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**Morphology and variations in atlas vertebrae in north Indian population: An osteological study**

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First cervical vertebra or atlas is subjected to great amount of variations in its morphology in relation to accessory foramina, superior articular facet and posterior arch. The knowledge of these variations must be known to orthopedic and neurosurgeons to avoid vertebral artery and spinal cord injuries which may lead to various neurological symptoms. Aim of this study is to observe the morphology and variations of atlas. 100 atlas vertebrae were studied in the Department of Anatomy, King George's Medical University, Lucknow, Uttar Pradesh, India. Vertebrae were examined to look for normal morphology as well as for any variation. Presence of any accessory foramina, shape of the superior and inferior articular facets, presence of constrictions and grooves in the superior articular facets and their tendency of separation were observed. Deficiency in posterior arch and variations in the posterior tubercles were also noted. Foramen transversarium was found present in all the specimens. Accessory foramina were present in 22% and unfused foramen transversarium was found in 1% of specimens. Superior articular facet showed various variations in its shape while the inferior articular facet was found to be consistent in its morphology in all the specimens. Dumb-bell shaped superior articular facet was observed in 67% of specimens. Constrictions and grooves were observed in 73% and 53% of the specimens respectively. Average anteroposterior diameter of superior articular facets was  $2.3 \pm 0.14$  cm, transverse diameter was  $1.01 \pm 0.14$  cm and posterior arch variations were noted in 12% of the specimens.

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