

males. It was found to be 0.27 in right mandibular canine; and 0.27 in left mandibular canine among females.

Sexual dimorphism for right mandibular canine was calculated as 7.954%; and for left canine, it was 8.891%.

**Conclusion:** From my study it can be concluded that diagnostic efficacy of mandibular canine index and sexual dimorphism method is important for sexual dimorphism, by these methods we can easily determined the role of mandibular canines in sexual dimorphism the relevant values always higher in males as compare in females.

#### Conflicts of interest

The authors have none to declare.

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#### Age estimation from epiphyseal union degrees of medial end of clavicle



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**Introduction:** Age estimation in cadavers, human remains and living individuals is important because it clarifies issues with significant legal and social ramifications. Clavicle displays longest growth period as compared to any other long bone in the body and the fusion of medial epiphyseal cartilage of clavicle has proved to be useful in estimating the skeletal age in young adults.

**Materials and methods:** The present study was done in the Department of Anatomy in collaboration with the Department of Forensic Medicine, Pt. B.D. Sharma PGIMS, and Rohtak. 50 pairs of autopsied clavicles of age group 18–28 years were retrieved. The bones were cleaned and dried. Epiphyseal union was analysed in terms of 4 stages: (1) non-union, (2) beginning of union, (3) active union, and (4) complete union.

**Results:** In both the sexes, when union is in stage 1, the age was certainly estimated to be less than 18 years old and in stage 4, it was more than 23 years old. The minimum age of beginning of fusion was 21 years in females and 18 years in males. The minimum age of complete union was 23 years in females and 24 years in males.

**Conclusion:** In females, the union of medial epiphyseal cartilage of clavicle appears to proceed faster in comparison to males.

#### Conflicts of interest

The authors have none to declare.

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#### Porta hepatis in normal liver



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**Introduction:** Hepatic surgery requires comprehensive knowledge of structures passing through porta hepatis. This fact prompted us to undertake the study of porta hepatis. Our aim was to find out the dimensions and shape of porta hepatis and the numerical variations of structures passing through it.

**Material and methods:** This study was carried out on 25 adult cadaveric formalin preserved human liver. The porta hepatis was identified and its transverse diameter, maximum anteroposterior diameter, various parts of liver contributing in its formation and total circumference were measured using Digital Sliding Vernier Caliper, thread and scale. Number of arteries, veins and ducts passing through it were observed.

**Observations:** The mean transverse diameter, anteroposterior diameter and total circumference of porta hepatis was  $3.80 \pm 1.03$  cm,  $1.79 \pm 0.43$  cm and  $13.61 \pm 1.92$  cm respectively. Maximum contribution to the circumference was by caudate process ( $2.26 \pm 0.83$  cm) and minimum by fossa for gall bladder ( $1.56 \pm 0.42$  cm). 32% (maximum) cases showed presence of 2 arteries, 1 vein and 1 duct at porta hepatis. Maximum number of arteries, veins and ducts passing through it were 5 (4% cases), 3 (4%) and 3 (4%) respectively. In most of the cases the shape of porta hepatis was triangular.

**Conclusion:** From the above study we conclude that dimensions and shape of porta hepatis; arrangement and number of structures at it is highly variable and hence its knowledge can be of great importance to hepatobiliary surgeons.

#### Conflicts of interest

The author has none to declare.

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#### A study of diaphyseal nutrient foramina in human tibia



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**Introduction:** The nutrient artery is the major source of blood supply to the long bones. It enters through a nutrient foramen which runs obliquely and usually directed away from the growing end. The nutrient artery of tibia is the largest nutrient artery of the body. The knowledge of presence, number, location and direction of nutrient foramen has clinical significance in orthopaedic procedures. The present study analysed the presence, number, location and direction of nutrient foramina in 100 dry tibia bones taken from Department of Anatomy, RIMS.

**Materials and methods:** The present study was conducted on 100 dry adult tibia bones (49 right, 51 left) of unknown sex and origin from the Department of Anatomy, Regional Institute of Medical Sciences, Imphal, Manipur. The lengths of tibia were measured using an osteometric board. For the purpose of study, the tibia was divided into three equal segments. The presence, number, location and direction of nutrient foramen were noted.

**Results:** The nutrient foramen was located in upper third of tibia in 67.3%, in middle third in 32.7% of tibia and no nutrient were found in lower third. Out of 100 bones, 91% of tibia has single foramina, 8% has double nutrient foramina and 1% has triple nutrient foramina. Most of the nutrient foramina was located on the posterior surface (96.3%) compared to medial and anterior surfaces. Out of 110 nutrient foramina, 3 were seen directing towards proximal end (defying ossification law).

**Conclusion:** The study will provide the essential data for nutrient foramen which will be helpful in surgical orthopaedic procedures.