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### Morphologic and morphometric analysis of human occipital condyle and its importance in craniovertebral surgeries



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**Aims and objectives:** The human occipital condyle is a unique bony structure which connects cranium to the vertebral column. The stability of craniovertebral joint depends largely on the morphology and morphometry of the occipital condyles. The complexity of this area poses a challenge to the neurosurgeons for craniovertebral surgeries especially during transcondylar approach. The aim of the present study is to analyze the morphology and morphometry of occipital condyles in North Indian population.

**Material and methods:** The study was conducted on the 60 occipital condyles of 30 adult dry skulls of North Indian population. The occipital condyles were classified according to their shape. Morphometric parameters like; length and width of occipital condyles, anterior intercondylar distance and posterior intercondylar distance were taken with the help of vernier caliper. The shape and features of articular facet of occipital condyles were also noted. Presence of any unusual features such as ridges, grooves and tubercles were also observed.

**Results:** The great variation was observed in the shape of the occipital condyles. The oblong shaped occipital condyle was the most predominant type. The mean length and width of occipital condyle was 22.8 mm and 13.5 mm respectively. The mean anterior and posterior intercondylar distances were 21.7 mm and 38.4 mm respectively. The articular facet of the occipital condyles was mostly convex but flat condyles were also observed quite frequently.

**Conclusion:** The documented parameters of occipital condyles are likely to have variations with respect to shape, length, width and their orientation. The knowledge of the variations in occipital condyle along with careful radiological analysis may help neurosurgeons during craniovertebral surgeries.

#### Conflicts of interest

The authors have none to declare.

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### Osteogenic study of lumbosacral transitional vertebra in central India region



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**Aims and objectives:** The morphological variations in the lumbosacral region along with change in the number of sacral and lumbar vertebra are accidental findings during the study of dry human sacra. The study was designed to know the prevalence of lumbosacral transitional vertebra (LSTV) in Central India. Considering the variations, we conducted this study as a prelude to any type

of experimental work in biomechanics, for diagnostic and therapeutic purposes in low back pain and for interventional procedures like spinal anesthesia and lumbar puncture.

**Material and methods:** Observational study and morphometric measurements of 168 normal and 38 lumbosacral transitional vertebrae were recorded and classified as per Castellvi's classification and parameters of variant sacra were compared with normal sacra ( $n = 206$ ).

**Results:** 38 (18.4%) lumbosacral transitional vertebra of which 29 (14.1%) cases of sacralization, 9 (4.3%) cases of lumbarization and 16 (7.8%) cases of fusion of coccyx were found. In 14 (36.8%), 5 (13.2%), 17 (44.7%) and 2 (5.3%) sacra falls in type I, type II, type III and type IV of Castellvi's classification.

**Conclusion:** LSTV is attributed to its embryological origin and variations are outcome of series of morphological changes during the transition and may interfere with the normal functioning because of compression of nerves, soft tissue and ligamentous strain between joints. Knowledge of these variations is important because of increased incidence of lower backache, sciatica, prolapsed disc and in interventional procedures like spinal anesthesia and lumbar puncture.

#### Conflicts of interest

The authors have none to declare.

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### Terminal branching pattern of right coronary artery



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**Aims and objectives:** The present cadaveric study was to evaluate termination and branching pattern of right coronary artery.

**Material and methods:** Thirty-five preserved hearts were dissected; cardiac veins and coronary sinus were removed to visualize the arteries properly. The right coronary artery (RCA) and its branches were dissected until their termination to see coronary artery pattern especially right coronary artery in both right dominance and left dominance.

**Results:** Out of 35 human hearts, 32 had the right and 1 the left dominance. The remaining 2 hearts had co-dominance type of coronary circulation. The percentage incidence 91.4% in right dominance, 2.85% left dominance and 5.71% were of co-dominance. RCA terminated at right border in none case, at crux-acute border (in 2.85%), at crux- (in 25.71%), and at obtuse border-crux (in 57.14%) and at left border (in 14.28%) hearts. In the present study, the sinoatrial nodal artery arose from RCA in 63% cases; from left circumflex artery in 20%, and from both in 17% hearts.

**Conclusion:** In the present study RCA terminated most commonly at obtuse border-crux (57.14%) followed by crux (25.70%), left border (14.28%) and crux-acute border (2.85%).

#### Conflicts of interest

The authors have none to declare.

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