male cadavers. Both fetal PCAs were present on the right side with very narrow P-1 segment of PCA. Clinically the presence of fetal origin of PCA implies that ICA is the dominant blood supplier and thrombosis or embolism of ICA may cause ischemia or infarction of occipital pole.

17. Right Ectopic Duplex Kidney With Left Renal Agenesis

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Renal ectopia refers to a kidney that is located on the proper side but in an abnormal position. Ectopia occurs due to faulty migration of the metanephric blastema during development. Duplex system is defined as the kidney with two pyelocalyceal systems which may have a single or bifid ureter (Partial Duplication) or double ureters. Unilateral renal agenesis implies failure of development of kidney on one side. In this presentation, we describe a very rarely reported condition of a duplex kidney with bifid ureter situated ectopically in the right iliac fossa with agenesis of the left kidney.

An ectopically located duplex kidney in the right iliac fossa with agenesis of left kidney was observed in a 17 year old male patient. The duplex kidney is drained by a bifid ureter (partial duplication) and supplied by two renal arteries. The upper renal artery originates from aorta but the lower renal artery originates from the left common iliac artery. Ectopic contralateral origin of renal arteries is extremely rare and only one or two cases have been reported in the literature. Unilateral renal agenesis (URA) occurs 1 in 1100 births. URA is more common in males compared to females with a ratio of 1.8 : 1. It is more common on the left side. Some of the congenital renal anomalies like ectopia, URA and duplex systems may remain asymptomatic and detected incidentally. Thorough knowledge of such anomalies is essential for radiologists, laparoscopic surgeons and urologists.

18. Simple Right Renal Ectopia

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Normally kidneys are located retroperitoneally in the upper part of posterior abdominal wall in the 'renal fossae'. When a kidney is located on the proper side but in an abnormal position then the condition is called as Simple Renal Ectopia. Renal ectopia is a congenital anomaly found in 0.2 % of patients presenting with abdominal complaints. A case of simple renal ectopia in a 72 year old male patient is presented here. Right kidney was located ectopically in the right iliac fossa whereas the left kidney was normally positioned. Left kidney is supplied by a single left renal artery from aorta having a tortuous course. Ectopic right kidney is supplied by two renal arteries. The upper right renal artery arises from aortic bifurcation and turns to the right crossing the right common iliac artery and then passing anterior to IVC (precaval position) to reach the right kidney. Lower RRA arise from the right common iliac artery. Hilum of ectopic kidney is directed anterolaterally.

Incidence of ectopic kidney at autopsy varies from 1 in 500 to 1 in 1200 but the average occurrence is about 1 in 900. Renal ectopia is generally associated with malrotation. In 90 % cases unilateral ectopia occurs, more common on left side. Pelvic position is more common. It is slightly more common in males. Developmentally renal ectopia results due to arrest of the ascent of the kidney.

19. Triple Right Renal Veins And Bilateral Multiple Renal Arteries

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Normally each kidney is supplied by a single renal artery and drained by a single renal vein. The longer left renal vein crosses in front of aorta to join inferior vena cava (IVC). The shorter right renal vein joins the IVC directly. Renal vascular variations are common. Renal artery variations are more common on the left side and venous anomalies are common on the right side. We present renal vascular anomalies observed in a 28 year old male patient. Right kidney was drained by three renal veins; the lower RRV passes downwards to join IVC at the level of L3 vertebra. The upper two RRVs join IVC opposite to the level of LRV. LRV has a normal preaortic course. Left kidney is supplied by two renal arteries and right kidney by three arteries. Lower two right renal arteries have a precaval course before reaching the right kidney.

Presence of additional renal veins are more common on the right side with a frequency of 7 – 38 % in comparison to the left side with a frequency of 1-3 % only. Reported incidence of triple right renal veins is 4.0%. Knowledge of such renal vascular anomalies is essential for surgeons, urologists and radiologists.

20. Retroesophageal Right Subclavian Artery

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Retroesophageal right subclavian artery is a rare congenital anomaly of branching pattern of arch of aorta. It is sometimes referred to as "arteria lusoria" or aberrant right subclavian artery. Its reported prevalence is 0.4 % to 2.0 %. (Loukas et al. 2004). Hasan et al (2013) reported that it is more common in females. Berko et al (2009) after reviewing CT images of 1000 cases reported the presence of aberrant right subclavian artery in 1.2 % cases. When right subclavian artery arises as the last branch of arch of aorta after the origin of left subclavian artery, it passes upwards and to the right generally posterior to esophagus (retroesophageal course) to reach the root of neck.

Aberrant origin of right subclavian artery was detected incidentally in a 46 year old male patient when he underwent contrast enhanced MDCT examination for the suspected lymphadenopathy. Aberrant or retroesophageal right subclavian artery develops due to abnormal involution of right fourth arch artery and part of right dorsal aorta up to the level of 7th intersegmental artery and persistence of part of right dorsal aorta distal to 7th intersegmental artery. Clinically this anomalous vessel may compress the esophagus and cause dysphagia, though in our case the patient had no complaint of dysphagia.

Abstract - Osteo-1

1. Variations Of Sacralization Of Fifth Lumbar Vertebrae

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Aim of study: Attempt to analyze the morphology of sacrum, with complete and partially fused fifth lumbar vertebrae and compared with those observed in normal sacrum. To calculate the frequency of variations related to sacralization of 5th lumbar vertebrae.

Materials and Methods: Fusion between fifth lumbar vertebrae and first sacral vertebrae was observed on both side between their transverse process, articular facets, bodies and lamina in 45 adult sacrum of unknown gender followed by calculation of frequency of each variant in percentages along with comparison with findings of other workers.

Results: The most common feature found among the specimen of sacralization of lumbar vertebrae was fusion of transverse process of 5th lumbar vertebrae with the transverse process of 1st sacral vertebrae showing the frequency of 95.45% and the least common feature found in the specimen of sacralization of lumbar vertebrae was fusion of lamina of 5th lumbar vertebrae with lamina of 1st sacral vertebrae with a prevalence of 31.82%. Only 27.23%

specimen showed presence of all the features of sacralization. Prevalence of sacralization was found to be 24.44% in present study, which is far higher than the prevalence noted by other workers. Fusion of transverse process and articular facets was more prevalent on right side, while fusion of lamina was common on left side.

Conclusion: Sacralization of the fifth lumbar vertebrae may be of Frank sacralization or Occult sacralization. Unilateral defect types may give rise to uneven weight bearing. There is controversy regarding the low back pain due to sacralization. The study may be helpful to orthopedicians, physiotherapists and neurosurgeons to know the correlations between the sacralization and low back pain in differential diagnosis before applying sophisticated diagnostic techniques.

2. Study of Cephalic Index of North Indian Students in Teerthanker Mahaveer University

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Background: Cephalometry is the scientific measurement and morphological study of all the structures present in the human head. It acts as an important tool for forensic experts and Anthropologists to determine the sexual, racial variations and in medicolegal cases.

Aims: To study of cephalic index of North Indian students in Teerthanker Mahaveer University (TMU).

Settings and Design: Cephalic Index of 800 North Indian students in TMU with 400 males and 400 females with age ranging 17-25 years using spreading calipers.

Methods and Material: Study was conducted on 800 North Indian students in TMU with 400 males and 400 females with age ranging 17-25 years using spreading calipers. Measurements for maximum head length were taken from Glabella to Inion, while maximum head breadth taken between two Porions, sitting relax with head in anatomical position, using Hrdlicka's method (1952).

Statistical analysis: Statistical analysis was done with "Z" test, with 5% level of significance was applied (P value = ± 1.96).

Results: The majority of subjects fell in Brachycephalic group, the head breadth of male and female were higher than their head length. The mean cephalic index of male and female suggested the Brachycephalisation of the population.

Conclusion: Brachycephalic dominancy in the population and continuous growth of brain more in lateral direction. This is useful for forensic experts, plastic surgeons, anatomists, anthropologists, oral surgeons and for clinical and research purposes.

3. Accessory Mental Foramen

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Aim of the study: To study the incidence of accessory mental foramen. **Materials and methods:** 28 mandibles were examined in Department of Anatomy, Rohilkhand medical college, Bareilly, UP to study the significance of accessory mental foramina in this region. **Results:** Out of 28 mandibles which were examined in this study the incidence of accessory mental foramen, a mandibular variant only in 2 mandibles we could find this anomaly. This accessory mental foramen was present bilaterally. In first mandible one accessory mental foramina was present on right side and two on the left side. In the second mandible one accessory mental foramina was present on either sides. **Conclusion:** Accessory mental foramen though a rare anatomical variant however its presence should be kept in mind so as to avoid occurrence of neurosensory disturbance or hemorrhage during surgical procedure, as a result of trauma to the mental nerves and vessels passing through the accessory mental foramen.

4. Mandibular Ramus- A Study of Gender Variation

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Aim: To study gender variation in mandibular ramus of dry human mandibles.

Materials & Methods: Total 60 dry human mandibles collected from Departments of Anatomy and Forensic Medicine & Toxicology. Out of 60 dry human mandibles, 30 were of female and 30 were of male.

MANDIBULOMETER: instrument used to measure ramus height.

Results: In Female mandibles mean ramus height of right side was 4.58cm with standard deviation (SD) of ± 1.04 & standard error (SE) of 0.19 whereas on left side mean ramus height was 3.65cm with standard deviation (SD) of ± 1.08 & standard error (SE) of 0.19.

In Male mandibles mean ramus height of right side was 5.30cm with standard deviation (SD) of ± 0.93 & standard error (SE) of 0.17 whereas on left side mean ramus height was 5.94cm with standard deviation (SD) of ± 0.97 & standard error (SE) of 0.18. Test applied was independent "t" test.

CONCLUSION: Significant difference was seen between mean height of right ramus of male and female mandibles. There was significant difference between mean height of left ramus of male and female mandibles also. Significant difference was observed between left and right ramus of female mandibles whereas no significant difference was noted between left and right ramus of male mandibles.

Different metric traits of human mandibles are useful in diagnosis and treatment of dento-facial condition. The variations seen in ramus height of mandibles of different gender, race, region & population have association with the

proportion between facial height and gonial angle. Metric traits like ramus height along with other traits put weight in identification of sex and race.

Key Words: Ramus Height, Mandibulometer, Dento-facial condition, Sex, Race, Metric trait.

5. Morphological And Topographical Distribution Of Nutrient Foramen In Fibula.

Ranjana, R.K.Verma, Archana Rani, A.K.Pankaj, R.K.Diwan.

Department of Anatomy, K.G.Medical University, Lucknow.

Nutrient foramen is an opening in the bone shaft to give passage to nutrient artery into medullary cavity. Nutrient artery enters obliquely through the nutrient foramen, as a rule direction is away from growing end and is the principal source of blood supply to a long bone for its nourishment and growth. Knowledge of nutrient foramen is important in surgical procedures like bone grafting, fibular flap during mandibular reconstruction, bone transplantation, open reduction of fracture etc. The main aim of the present work is to study the variation in number size and direction of nutrient foramen with its position in relation to its borders. Total 124 dried human fibulae were collected from Osteology lab of Department of Anatomy. Bones were studied for aforesaid parameters with the help of magnifying lens, osteometric board, calibrated wires, divider and measuring tape. Study details and results will be discussed during presentation.

6. Study Of Orientation Of Infraorbital Foramen in Dry Adult Human Skulls Of North Indian Population

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The anterior surface of body of maxilla bears an opening below orbital margin called as inferior orbital foramen or infraorbital foramen (IOF). IOF is a constant feature observed in human skulls.

Infraorbital vessels and fibres of infraorbital nerve pass through this IOF. Infraorbital artery is the branch of IIIrd part of maxillary artery. Infraorbital nerve is the continuation of maxillary nerve

Infraorbital foramen is an important landmark for oral and maxillo-facial surgery. It plays an important role during regional block anesthesia techniques of infraorbital nerve.

The study have been undertaken to review 50 skulls to examine orientation of infraorbital foramen with the help of guide wire in the Anthropological museum of Department of Anatomy, G.S.V.M. Medical College, Kanpur. The details of the study will be discussed in the conference.

7. Morphometric Study of Piriform Aperture In Human Dry Skull of Indian Origin

Aparna Dixit, Adil Asghar, N N Srivastava

Department of Anatomy, UPRIMS&R Saifai, Etawah.

Introduction: The sex determination of human skeletons is important in forensic and anthropological research. It can be carried out through qualitative or quantitative analysis of morphological parameters of dimorphism. The shape of the piriform aperture is one of the classic indicators of sexual dimorphism since it describes differences between males and females according to strong population specific behavior. The purpose of this study was to analyze the presence of sexual dimorphism in the size of the piriform aperture

Material and Methods: Forty skulls were studied after excluding any congenital abnormalities and broken skulls. The Shape of piriform aperture was analyzed. The dimensions studied were: height, maximum width of piriform aperture.

Result: The mean maximum width and height were 24.15 ± 1.86 mm, 30.60 ± 3.48 . All dimensions were significantly greater in male than female. ($P < 0.01$)

Conclusion: The size and shape of piriform aperture are also a good indicators of sexual dimorphism.

8. Sex Determination Using Dimensions of Mastoid Process of The Skull

Jigyasa, Rahul Singh, Suniti Raj Mishra

Department of Anatomy, G.S.V.M. Medical College, Kanpur

Sex determination is vital for identification of an individual. Advance decomposition, mutilation or incineration of body necessitates the examination of skeletal remains for sex determination. Pelvis is regarded as the gold standard for sex determination but its availability as a whole and in an intact form is low as compared to dry skulls which are abundantly available. The skull offers a high resistance to adverse environmental conditions over time resulting in the greatest stability of the dimorphic features compared to other skeletal bone pieces.

Aim- To find new methods for Sex Determination using Mastoid Process

Methods and materials: the study will be undertaken in the department of anatomy GSVM medical college, Kanpur on 50 dry adult human skull (25 male & 25 female) using Vernier Calliper by two observers under the following metric parameters:-

1. Mastoid length
2. Mastoid breadth (medio-lateral diameter)
3. Mastoid diameter (anterio-posterior)
4. Mastoid process size = $(\text{length} \times \text{AP diameter} \times \text{breadth}) / 100$

The data will be analysed, correlated with previous studies and will be further processed

9. Comparison Of Humerus And Femur With Respect To Location & Number Of Nutrient Foramen

Priyanka Sinha, Pramod Kumar*, Suniti Raj Mishra

Department of Anatomy, G.S.V.M. Medical College, Kanpur

*Department of Anatomy, Govt. Medical College, Urai.

Nutrient foramen is an opening into bone shaft which gives passage to blood vessels (nutrient artery). The nutrient artery is the principal source of blood to a long bone, particularly during its growth period in embryo, and fetus as well as during early phases of ossification during childhood.

The knowledge of nutrient foramen is important in surgical procedure like bone graft, microvascular bone transfer and in anthropometric studies.

The present study aimed at comparing two homologous long bone of body i.e. humerus and femur with respect to location, number and direction of nutrient foramen.

In this study 50 intact adult femur & 50 adult humerus were studied in department of anatomy, GSVM Medical college, Kanpur. A hand lens, osteometric board, vernier calliper, metallic scale were used for the purpose. The details of the study will be discussed in conference..

10. Sexual Dimorphism In Adult Human Mandible

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Department of Anatomy, G.S.V.M. Medical College, Kanpur.

Sex determination of bone plays an important role in forensic science, anthropological work and medico legal purpose. Among human bones the pelvis and the skull are the most reliable source for sex determination. In the absence of complete pelvis, mandible becomes the important source for sex determination as mandible is the most durable and movable part of skull that can resist postmortem changes.

Aim: To determine the sex of unknown dry human adult mandible using metrical parameters.

Materials and methods:- The Study will be undertaken in Department of Anatomy, G.S.V.M. Medical College, Kanpur on 50 dry intact human adult mandible employing metric parameters i.e. bigonial breadth, bicondylar breadth and mandibular length using Vernier Calliper by two observers. The data will be analysed, correlated with previous studies and will be further processed.

11. Study Of Variation In Position Of Greater Palatine Foramen In Adult Human Skulls Of North Indian Population

Sushobhana, Shailendra Singh, Anupriya, Pramod Kumar*, Suniti Raj Mishra

Department of Anatomy, G.S.V.M. Medical College, Kanpur

Department of Anatomy, Govt Medical College, Urai

The hard palate is an important structure in the skull formed by the two palatal processes of the maxilla and the two horizontal plates of the palatine bones which are linked by a cruciate suture. The greater palatine foramen lies near the lateral palatal border of the transverse palatine suture.

It transmits descending palatine vessels and greater palatine nerve. The greater palatine nerve block is important for

restorative treatment on more than two teeth, periodontal and oral surgery.

The location of greater palatine foramen is important for easy and effective anesthesia of greater palatine nerve. The position of greater palatine foramen is variable mentioned as in "Posterior Lateral Plate" or "opposite the Last Tooth."

This study was undertaken to define the position of Greater Palatine Foramen with respect to several anatomical landmarks in 50 adult north Indian dry human skulls obtained from anthropological museum of Department of Anatomy, G.S.V.M. Medical College, Kanpur. The details of the study will be discussed in the conference.

Abstract - Osteo -2

1. Morphometric Study Of Neck Of Adult Indian

Dried Femora In Western U.P. Population

Rajni Patel, Ramesh Babu*, Archana Sharma, G.L. Nigam****

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In human the largest of long bone forming the skeleton of thigh is mostly covered by the muscle of thigh but palpable towards its upper and lower end, articulating with the hip bone above and with the tibia below and carrying the patella in front of its lower end. Several attempts have been made to evaluate the proximal end of femur, because operation on the proximal femur are one of the commonest in orthopaedic surgical practice. Whereas what is normal has been standardized for caucasians and chinese, data for indian is lacking. The present study is proposed to remove the lacuna of information about proximal femoral geometry in indian population which can be used for designing suitable implant for various corrective orthopaedic surgeries. The present study was conducted in the department of anatomy in LLRM Medical College, Meerut on 50 dry femora of cadaveric origin with the help of vernier caliper femoral neck length and femoral neck diameter were measured. The above parameter will be analyzed, correlated with other established indices will be discuss at the time of presentation.

2. Morphological And Morphometrical Analysis of The Vermian Fossa In Dry Adult Skulls of Western Uttar Pradesh Population: An Osteological Study

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Introduction: The internal occipital crest (IOC) occasionally diverges at the lower end around the foramen magnum, giving rise to roughly triangular shaped vermian fossa. Variations occur in the vermian fossa in the form of shape and size. There is paucity of such study in the available literature, hence the present study was undertaken to evaluate the incidence, morphology and morphometry of the VF in the adult population of Western Uttar Pradesh.

Material and method: Adult human 30 cranial bases (vault removed) and 25 occipital bones of both the sexes, which were obtained from the osteology section of department of anatomy in LLRM Medical College, Meerut (UP), formed the basis for this study.

Result: Out of the 55 specimens the VF was observed in 40(72.7%) specimens, and was found absent in the remaining 15(27.2%) specimens. The VF was triangular shaped in 29(72.5%) specimens and quadrangular in 4(10.0%) specimens. In 7(17.5%) specimens it was having unusual morphology and considered as atypical. The average length and width of the fossa were 14.2 mm and 12.1 mm respectively.

Conclusion: The incidence is higher in our study as compared to the previous studies and it might be because of racial variations. Accurate knowledge of the variability of the human morphology and morphometry improves the diagnosis and therapeutic performance and also helpful in the study of the diseases that cause alterations of size and morphology of inferior vermis of cerebellum and clinician who operates intracranially or interprets radiological imaging.

Keywords: Internal occipital crest, Vermian fossa, Morphology, Morphometry, Foramen magnum.

3. Unilateral agenesis of ala of Sacrum: A Rare Case

Fatima Bhopalwala, Archana Rani, RK Dewan, AK Srivastava, PK Sharma, Navneet Kumar, Anita Rani.

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The sacral vertebrae develop by the end of the first month of embryonic development, the higher vertebrae having developed first. During early development five sacral vertebrae are not fused, these begin to fuse between the ages of 16–18 years and the fusion is complete by the age of 34 years. One of the congenital disorders associated with the abnormal development of the sacrum is caudal regression syndrome, which is characterised by the underdevelopment of the lower spine. Sometimes part of the coccyx, or the lower vertebrae or occasionally a small part of the spine may be absent with no outward sign. Also autosomal dominant sacral agenesis is described, characterised by the partial agenesis of the sacrum typically involving sacral vertebrae S2-S5 only. During an ongoing project in our department, an anomalous sacrum was observed, which showed unilateral agenesis of ala of sacrum along with nonfusion of first and second sacral vertebra. As ala of sacrum is related to the sympathetic chain, lumbosacral trunk, iliolumbar artery and obturator nerve, it forms an important surgical, radiological and anaesthetic landmark. Therefore its absence may lead to misguidance and may leave these neurovascular structures at stake.

4. Fusion of Axis Vertebra with Third Cervical Vertebra: A Case Report

Noor Us Saba, AK Srivastava, PK Sharma, Archana

Rani, RK Diwan & Garima Sehgal

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Fusion of one or more contiguous vertebral segments results from the embryological failure of normal spinal segmentation. C2-C3 is the most common site. In condition of fusion of the cervical vertebrae, two vertebrae appear not only structurally as one but also function as one. This fusion may be congenital or acquired. This anomaly may be asymptomatic; however, it may also appear with manifestations of serious clinical features such as myelopathy or may be associated with syndromes such as Klippel-feil, limitation of the neck movement, or the muscular weakness, atrophy and neurological sensory loss. Fused cervical vertebrae (FCV) may be congenital, acquired or pathologic. Acquired FCV is generally associated with disease like tuberculosis, other infections, juvenile rheumatoid arthritis and trauma. We observed the fusion of axis with 3rd cervical vertebra. Body, laminae and spines of C2 and C3 were completely fused on both anterior and posterior aspects, whereas the pedicles and transverse processes were not fused. Foramen transversarium were present on both the vertebrae bilaterally. This variation is of noteworthy to surgeons and radiologists in studying computed tomography (CT) and magnetic resonance imaging (MRI) scans.

5. Morphometric Study of Metopic Suture In Adult North Indian Skulls

Prerna Gupta, Jitendra Kumar, Parmatma Prasad Mishra, Muktyaz Hussein, Naba Kumar Bezbaruah

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Aim of the Study: A suture is a type of fibrous joint which only occurs in the skull or cranium. They are bound together by sharpey's fibre. A tiny amount of movement is permitted at sutures, which contributes to the compliance and elasticity of the skull. Sutures are junctions or line of articulation between adjacent bones of skull.

Materials & Methods: The present study was carried out in the department of anatomy on Adult North Indian 100 Skulls of unknown age and sex which were obtained from the osteology section of Integral Institute of Medical Sciences and Research & King George medical university. 20 damaged and diseased skulls were excluded from the study and 80 skulls were observed.

Results: In our study we observed 66 (82.50%) skulls who had neither complete nor incomplete metopic suture. 14 skulls (17.5%) had metopic suture either in the form of complete or incomplete. Complete metopic suture was found in two skulls (2.50%) and incomplete suture was observed in twelve skulls (15%). Among the incomplete metopic sutures, the incidence of linear incomplete metopic suture was 9/80 (11.25%), inverted 'U' shaped incomplete metopic suture was 1/80 (1.25%) and 'V' shaped incomplete suture was 2/80

(2.5%).

Conclusions: Knowledge regarding persistent metopic suture is essential in studying the radiographs to avoid misinterpretation as fractures. It is also useful in evaluating various medico legal cases.

Details of the study and its clinical importance will be discussed during the presentation.

6. Atlanto Occipital Synostosis –a Case Report

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Department of Anatomy, K.G.Medical University, Lucknow.

While doing the routine survey in osteology lab. of Anatomy Department of K.G.M.U Lucknow, a skull was observed which showed the fusion of atlas and occipital bone. In the present case superior articular facets of atlas were completely fused with the respective condylar facets of occipital bone. The anterior and posterior arch of atlas was fused completely with the occipital bone.

Atlantooccipital synostosis is a rare anomaly. It is also known as assimilation or occipitalization of atlas. Assimilation is congenital fusion of atlas vertebra with the base of occipital bone; it may be partial or complete fusion. This anomaly is result due to failure in segmentation and separation of lower occipital sclerotome and first cervical sclerotome during development of fetus. This type of fusion may alter the dimensions of foramen magnum and may compress the spinal cord and vertebral artery. Such type of anomaly is important for neurosurgeons, orthopedicians, anesthetists, radiologists and as well as for Anatomists. The detail and significance of the case will be discussed during presentation.

7. Lumbosacral Transitional Vertebrae: Its Clinical Implications

Amrita Gupta, Virendra Kumar

Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly

Aim of the study: The human sacrum is a wedge shaped bone formed by fused five sacral vertebrae having four pairs of sacral foramina and forms the postero-superior wall of the bony pelvis. Lumbosacral transitional vertebra (LSTV) is a congenital anomaly which involves either the sacralization of the lowest lumbar/first coccygeal vertebra or lumbarization of uppermost sacral vertebra. These vertebral bodies demonstrate varying morphology, ranging from broadened transverse processes to complete fusion.

Material and method: This study was carried out on 50 dry human sacra (35 male and 15 female) from Department of Anatomy, SRMS-IMS, Bareilly, UP, India. Morphological study was done on the sacrum and classified as per Castellvi's classification.

Result: We highlight 3 cases of LSTV out of 50 sacrum. Out of 3, 1 sacrum showed simultaneous sacralisation of 1st

coccygeal vertebrae and incomplete lumbarisation of 1st sacral vertebrae, 1 sacrum showed complete sacralisation of 5th lumbar vertebrae and 1 sacrum showed complete lumbarisation of 1st sacral vertebrae.

Conclusion: Total incidence of LSTV was observed to be 16.6% in the present study. Obstetricians, radiologists, anesthetists, neurologists and orthopedic surgeons must know about the existence of this variation to be able to correctly investigate, diagnose and treat the patients presenting with unusual signs and symptoms. Also the awareness of this possible congenital anomaly is important before any spinal surgery to avoid the incorrect numbering of vertebrae and consequently wrong level spinal surgery.

8. Study Of Ossified Clinoid Ligaments Of Sphenoid

Jolly Agarwal, Virendra Kumar

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The sphenoid bone lies in the base of the skull between the frontal, temporal and occipital bones. Certain parts of the sphenoid bone are connected to each other by ligaments such as caroticoclinoid ligament and interclinoid ligament, which occasionally ossify, and result in the formation of foramen. Objectives: The aim of this study was to present the ossified interclinoid and caroticoclinoid ligament morphologically and to consider its possible impact on the surrounding neurovascular structures. Results: The incidence of anterior clinoid foramen is more as compare to posterior clinoid foramen. The ossification of caroticoclinoid ligament is more common than interclinoid ligament. The incidence of presence of anterior clinoid foramen on right and left side is same. Posterior clinoid foramen is present in one sphenoid bone only out of 40. Conclusions: The knowledge of anatomy of ossified interclinoid ligament and caroticoclinoid ligament in sphenoid bone around pituitary fossa is important from diagnostic, surgical (especially surgeries involving removal of anterior clinoid process) and clinical point of view and should be evaluated by neurosurgeons before proceeding to skull based surgery. The presence of an ossified CCL ligament is likely to cause compression and straightening of the internal carotid artery thus giving rise to vascular complications.

9. Unilateral Ankylosis Of Sacro-iliac Joint: A Case Report

Arvind Kumar Pankaj, Archana Rani, R.K. Verma, R.K. Diwan, Navneet Kumar.

Department of Anatomy, K.G.Medical University, Lucknow.

The sacroiliac joint (SIJ) is a plain synovial joint through which the body weight is transmitted from the trunk to the lower extremity. Bones forming the joint are auricular surface of the sacrum and ilium. During routine osteology teaching program for undergraduate medical students in the Department of Anatomy, King George's Medical University, UP, Lucknow, one of the pelvis showed unilateral ankylosis of SIJ of Right side. There was complete ossification of the anterior, posterior and interosseous sacroiliac ligaments of

right sacroiliac joint. Anatomical and radiological knowledge of ankylosis of SIJ and ossification of the ligaments as found in the present case may be helpful for clinicians, radiologists and surgeons for differential diagnosis and can be implicated in the development of innovative treatments of sacroiliac, perineal pain and decreased mobility of the joints. The case will be discussed in the light of available literature along with its clinical and developmental correlations.

10. Musculus Sternalis- A Rare Case Report

Rakesh Kumar Diwan, Archana Rani, A.K. Pankaj, R.K. Verma, Garima Sehgal, A.k. Srivastava, Navneet Kumar

Department of Anatomy, K.G. Medical University, UP, Lucknow

Musculus sternalis is a variant chest wall muscle found in its anterior wall along the side of sternum. During routine dissection of 75 years old male cadaver, we observed a muscle just lateral to the midline superficial to the sternum in the right side of anterior chest wall. The muscle was lying superficial to the pectoralis major muscle. It took origin as muscular slips from 4th, 5th and 6th costal cartilage on the right side, soon became tendinous and coursed upward in between the origins of pectoralis major muscle of both sides in the median plane of sternum. It continued upwards to the sternal notch and attached to the sternal head of sternocleidomastoid muscle of both the sides. Some fibers of both pectoralis major muscle were also arising from this muscle. The shape of this muscle was giving a characteristic Y shape pattern like a "tie". It derived its blood supply through small branches of right 2nd to 5th intercostal vessels and nerves of the right 2nd to 5th intercostal spaces. Knowledge concerning the variations of chest wall musculature is imperative for surgeons, radiologists and anatomist.

11. Fusion anomaly of costovertebral joints and thoracic vertebrae: A case report

Archana Srivastava, Arvind Kumar Pankaj, P.K. Sharma, A.K. Srivastava

Department of Anatomy, King George's Medical University, U.P. Lucknow

An interesting and rare case of fusion anomaly of costovertebral joints and thoracic vertebrae was observed during routine survey of osteology lab in the Department of Anatomy, King George's Medical University, UP, Lucknow. Superior and inferior articular facets of bodies of 2nd to 7th thoracic vertebrae were fused. Anterior longitudinal ligament from 2nd to 4th thoracic vertebrae also showed ossification. Costovertebral joints of 3rd, 4th & 6th ribs were also ossified on left side. Ligamentum flavum between vertebrae was partially ossified. An additional block vertebra was obtained from the same individual showing fusion of last three thoracic vertebrae. In this block body of 11th thoracic vertebra was collapsed.

Such skeletal abnormalities at thoracic region may result in back pain and neurological symptoms. The anomalies of thoracic region are of interest to anatomists, anaesthetists, orthopaedicians, neurologists and neurosurgeons. The case will be discussed in the light of available literature along with its clinical and developmental correlations.

Embryology

1. Studies on Morphological and Biochemical effects of Imidacloprid on chick embryos

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Introduction: Pesticide substances are biologically active and must be tested to ensure that their use will not give rise to any unacceptable risks to non-target organisms (i.e. humans, animals, plants and environment). Imidacloprid is one of the major representatives of the new generation of neonicotinoid insecticides derived from nicotine isolated from the tobacco plant. Imidacloprid is a widely applied pesticide due to their higher affinity for insect nicotinic acetylcholine receptors, it acts on nervous system. Worldwide, it is considered to be one of the insecticides used in the largest volume.

Methods: Present study was carried out in the department of Anatomy Govt. Medical College, Ambedkar Nagar and Santosh Medical College Ghaziabad U.P. on 280 fertile eggs of white leghorn chicken obtained from government poultry farm after taking permission from animal ethical committee. Chicken eggs exposed to Imidacloprid with doses of 5µg, 12.5µg, 25µg, and 50µg in a volume of 5µl, 12.5µl, 25µl and 50µl respectively and control same as test group. The embryos were terminated on 20th day, egg shell broken with a scalpel and embryos removed. Morphological and biochemical changes observed and recorded.

Results: The results show that experimental group had comparatively more cases of morphological changes and growth retardation resulting into failure of retraction of yolk sac, limbs defects as compared to controls.

Conclusion: Imidacloprid exposure increases the risks of developmental defects with increasing embryonic age. Comparatively higher doses proved more toxic and also caused many developmental defects.

2. A Comparative Study of Early Ectopic and Normal Placenta

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The aim of study was to examine the development of chorionic villous tree during early period of normal intrauterine and ectopic (tubal) pregnancies. In order to study the structure of placental villi up to three month of

human samples taken from legal curettage and placental tissue of ectopic pregnancy take during emergency laparotomy for ectopic pregnancy cases in JN Medical College. The tissue were processed and stained with haematoxyline and eosin and weigert stain and observed under light microscope the developing chorionic villous trees of intrauterine placentas were observed as large main villus groups, covered with abundant microvilli of different size and diameters. It appeared that the chorionic villous trees which emerged from the chorionic plate divided gradually into branches of which ramifications originated as buds. These buds gradually grew and were transformed into shoots. The number of developing new villi appeared to increase gradually the massive trophoblastic sprouts of main chorionic villi which transformed into primary, secondary and tertiary villous trees. Whereas the placental villi formation in ectopic pregnancy was compared with the intra-uterine pregnancy, an arrested development was remarkable. The configurations of ectopic placental villi seemed to be abortive, disparate, such as curved lines or compressed and wrinkled positions. The ramification and new villi formation seen as in the normal placenta were not only decreased but also infrequent. Some placental villi samples displayed a gradually thinning terminal region. Trophoblastic degenerations were frequently found on the surface of ectopic villi microscopically According to these results, we comment that in ectopic pregnancy the placental villi formation and development could have been delayed disrupted and abortive.

3. Congenital Diaphragmatic Hernia with Inversion of Branches from Arch of Aorta

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Congenital diaphragmatic hernia is widely regarded as an isolated developmental defect having an incidence from 1 in 2500 live birth and accounts for 8 % of all major congenital anomalies and associated with high mortality. During fetal dissection in a male IUD foetus of 34 weeks gestational period, we found left sided agenesis of abdominal diaphragm associated with herniation of abdominal contents into thoracic cavity that caused right sided mediastinal shift. In abdominal contents – stomach, pancreas, spleen, small intestinal loop and left lobe of liver partially have herniated through diaphragmatic gap into left half of thoracic cavity. Thoracic contents – trachea, heart and lungs were shifted to right side, associated with left lung hypoplasia. Inversion of arterial pattern of arch of aorta was observed. Brachiocephalic trunk present on left side instead of right side, ductus arteriosus connecting left subclavian to left pulmonary artery

4. Teratogenic Effects Of Valproate In Mice Fetus

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Valproate is an antiepileptic drug. In the present study Valproate was administered to Swiss Albino mice in order to evaluate its teratogenicity. Fifteen adult female Swiss Albino mice were used in study after approval of institutional ethical comitee. Out of these 11 mice were taken as treated and 4 mice were taken as control.

Valproate was administered intraperitonially in a dose of 200 mg/kg body weight of mice on 8th day of gestation to the treated group. Equal volume of normal saline was given to control mice through same route. The mouse of each group was sacrificed on day 19th of gestation and foetuses were collected by uterotomy. Crown rump length, fetal weight, placenta weight were recorded. The foetuses of treated group were examined for external abnormalities.

Gross examination of foetuses of treated group showed IUGR, resorption, decreased no. of fetus, hemorrhage, cleft lip, small tail, exophthalmos, extension deformity . In this way Valproate was found teratogenic at 200 mg/kg dose in mice fetus.

5. Mophological Study of Placenta in Diabetic Mothers

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Diabetes is a major health concern in our society and growing alarmingly in India. Approximately 2% to 3% of pregnancies are affected by diabetes mellitus. Placenta is a mirror that reflects the well-being of the fetus and continuously undergoes a change in weight, structure, shape and function in order to support the well-being of the fetus. Objective of the study was to make an in-depth analysis on the possible gross morphological changes in the placenta of diabetic mothers . The study was a prospective observational study , including 50 cases of pregnant women who were diagnosed with diabetes mellitus either before pregnancy or found to be diabetic during antenatal period. The study was conducted over a period of one year from August 2013 to July 2014 in the Department of Anatomy, King George's Medical University (K.G.M.U.), UP, Lucknow in collaboration with Department of Obstetrics and Gynaecology, Queen Mary's Hospital, K.G.M.U. UP, Lucknow. In this study, the placenta of diabetic mothers showed significantly higher values for the variables of weight, diameter and volume. From the findings of this study, we concluded that changes in placental weight, volume and diameter found in diabetic mothers may be result of compensatory mechanism, aiming to secure a sufficient nutrient supply to support the growth of the fetus. So, postnatal examination of the placenta can yield information that may be important for immediate and late management of the mother and neonate.

6. Effect of Maternal Hypothyroidism on Placental Volume

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& Garima Sahgal

Department of Anatomy, King George's Medical University, Lucknow.

Hypothyroidism is traditionally defined as deficient thyroidal production of thyroid hormone. It is usually evident as subclinical hypothyroidism, occurs in around 2.5% of otherwise normal pregnancies and, although relatively asymptomatic associated with pre-term delivery as well as an increased incidence of abortion, obstetric complications, fetal abnormalities, pre-eclampsia, low birth weight, and fetal death, if untreated. We studied 70 placentae, out of which 50 are of hypothyroid mothers and 20 placentae from normal pregnancy. We observed a decrease in the mean volume ($304.40 \text{ ml} \pm 87.86$) of hypothyroid placentae as compared to control group ($324.50 \text{ ml} \pm 54.72$). Placental volume is clinically, useful for predicting and diagnosing adverse pregnancy outcomes, such as preeclampsia and small size fetuses.

7. Propylthiouracil Induced Placental Changes In Mice

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Introduction: Propylthiouracil (PTU) is antithyroid drug used in the Graves disease induced hyperthyroidism.

Material & Methods: PTU was given to Swiss albino mice orally in dose of 100 mg/kg/day from 6-8th day of gestation. Similarly, control mice were fed tap water on same days. The pregnant dams were sacrificed on 18th day of gestation by cervical dislocation and fetus and placenta were dissected out after performing uterotomy. The placenta were weighed individually and then processed for histological study.

Result: The placenta of treated mice shows thickened placental barrier in the labyrinthine zone. In the basal zone, there appears to be spongiotrophoblastic degeneration with abundant cell debris.

Conclusion: PTU has a deleterious effect on the placenta & thus it can lead to fetal toxicity if given during pregnancy.

8. Histomorphology Of Ureter In Human Fetuses

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Aim of study: Ureteric bud is a primordial structure giving rise to the ureter, renal pelvis, calyces and collecting tubules. Two fusiform enlargements appear at the lumbar and the pelvic levels of the ureter at the 5th and 9th months of intrauterine life respectively which is responsible for the ureteric constrictions at its upper end and another as it crosses the pelvic brim. A third narrowing is always present at its lower end and is related to the growth of the bladder wall.

Method and Material: The study was conducted in the Department of Anatomy, Himalayan Institute of Medical

Sciences (HIMS), Swami Ram Nagar, Dehradun over a period of twelve months. Gestational age ranged between 10 weeks to 25 weeks.

Result: The ureter in fetuses between 12 and 14 weeks had no muscular tissue and the wall was composed of loose connective tissue only. Between 16 and 20 weeks the thin bundles of smooth muscle fibres were clearly visible in the wall of the ureter and showed a circular arrangement.

Conclusion: Between 16 to 20 weeks progressive development of the muscular tissue of the ureteric wall occurred with formation of stronger and abundant muscle bundles.

9. Prenatal Olanzapine Induced Renal Changes In Swiss Albino Mice

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Abstract: Although Olanzapine is widely used in pregnancy, its safety profile is yet to be determined. We have therefore given Olanzapine to pregnant mice in different doses to see its effect on kidney of the embryo.

Material and Method: Olanzapine was given to pregnant mice in doses of 0.2mg/kg and 2mg/kg whereas tap water was given to control mice from 6th to 12th day of gestation. The female dams were sacrificed on 18th day of gestation by cervical dislocation and fetuses were dissected out by uterotomy. The kidney of mice embryos were dissected out, processed and were stained with H&E.

Results: the kidney of treated mice show inflammation and destruction in a dose dependant manner. The kidney of 0.2 mg /kg treated mice showed necrosis and disruption of tubules and haemorrhage in medulla. The kidney of 2mg/kg treated mice showed disruption and necrosis of tubules resulting in spongiform appearance of medulla.

Conclusion: Olanzapine causes a dose dependent insult on fetal kidney when given to mother during period of organogenesis.

10. Morphology Of Caecum In Human Fetuses

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Abstract: Embryologically, the caecal swelling appears as a small conical dilation of the caudal limb of primitive intestinal loop & it is the last part of the gut to return in the abdominal cavity. During rotation of gut it is located in the right upper quadrant below the right lobe of the liver. From here it descends into the right iliac fossa.

The present study has been conducted to locate the situation of caecum at different gestational age of fetuses.

Sixteen fetuses were procured from Dr. Sushila Tiwari & District Mahila Hospital, Haldwani. Fetuses were dissected, illeocaecal region was displayed. The position & shape of

caecum were recorded in situ.

Out of 16 fetuses caecum is conical in 13 fetuses. Quadrangular in 2 fetuses and in 1 fetus caecum is right saccular. Position of caecum is right subhepatic in 8 fetuses, right iliac in 7 fetuses and in right iliac fossa in 1 foetus.

Fetuses belonging to less gestational ages caecum is conical in shape, however as the gestational age is increasing, caecum is noticed as quadrangular in shape. With increasing gestational age position of caecum changes from right subhepatic position to right iliac fossa. The findings will be presented and will be discussed in the light of existing literature.

11. Pyramidal Lobe And Levator Glandulae Thyroidae In Human Fetal Thyroid Gland.

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The thyroid gland is very important endocrine gland which starts differentiating at very early stage because it has to augment and help in maturation of so many organs. We have noticed the pyramidal lobe in our collection of human fetal tissue. Several workers, Marshall CF [1891], Maria et al [2007], Joshi et al [2010], Lokanadham et al [2012], Enayetullah et al [2013], Lattupali H [2014], in the past have enriched the literature regarding the pyramidal lobe. Present study has been conducted on 16 human fetuses obtained from Department of Obstetrics and Gynecology, G.M.C. Haldwani (U.K.). Fetuses were dissected and detailed observation of morphology of thyroid gland and pyramidal lobe were recorded. We have also taken biopsy material from pyramidal lobe and thyroid gland, and did histological processing and studied under light microscopy. On histological finding, Pyramidal lobe of fetus [IUL 23 wks] showed small follicles lined with cuboidal epithelium. Interfollicular spaces at some places appear cellular. Parafollicular cells were also present. Section of thyroglossal duct also seen lined by epithelium. Another fetus [IUL 27wks] showed functional follicle filled with colloid with rich vascularity. Fetus [IUL 40wks] showed loss of follicular arrangement and loss of colloidal material.

Thus it can be concluded that pyramidal lobe became functional along with thyroid lobe and at term functional loss of pyramidal lobe is observed in respect to lobe because of less vascularity.

Histology & Miscellaneous

1. The Pineal Histology- An Update

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The Pineal gland, a small piriform structure shaped like the cone of pine tree, is located above and behind the hind brain about 10 to 12 cm, a little above and deep in the mid line from the root of nose. The pineal gland for long has been

regarded by the biologists as the vestigial organ, like vermiform appendix in the abdomen, with no functional importance which degenerated with age. However, in the religious texts, both in the eastern and western philosophies it has continued to be regarded as the God organ, Pineal Eye, Third Eye, Eye of Shiva, Eye of Dangma and the Seat of soul (René Descartes (1596-1650)). It was not until the 1958 that scientists determined its function.

Besides pinealocytes and astrocytes were first to be identified. Later presence of peptidergic neuron-like cells, vascular endothelium, perivascular phagocytes, nerve fibres, corpora arenacea, calcite microcrystals emitting piezoluminescence and piezoelectricity and fluorides have attracted the attention of scientists from various fields in research. Further, the presence of highest concentration of DMT, retinal protein (in 5-10% cells), synthesis and secretion of indolamines by pinealocytes, peptide group of hormones by peptidergic neuron has made the gland unique for biological to electrical & electromagnetic scientists, religious scholars and spiritual consciousness studies.

2. Histological Study of Chorionic Villi And Umbilical Cord In Full Term Placenta.

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Chorionic villi are the functional unit of placenta and have been described previously by several workers (Hamilton and Boyd 1967, Boehm et al 1989) and its status has been evaluated histologically.

Umbilical cord vessels, which are essential to link between foetal and maternal resources, have also been studied previously.

In our study we have procured 100 term placenta from Hospital of Govt. Medical College Haldwani and District Hospital. Slice of placental tissue and umbilical cord were processed and meticulously studied under light microscope by using H&E and Masson's trichrome stain.

An elongated Stem villous is observed to be having vascular elements in it and showed more mesodermal tissue and lined outside by syncytiotrophoblast. Number of vessels is seen scattered within the villous. Chorionic villi revealed degenerative changes in the form of hyalinization, reduction in vascularity and presence of syncytial knots were also noted.

Umbilical cord has also been studied histologically showing two arteries and one vein embedded in the Wharton's jelly. Lumen of the umbilical vein appears to be larger and broader as compared to the umbilical artery. We noticed histological features of closure of umbilical artery. The thickened tunica media of umbilical artery has undergone various changes in thickness, divisible into layers in the attempt of occluding its lumen earlier than umbilical vein to save foetal life. We also observed features of umbilical vessels in the region of knot where the lumen of artery is patent as compared to its collapsing lumen elsewhere in the cord. Tunica media of

umbilical vein is inflated in the region of knot. These findings will be discussed and presented in the light of existing literature.

3. The Histological And Histochemical Study Of Alkaline Phosphatase In The Placenta Of Gestational Diabetic Mother And Its Comparison With The Normal Placenta

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The placenta is the most important and vital organ of intrauterine life. The aim of the study is to investigate the histological and histochemical changes in the placenta of gestational diabetic mother and compare them with the normal placenta. Materials and methods: The histological and histochemical features of 60 placenta, 30 obtained from normal pregnant females and 30 from diabetic pregnant females, were studied. These placenta were obtained from Department of Obstetrics and Gynaecology Era's Lucknow Medical College and Hospital Lucknow. On histological examination, the diabetic placenta showed increased syncytial knots, fibrinoid necrosis, trophoblastic basement membrane thickening, villous stromal fibrosis, villous oedema, crowding of villi, thickening of vessel wall and fibrin deposition. On histochemical study it was found that the Alkaline Phosphatase reactivity was stronger in diabetic placenta as compared to normal. Conclusion: It is concluded that distinct histological and histochemical changes could be seen in placenta of diabetic pregnant females and that the diabetic's placenta shows a consistent pattern of abnormalities which appear to be a direct result of the diabetic state.

4. The Histopathological Effect Of Non-selective Cyclooxygenase Inhibitor Indomethacin On Colon Of Albino Rats

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The gastrointestinal tract (GIT) is the main target of NSAIDs toxicity. It is the most common drug-induced toxicity that can be fatal. Worldover 35 million people consume these drugs on a daily basis. Conservative calculation estimates that approximately 1,07,000 patients are hospitalized annually for non-steroidal anti-inflammatory drug (NSAIDs) related gastrointestinal complications, and at least 16,500 NSAIDs related deaths occur each year. The objective of the present study was to study the effects of Indomethacin, on the colon of albino rats. 16 albino rats were taken for the study. Which were divided into 4 groups. Each group comprised of 4 rats out of which 4 were taken as control and remaining 12 as experimental group. The experimental group was subjected to oral administration of indomethacin in a dose of 10 mg / Kg of body weight per day for a period of 1st, 2nd & 3rd weeks respectively. The rats of each group were sacrificed at

the end of 1st, 2nd and 3rd week intervals after giving ether anesthesia. They were immediately fixed on a wooden block with the help of paper pins. Dissection was done to open the abdomen for gross observations. The rats were infused with normal saline to wash out the blood. The colon were preserved in neutral buffered formalin. 3-5 μ m thick paraffin sections of the colon were taken with the help of microtome, Staining was done with Harris' Hemotoxylin and Eosin and the histological and morphometric changes was studied under light microscope. Results will be discuss at the time of presentation.

5. Cytomorphometric Analysis Of Exfoliated Buccal Mucosal Cells In Diabetic Patients: A Case-Control Study

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Introduction: Diabetes mellitus is one of the most common endocrine metabolic disorders and its prevalence has been increasing worldwide. Early diagnosis of the diabetes mellitus is an important aspect of health care. It has been shown that diabetes may also cause various changes in the cells of the oral mucosa, which can be determined by exfoliative cytology. Purpose of this study is to assess and compare the cytomorphometric changes in exfoliated cells of oral mucosa in diabetic and non diabetics and to find out the association of cytomorphometric changes with level of diabetic control.

Materials and Methods: Samples were taken from 60 diabetic patients (study group) and 20 non diabetic individuals (control group). Then Papanicolaou staining was done and then stained slides were subjected to research microscopy for cytomorphometric analysis using ImageJ software. Outcome variable were (a) Mean Nuclear area/50 cells (b) Mean cytoplasmic area/ 50 cells (c) Mean cytoplasmic & nuclear ratio. Study project was sponsored by Department of science and technology, Rajasthan under student project programme.

Results: Detailed results will be discussed at the conference.

Conclusion: Exfoliative cytology is a simple, low cost, painless, non-invasive and rapid diagnostic tool. With the advancement in the field of exfoliative cytology, there is a reemergence of oral exfoliative cytology as a powerful diagnostic tool and useful in follow-up of diabetics patients.

6. A Immunohistochemical Study Of Wound Healing Mechanism In Human Type 2 Diabetic

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Diabetes mellitus is a typical life style related disease, in which hyperglycemia is caused by an absolute defect or relative defect of Insulin. Specifically Type 2 diabetes mellitus is considered a life style related disease. DM is known to cause a capillary vessel disorder due to the hyperglycemia and often brings about delayed wound healing: however the mechanism behind this delayed wound healing is uncertain. This paper studies immune histo-chemical changes in patients attending the OPD of Medicine. The aim being to investigate the wound healing mechanism in type 2 DM. Inflammatory cell infiltration in the wound site, capillary dilatation and regeneration, and proliferation of fibroblasts and collagen fibers were observed by histopathologically. Cellular senescence, is characterized by permanent cell-cycle arrest. Through various signaling pathways, the stimuli engage p53 signaling pathways, and p16Ink4. p16Ink4a is currently regarded as being a premier indicator of the presence of senescent cells. The appearance of p53 was lower in the wound tissue. The positive appearance of the P16 was high in the vasculoendothelial and fibroblast in type 2 diabetes than controls. It is suggested that the delayed wound healing in type 2 diabetes may be associated via the P16 signaling pathway.

7. Hepatotoxic effect of Silver nanoparticle on Swiss Albino mice and their fetuses

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Back ground: The modern scientific world of advance era shouts of silver nanoparticle made consumer usable product safety in daily life which needs verification on top priority for complication free for complete avoidance of teratogenic and toxic effect in human body while manufacturing, so screening is essential. Silver nanoparticle quickly migrate into the blood vessel the moment injected either orally or parenterally and accumulate directly in the liver following absorption so considered target organ of accumulation as demonstrated by several studies.

Aim: The present study is aimed to observe the, teratogenicity and toxicity of Silver nanoparticle and assess by estimation of liver weight to body weight ratio, microscopic changes in liver of both pregnant mice and fetuses.

Material & Method: We used repeatedly AgNps (5,10,15,20mg/kg b.w.) oral administered (G.D. 7 to G.D. 9) pregnant Swiss albino mice model to enhance the passage of higher dose of AgNps into liver and examine the teratogenicity and toxicity of TEM analyze AgNps of 11-20nm size.

Result: It causes teratogenicity in which liver weight and body weight is significantly reduced in treated mothers and fetuses when compare with controls ($p < 0.001$). Also

AgNps are observed highly cytotoxic to hepatocytes of mother and fetuses. The intensity of such toxicity is found increase in higher treated groups.

Conclusion: In conclusion Silver nanoparticle cause inflammatory mediator expression in liver histology, ballooning degeneration of hepatocytes, severe congestion in the extra cellular matrix, dilatation and distortion of central vein, over production of Kupffer cell population, necrosis and obliteration of sinusoids.

8. Effects of Trichloroacetic acid Exposure on the Developing Kidneys

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Objective: Clinical and experimental studies strongly suggest that prenatal TCA exposure is associated with impaired renal tubular function. Whether maternal alcohol consumption during pregnancy causes renal tubular cell injury is unknown. **Material & Methods:** Renal histology was studied in fetal rats born to mothers exposed to TCA during gestation by oral gavage and healthy age-matched offsprings controls from mother rats treated with vehicle.

Microscopic studies revealed cytoplasmic mitochondrial hypertrophy and vacuolar structures of the epithelial cells of the cortical collecting ducts in the rats kidney following fetal exposure to TCA **Conclusion:** These findings suggest that offspring of rats exposed to TCA during fetal life have renal functional and structural abnormalities that may be responsible in the genesis of renal functional abnormalities and thus is a teratogen

9. "System Approach In Anatomy"

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Aim Of The Study: To identify problems of Anatomy education in relation to medical education guidelines and suggest remedies

Material And Methods: Study and research existing guidelines as well as ground realities to draw conclusions and explore solutions

Results: System approach of medical educational technology is a scientific way of solving the problems of medical education in India as instructed by medical council of India through its training workshops of medical teachers for teaching medical subjects including Anatomy to the medical students in India

However there are practical difficulties in implementing these scientific guidelines to achieve the learning goals of medical teaching for example the contradictions between different guidelines, backwardness of education level in comparison to developed countries level, shortage of medical teachers specially in Anatomy subject, lack of

uniformity of Anatomy training program and assessments at state, national as well as international levels, the lack of prescribed time tables with the demand of interactive teaching, lack of facilities lack of awareness of medical education advances among teachers and students and many other such problems As a result of all this level of medical education especially in Anatomy is deteriorating considerably in recent time's medical colleges of India

Conclusions-This paper is an attempt to understand Anatomy education problems and to suggest necessary remedies with an aim to improve the teaching of Anatomy in India The finding are discussed

10. Objective Structured Assessment Tool For Dissection Skills: Concept And Applications

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Introduction: To perform better surgeries in future, first year medical students should be well versed with dissection practices to acquire surgical skills. In the current curriculum, dissection skills assessment has no role in assessment programme of under graduation. Present study was undertaken to develop an objective structured assessment tool for dissection skills of first year MBBS students and to determine its applications as a formative assessment tool during first year practical examinations.

Materials & Methods: Twenty five students of first year MBBS students (batch 2013-14) were randomly selected to participate. Intensive dissection skills training were given for four weeks. Skill assessment of students was done by a pre-test and a post-test as well as feedback regarding this training was obtained.

Results: Statistical analysis (Paired 't'test) revealed that mean post-test scores obtained by students were significantly higher than pre-test scores. Feedbacks from students supported this innovative assessment tool and technique.

Conclusion: We can conclude that objective structured assessment tool for dissection skills is an effective technique and it should be included as an assessment tool during formative assessment of first year MBBS students.

11. Effect Of Tanmatras Of Her Husband On A Female Youngster

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Heart rate, respiratory rate blood pressure, body temperature, blood concentration of oestrogen hormone, sex desire appeared in the form of face/eye glow were measured on 7th day of their menstrual cycle in 120 healthy youngsters of the age group ranging between 20 to 25 years

who were divided in six groups – A, B,C,D, E, and F (each group having 20 female youngsters) out of which A was used as control group while B,C,D,E, and F groups were exposed to TANMATRAS (Look, voice, odour taste and touch) of their husbands respectively continuously for one hour before recording the observation. Means of recorded datas were calculated separately for each group and each observation.

It was found that exposure to TANMATRAS of her husband increased the normal sex desire of a female youngster which is known as "Principle of TANMATRAS based sex desire" put forth by Dr. Keshaw Kumar. In a female youngster watching the face or listening the voice of her husband there was twice increase in her normal sex desire, while in female youngster touching/ smelling/ kissing her husband there was thrice increase in her normal sex desire.

Abstract Gross-I

1. Morphometric Study of Tricuspid Valve In Cadaveric Heart from Indian Population

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Abstract : Aim of study- Knowledge of the morphometric analysis of the normal tricuspid valve may be useful, for example in the context of the repair of annulus (circumference) of tricuspid valve prolapse or repair of the tricuspid valve after blunt chest trauma. Material & Method- In this study 120 formalin-fixed adult human hearts were dissected. After opening & cleaning the interior of the chamber thoroughly, right atrio-ventricular valve complex was observed & removed from heart and observation was made for number of cusps in each valve. After that we measured the tricuspid valve annulus after making a flap. A thread was well fitted at margin and the thread length was measured by vernier callipers. The area of circumference was obtained by formula $2\pi r^2$. Result- The 55.83 of valves had circumference between 7.5 to 10.0 cm, Maximum number of tricuspid valve (42.5%) had cross sectional area in the range 7.5- 10 cm² The posterior leaflet was the shortest, while the anterior leaflet was the widest and had the largest surface area. Accessory cusps in tricuspid valve were 01 to 05 numbers (Xt1-Xt5) and 68.62% valves had single accessory cusp.

Conclusion: The study of morphometric measurements of tricuspid valve will be of immense value in designing prototype of tricuspid valve prosthesis. Details of the study and its application will be discussed during paper presentation.

Keywords: tricuspid valve (Right atrio-ventricular valve), leaflet(cusp),circumference of tricuspid, area of cusp, Accessory cusps .

2. Study of Variations of Arterial System of Upper Extremity

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Aim: It is very important to have knowledge about any abnormal course and division of arteries of upper limb for surgical procedures of upper limb. So present study was done with an aim of finding out variations of arterial system of upper extremity.

Material & Methods: A total of 86 cadavers were dissected and studied for variations in arterial system of upper limb. Results: Along with other minor variation in one case ulnar artery was arising from brachial artery in arm and common interosseous and radial artery arise as a terminal branch of brachial artery at the level of the neck of the radius. Conclusion: Superficial position of ulnar artery make these more vulnerable to trauma and haemorrhage.

3. Morphological Study of Variations of The Infraclavicular Part of Lateral Cord of Brachial Plexus: In Human Cadavers

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The Present study shows the variations in the formation, course and distribution of infraclavicular part of lateral cord of brachial plexus in both upper limbs of 25 adult cadavers. Present study has been taken to see the course & position of lateral cord in relation to axillary artery. The distance of origin of median nerve and musculocutaneous nerve from the tip of coracoid process has also been measured. It has also been seen that the variations were unilateral or bilateral. We found variations in total 8 cases. In one case communication between median and musculocutaneous nerve was seen while in another case median nerve was formed by three roots. In one case median nerve was formed by continuation of lateral cord only. In one case axillary artery was present anterior to the roots of median nerve.

These variations should be kept in mind during nerve block or entrapment syndromes or operations on the upper limb.

4. Morphological Variations In Fissures And Lobar Pattern In Human Lungs

Abeer Zubair Khan, Virendra Kumar

Sri Ram Murti Smarak Institute of Medical Sciences, Bareilly

Aim: To study the variations in the lobar pattern and fissures of both right and left human lungs.

Materials and Methods: 41 formalin fixed cadaveric lungs were obtained from the Dept of Anatomy at SRMS IMS. The lungs were studied to observe the variations of fissures and lobes. The length and depth of both fissures was also measured in each lung. Abnormal or any accessory lobes were also noted.

Results: 18 right lung and 23 left lung specimens were obtained and studied. Among the right lungs studied one showed an incomplete oblique fissure, six showed incomplete horizontal fissures. The horizontal fissure was

absent in three right lungs. In the left lung only one lung showed the presence of an incomplete oblique fissure.

Conclusion: The lung is a vital organ for life. Hence considering the clinical

importance of such anomalies, we as anatomists opine that prior awareness and

anatomical knowledge of the presence of accessory lobes and fissures in the lung may be important for surgeons planning lobectomy, surgical resections involving individual segments and radiologists for accurate interpreting radiological images.

This knowledge has further become more significant with the increasing incidence of lung carcinomas.

5. Morphology of Gall Bladder- A Cadaveric Study

Stuti Srivastava, Virendra Kumar

Shri Ram Murti Smarak- Institute of Medical Sciences

Aim: To study variations in external morphology of cadaveric gall bladder.

Materials and Methods: This study was undertaken on 30 cadaveric liver and gall bladder specimens in the Department of Anatomy of Shri Ram Murti Smarak Institute of Medical Sciences in terms of length, maximum transverse diameter, shape, external variations and thickness of gall bladder and length of gall bladder below the inferior border of the liver using vernier caliper.

Results: Gall bladder had length ranging between 5.52 and 11.32 cm, transverse diameter between 2.78 and 5.57 cm, thickness at neck, body and fundus was not found uniform. The commonest shape observed in this study was pear shaped. The length of gall bladder below the inferior border of liver varied between 0.46 and 3.93 cm.

Conclusion: Since the incidence of gall bladder illness in our country is increasing day by day hence morphological knowledge is essential, not only from the point of biliary disease but also with respect to the various laparoscopic, surgical and invasive techniques for example T-tube cholangiogram in the proper diagnosis and management of gall bladder and extrahepatic bile duct diseases. The morphological data may be useful to the surgeons radiologists and anatomists.

6. Anthropometric Study Of External Ear Of Medical Students In India

Thammisetti Praveen

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Anthropometry refers to the measurement of living human body dimensions for the purpose of understanding human physical variation as it plays an important role in plastic surgery, prosthetic, and so on for data collection. Statistical data about the distribution of body dimensions in the population are useful for apparel sizing, forensics and optimize products. In human ear is the defining feature of the

face and its structure shows the signs of age and sex. So, the aim of our study to determine the mean value of different Morphometric measurements like

1. Total Ear Length (T.E.L)
2. Total Ear Width (T.E.W)
3. Lobular Height (L.H)
4. Lobular width (L.W)
5. Ear Index (E.I)
6. Lobular Index (L.I) of both Right and Left Ear in both genders of age group between 19-21. For this we have taken anthropometric measurements of external ear on 100 medical students in which 58 are Boys and 42 are Girls studying 1st M.B.B.S in Rama Medical College, Mandhana, Kanpur, Uttar Pradesh from all over India. Observations, discussion and conclusion will present at the time conference.

7. Tunnel For Ligamentum Teres Hepatis

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Liver may present with a variety of congenital anomalies including agenesis of lobes, deformed lobes, lobar hypotrophy, presence of accessory lobes and fissures (riedel's lobe) or absence of its segments. During an ongoing project on liver anomalies in the Department of Anatomy, King George's Medical University, UP, Lucknow, 40 specimens of embalmed liver were observed of which one of the specimens displayed a rare surface variation. A bridge composed of liver tissue was extending between quadrate lobe and left lobe of the liver. The bridge was covering fissure for ligamentum teres in such a manner that the fissure was converted into a tunnel for ligamentum teres. This kind of anomaly has been rarely reported in literature. The knowledge of such a variation can be utilised by pathologist to identify a stromal tumor or gangrene of ligamentum teres and by clinicians, radiologist, and surgeons to avoid possible errors in interpretation and misdiagnosis of liver pathology.

8. Comparison of the normal Heart Anatomy with heart of Dilated Cardiomyopathy

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Dilated cardiomyopathy (DCM) is a primary myocardial disorder characterized by dilation and reduced contractility of the left ventricle or both ventricles, with an unknown or familial origin. It is the second most important cardiovascular disease in humans and a major cause of morbidity and mortality in humans. The objective of this study is to evaluate the relationship between the gross and CT-skiagram as well as the histological sections in hearts of DCM. Myocardial samples were collected from the

hearts of 30 dead bodies from the Department Of Forensic Medicine, IMS, BHU, after taking written consent from the relatives of the deceased. There were 5 cases of DCM and the rest were controls. Gross measurements of these samples were taken and histology slides prepared. CT-scan of 20 patients was taken, of which 3 were DCM cases and rest were controls. The left ventricular wall was hypertrophied in all the cases observed of DCM. The presence of attenuated wavy fibers, fatty infiltration and fibrosis in the samples taken from the hearts of DCM patients was also observed.

9. Thyroidea Ima Artery - A Cadaveric Study

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Thyroid gland is highly vascular endocrine gland. It is estimated that it is relatively 3-4 times as great as that of brain & six times as vascular a kidney. Arteries supplying the gland are superior thyroid artery, a branch of external carotid artery & inferior thyroid arteries from thyrocervical trunk of the first part of subclavian artery and sometimes thyroidea ima artery from brachiocephalic trunk or arch of aorta. In the surgical literature, Catell, et al discussed the danger of injuring atypically originating large cervical arteries during operation on thyroid gland. This study was conducted over a period of 7 years from 2007-2014 in medical institutions on embalmed formalin preserved cadavers in the department of anatomy. Result showed only one cadaver with thyroidea ima artery, which was a directly branch of arch of aorta. It is important to know the possible variations of origin of arteries supplying the thyroid because lack of knowledge regarding the variation could lead to fatal errors. Hence it is essential to know the possible variation of blood supply of thyroid.

Abstracts-Gross-2

1. Variation of Branching Pattern of Celiac Trunk

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The anatomic variations of abdominal arteries are usually encountered during dissection, surgery and diagnostic imaging. In present case, in male cadaver of 40-45 yr age, we observed unusual long trunk (1.6cm) of celiac trunk at level of T12/L1 and there were 4 branches instead of three branches namely, a) left gastric artery b) common hepatic artery c) splenic artery d) an aberrant branch. This aberrant branch was 3cm in length, 0.2 cm diameter, running inferiorly towards left side of head of pancreas. It terminated by supplying the head of pancreas and uncinate process on its left side. Arterial variations are important in patient undergoing diagnostic angiography for gastrointestinal bleeding, celiac axis compression syndrome or operative procedure in patient with pancreatic & hepatobiliary malignancy and transcatheter therapy.

2. Early Division Of Renal Artery: A Case Report In North Indian Population

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Aim of the Study: Anatomical knowledge of the variations of the renal artery has grown in importance with increasing numbers of renal transplants, vascular reconstructions and various surgical and radiologic techniques being performed in recent years. The aim of the present case report is to bring awareness to clinicians about the variations in the blood supply of the kidney, especially for those who are performing invasive procedures and vascular surgeries on kidney.

Material & Methods : The case was observed on a 59 years old female cadaver and a 66 years old male cadaver during routine dissection of abdomen and posterior abdominal wall by the undergraduate MBBS students in dissection hall of Department of anatomy, Integral Institute of Medical Sciences & Research, Lucknow (U.P.)

Results: Bilateral early division of renal artery was observed in the 59 years old female cadaver. Right renal artery divided 1.5cm away from abdominal aorta into two branches (figure2) and left renal 0.5 cm away from abdominal aorta into three branches. In another 66 years old male cadaver we found early division of left renal artery just lateral to abdominal aorta into two branches. Kidneys and its surrounding vessels were studied for any variations carefully and photographed.

Conclusions: Renal artery variations knowledge is of utmost importance to the urologist and surgeons dealing with kidney retrieval and transplantation. It is also important to the radiologists in performing various endourologic procedures and innumerable interventional techniques.

Details of the case and its clinical importance will be discussed during the presentation.

3. Medicolegal Significance of Arm Span and Arm Length

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Introduction: The estimation of height using various physical measurements has been attempted by various researchers. From the earlier studies it has been concluded that the arm span is one of the reliable indicator of height of an individual. In the present study we extended our research to find the correlation between the height and arm length in an individual. These parameters can be of use in solving the medico-legal issues as well as in finding out the alterations in height of an individual that may occur due to progressive deformities of the spine and following correction of spinal deformities.

Materials and Method: The present study was conducted on 30 students of Santosh Medical College in the age group

of 18-25years. The students with any leg deformity or poor nutritional status were excluded. The height was measured with an individual standing barefoot on the plane ground and head in Frankfurt's plane. The arm length was taken as the distance between the tip of acromian process to the tip of middle finger of left hand. The arm span was measured as the distance between the tip of middle finger of right hand to tip of middle finger of left hand. The observations were tabulated and analysed using SPSS software.

Results: In 10 (33.3%) cases the arm span was less than the height of the individual. The correlation coefficient of arm span with the standing height was 0.785 and with arm length was 0.824. The results of arm span and arm length were highly significant ($p < 0.0001$) to the height of an individual.

Conclusion: The results suggest that the measurements of not only arm span but arm length can also be taken as a good predictor of height of an individual. This fact may be of help to forensic experts in solving medico-legal cases. They may also be useful to anthropologists to understand the racial variations.

4. The Cadaveric study of variations at wrist: Application in ulnar nerve block.

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Background: Ulnar nerve blockade as a component of wrist block is a promising

technique for adequate anesthesia and analgesia for different surgeries of the hand. Due to anatomical variations in the location of ulnar nerve under the flexor carpi

ulnaris (FCU) a technique with good results and minimal complications are required.

Aim: The aim of the following study is to compare the three techniques (volar, transtendinous volar [TTV] and ulnar) for ulnar nerve block at the wrist in human cadaveric wrists.

Materials and Methods: Our study was conducted using 40 cadaver wrists. After inserting standard hypodermic needles by three techniques for ulnar nerve blockade at the wrist, a detailed dissection of FCU was done. The mean distance from the tip of the needle to ulnar artery/nerve and number of instances in which the ulnar artery/nerve pierced were observed.

Results: Inter-group statistical significance was observed in measurement of the mean distance (mm) from the tip of the needle to the ulnar artery (volar [0.92 ± 0.11], TTV [3.96 ± 0.14] and ulnar [7.14 ± 0.08] approaches) and ulnar nerve (volar/TTV/ulnar approaches were $0.71 \pm 0.12/3.61 \pm 0.10/6.31 \pm 0.49$, respectively) ($P = 0.001$). Inadvertent intra-arterial/intraneural injections was seen with volar approach in 14 (35%) and 16 (40%) of the cadaveric wrists respectively, statistically significant with transtendinous and ulnar techniques of ulnar nerve block.

Conclusion: TTV approach could be a better technique of choice for ulnar nerve blockade at the wrist because of its ease to practice, safer profile and minimum chances of inadvertent intra-arterial/intraneural injection with adequate anesthesia/analgesia.

5. Variant Origin of left hepatic artery from left gastric artery

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Abstract:- During routine dissection of upper abdomen of middle aged cadaver in the Department of Anatomy, Subharti Medical College, Meerut

Here common hepatic artery continued as proper hepatic artery and divides as Cystic artery and Right Hepatic Artery with Variation in the origin of left Hepatic artery from left gastric artery was observed.

The Possible embryological and clinical implication of the variant will be discussed.

6. Congenital Anomalies Of Coronary Arteries

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The changing epidemiological trend of coronary artery diseases in India is a serious concern to health professionals as well as common people. The World health organization has categorized coronary artery disease as our modern "EPIDEMIC" which will assume a status of major killer by the year 2015 (Sethi, 1997). India to overcome the burden of 60% of worlds' heart patients by the year 2010 (American Heart Association). Coronary artery diseases are increasing throughout the world. Majority of cases are due to coronary artery atherosclerosis.

Congenital defects of coronary arteries are often not known or neglected. Who knows Sudden death after strenuous exercise may be due to angina originating from congenital malposition of coronary arteries. Anomalous left coronary origin from right sinus of valsalva can lead to significant myocardial ischemia and infarction. Less than 1% of population have congenital coronary arterial defects. It is said incorrectly that congenital anomalies of coronary arteries which are only positional are thought to be rare and of minor significance. Coronary arteries are more prone to develop atherosclerosis than other arteries due to subendothelial deposits of lipids. Variations of coronary arteries occur in their origin, numbers, abnormal communications and in abnormal course. Most often it is diagnosed or detected during surgery or at autopsy. Knowledge regarding congenital variations or malformations are mandatory for cardiac physicians, surgeons and angiographers.

7. The Prevalence and Agenesis of Palmaris Longus Muscle in an Indian Medical College

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Palmaris Longus Muscle is one of the most variable muscle in the human body (Brones & Wilgis, 1978) in the concern of presence and absence. Palmaris longus (PL) muscle, although of little functional use to the human upper limb, assumes great importance when used as a donor tendon for transfer or transplant or grafting. It is The most desirable tendons in reconstructive surgery are the palmaris longus tendons. In the present study, 500 Medical students (210 males and 290 females) of different ages from Teerthankar Mahaveer Medical College & Research Centre, Moradabad were examined for the presence or absence of the PL tendon, using the conventional four tests are following, Schaeffer's test, Thompson's test, Mishra's first test, Pushpakumakar's two finger sign method. PL agenesis was further analyzed statistically for differences in the prevalence and agenesis of PL with regard to sex and body side. I was observed the 290 females, the palmaris longus muscle was present in 72.06% (n=209) of the total population. Bilateral absence of the muscle was found in 18.96% (n=55) of the sample. Unilateral absence on the left side was found in 5.86% (n=17) of the cases and on the right side in 3.10% (n=9) of the cases and 210 males, 97.61% (n=205) had the palmaris longus muscle on both the left and the right sides. In the sample population, 0.47% (n=1) had bilateral absence of palmaris longus. The muscle was absent on the left side in 0.95% (n=2) of the cases and on the right side in 0.95% (n=2) of the cases.

8. Correlation Between The Foot Arch Index And Body Mass Index In Young Adults

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Excessive increase in weight bearing forces caused by obesity may negatively affect the lower limb and feet. The component primarily responsible for absorbing and dissipating these forces is the medial longitudinal arch. Arch index provides and important measure for objective assessment for comparative purposes. Increased body mass index (BMI) has been shown to affect the foot arch index. An arch index of less than 0.21 indicates cavus foot while greater than 0.26 is indicative of a planus foot whereas arch index between 0.21 and 0.26 corroborates normal arch height.

The aim of the present study is to correlate the arch index derived from foot print measurement in BMI based normal weight, overweight and obese young adults.