

value 12.59 ± 1.33 cm and 10.33 – 15.91 cm with mean value 12.67 ± 1.21 cm respectively. The mean anteroposterior diameter in males and females were 8.94 ± 1.29 cm and 8.65 ± 1.46 cm respectively. Both the longitudinal and anteroposterior diameters of liver were increased as body weight and Body Mass Index (BMI) increased in both males and females.

Conclusion: As increase or decrease in liver size is an important index for some liver as well as systemic diseases. So, this study will identify the normal reference values for the Manipuri adult population in future.

Conflicts of interest

The authors have none to declare.

<http://dx.doi.org/10.1016/j.jasi.2016.08.087>

80

Anatomical variations in intrahepatic portal vein ramification: A 64 slice CT study

K. Malviya^{1,2,*}, S.K. Pandey¹, A. Verma², S.K. Pandey^{1,2}

¹ Department of Anatomy, Forensic Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

² Department of Radiodiagnosis, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

Aims and objectives: The variations in the intrahepatic branching pattern of Portal vein are mandatory factor while dealing with subsegmental hepatectomy and segmental liver resection. In liver transplantation the donor's safety is a primary concern and therefore the knowledge of intrahepatic vascular segmentation is necessary. The present study is based on intrahepatic portal vein branching to describe liver segmentation by using 64 slice CT portography.

Material and methods: In the present study 20 patients were screened for vascular segmentation of liver, based on intrahepatic branching pattern of the portal vein by using 64-slice CT portography. CT liver portography was carried out with GE (General Electric) light speed VCT 64 slice MDCT machine and 4.4 version advantage workstation. 64 slice portography was performed by injecting 40–60 ml of iodinated contrast material (Omnipaque 350).

Results: In this study normal intrahepatic branching pattern of portal (Bifurcation) was observed in 60% (12) cases, whereas the abnormal pattern i.e. trifurcation in 20% (4) cases, right posterior branch first branch of portal vein in 10% (2) cases, absence of bifurcation in 5% (1) case and absence of right posterior branch in 5% (1) case has been observed. Accessory branches were also present in both right and left lobe that had been observed by using 64 slice CT scan. The finding will be discussed on the scientific platform.

Conclusion: The knowledge of intrahepatic branching pattern of portal vein are essential to ensure the positive surgical result in various surgical procedure.

Conflicts of interest

The authors have none to declare.

<http://dx.doi.org/10.1016/j.jasi.2016.08.088>



81

Plastination of brain specimens by Orthocryl: A viable alternative?

Subhendu Pandit*, S. Kumar

Department of Anatomy, Armed Forces Medical College, Pune, Maharashtra, India

Aims and objectives: Tissue preservation is an important aspect in teaching Anatomy. Most of the organs and tissues are preserved in formalin with its own set of disadvantages. Plastination is a unique method of permanently preserving tissue in a life like state.

The classical way of Plastination developed by western authorities is a labour and equipment intensive affair. The expensive polymers and equipments are required to be imported at a higher cost. However certain studies on newer polymers have showed inexpensive ways to preserve anatomical tissues. The quality of these specimens matches those produced by the classical method.

Material and methods: PMMA based polymer called Orthocryl was used to plastinate the brain specimens. The specimens were made to undergo stages of dehydration, impregnation with polymers and curing. The results were studied and interpreted under various parameters.

Results: The results were interpreted under various parameters like shrinkage, retention of colour, odour, pliability and retention of gross anatomy. The study concluded that Orthocryl retained colour with minimal shrinkage. The gross Anatomy was maintained.

Conclusion: The study concluded that indigenous methods and materials can produce quality plastinates which can be an important adjunct to traditional methods of teaching.

Conflicts of interest

The authors have none to declare.

<http://dx.doi.org/10.1016/j.jasi.2016.08.089>

82

Morphometric study of proximal femur in post-menopausal women: A radiological study

Lopamundra Nayak*, S. Senapati, B. Mohanty, S. Panda, C.P. Kumar

Institute of Medical Sciences & SUM Hospital, Bhubaneswar, Odisha, India

Aims and objectives: The structure and geometry of femur play an important role in causing hip fracture. The aim of this study was to find out the correlation between proximal femoral geometry with fracture and non fracture cases in post-menopausal women.

Material and methods: Total 191 post-menopausal women over 50 years of age were included in the study out of which 27 were fracture cases (with femur fracture) and 163 were in control group (with no fracture). Age, height, weight were recorded for all cases of the study. The antero-posterior views of pelvic radiographs were taken. The radiographic measurements were performed in all cases, including the hip axis length (HAL), femoral neck shaft angle (FNSA), femoral neck axis length (FAL), femoral shaft width (FSW), acetabular width (AW) and femoral head width (FHW).

Results and conclusion: Hip axis length was significantly longer in fractured patients [mean value was 134.3 ± 5.7 mm in fractured group and 130.4 ± 6.2 mm in control group]. The femoral neck shaft angle was also significantly higher in fracture cases than in control group [mean value $132.8^\circ \pm 5.5$ in fractured group and $128.9^\circ \pm 5.9$



in control group ($p=0.01$)). Other parameters were tabulated and statistically analyzed.

Conflicts of interest

The authors have none to declare.

<http://dx.doi.org/10.1016/j.jasi.2016.08.090>

83

A study of morphometric variations of celiac trunk using computed tomographic angiography



Hamzah M. Hafezji*, D. Gupta

Surat Municipal Institute of Medical Education and Research, Surat, Gujarat, India

Aims and objectives: To evaluate the normal anatomy of celiac trunk and prevalence of anatomical variations of celiac trunk in the South Gujarat population.

Material and methods: A total of 50 subjects, between 3 and 70 years of age and both sex, who underwent CT angiography of abdominal aorta for medical or surgical indications were selected for the study. Subjects allergic to contrast medium or having history of malignancy or previous abdominal surgery or aortoarteritis were excluded from the study. The angiography images were obtained using spiral CT scanner from department of radio-diagnosis of Surat Municipal Institute of Medical Education and Research (SMIMER) and reformatted as 3D images to evaluate celiac arterial anatomy and its variations with respect to level of origin, length, diameter and branching pattern.

Results: Variation in the vertebral level of origin of celiac trunk was observed in about 60% cases. The length and dimensions of the trunk also displayed a wide range of variation. Variant branching patterns are found in 32% of subjects with bifurcation of celiac trunk into splenic and common hepatic arteries and left gastric arises from some different sources.

Conclusion: The knowledge of morphometric variations of celiac trunk is indispensable for diagnostic and operative procedures of abdomen. Without a thorough understanding of the arterial architecture and the knowledge of variations, surgery may carry a considerable risk leading to lethal complications. A high celiac trunk may lead to its compression. Variation in branching pattern is considerably important in hepatobiliary surgery and chemo-embolization for malignancy.

Conflicts of interest

The authors have none to declare.

<http://dx.doi.org/10.1016/j.jasi.2016.08.091>

84

Morphometry of lumbar pedicle using CT scans and digital images



Sunil Kumar Gupta^{1,*}, S. Gamangatti², K. Farooque³, R. Sehgal¹

¹ Department of Anatomy, AIIMS, New Delhi, India

² Department of Radiology, AIIMS, New Delhi, India

³ Department of Orthopedics, AIIMS, New Delhi, India

Aims and objectives: The lumbar pedicle has garnered a lot of attention in the last decade due to its surgical utility during

screw placement to achieve safe and strong posterior stabilization therefore the present study aimed to measure the surgically relevant dimensions of the lumbar pedicle in normal Indian subjects, to define baseline safety parameters for posterior pedicle screw fixation.

Material and methods: CT Scans of the lumbar spine of 25 adult Indian patients free from spinal disorders were obtained from department of Radio-diagnosis and 60 macerated lumbar vertebrae of adult Indian subjects with no visible deformities were obtained from the Department of Anatomy, AIIMS, New Delhi following institutional ethical clearance. Morphometric measurements were taken for each lumbar vertebra on the CT scans of lumbar spine (using computer software) as well as on the Image analyzer (using ImageJ software) for digital photo-graphs of individual lumbar vertebrae.

Results: The statistically significant difference was observed only in 2 parameters (SA – Sagittal Angle of Pedicle, D_{MA} – Depth to anterior cortex along midline axis) on both left and right pedicle of typical lumbar vertebra and 4 parameters on left (TA – Transverse Angle, SA – Sagittal Angle, D_{PA} – Depth to anterior cortex along Pedicle axis, D_{MA}) and five parameters on right (PW – Pedicle Isthmus Width, PH – Pedicle Isthmus Height, TA, SA, D_{MA}) pedicle of atypical lumbar vertebra when comparison was done between CT Scans and Image J software ($p < 0.05$).

Conclusion: This baseline data may be of great value to spine surgeons while correcting various deformities using pedicle screw in this region.

Conflicts of interest

The authors have none to declare.

<http://dx.doi.org/10.1016/j.jasi.2016.08.092>

85

Association between nasal septal deviation and pneumatization of mastoid air cells: A computerised tomographic study



N. Vinay Kumar*, T.S. Gugapriya, E. Kamala, S.D. Nalinakumari

Chennai Medical College Hospital and Research Centre, Irungalur, Trichy, Tamil Nadu, India

Aims and objectives: The air reservoir for the middle ear, the mastoid air cell system holds a prominent place in the pneumatization systems of the skull. The nasal septum helps to regulate the amount of air passing through the nasal cavities. Nasal septal deviation (NSD) has been claimed to jeopardize the nasal aerodynamics and diminish the amount of nasal airflow at the convex side thereby altering the pressure of the pneumatization system of the skull. The objective of this study was to find the association between the degree of NSD and pneumatization of mastoid air cells.

Material and methods: The CT images from 120 subjects of both sexes were studied retrospectively. The images of subjects who presented with NSD were included for this study. Other gross pathologies that distorted the visualisation of the PNS region like tumor and trauma were excluded from this study. The direction and degree of NSD were noted. The NSD was graded into three grades according to Elahi et al.'s grading system. The pneumatization of mastoid air cells was noted.

Results: The Grade I, II, III NSD were seen in 20, 45, 55 subjects respectively. Grade III was more frequently seen in this study. The mastoid air system was found to be smaller in the deviated side of septum compared to the contralateral side.