

SOME RARE ABNORMALITIES OF BONES IN THE ANATOMY MUSEUM OF THE GRANT MEDICAL COLLEGE, BOMBAY

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(1) ABNORMAL FIRST RIB

THE head is flattened vertically, its vertebral edge being thicker above and thinner below. On its postero-lateral aspect is a pentagonal impression for articulation with the body of the first thoracic vertebra. The neck is relatively long, roughly quadrilateral and projects upwards and outwards, with not the slightest backward inclination. The tubercle is transversely elongated with a very small medial articular area. The superior surface in its anterior two-thirds is flattened, looks upwards and outwards, and is more extensive than its posterior one-third, which looks upwards and backwards. At its anterior end is a groove for the subclavian vein which is inclined almost directly backwards. Medial to this groove is a rough area for the attachment of the subclavius muscle. In front of the tubercle is a concave rough area for the attachment of the scalenus medius muscle, and in front of this again is a forwardly directed groove for the subclavian artery. The anterior two-thirds of the outer border of the body of the rib is straight, while the posterior one-third is curved and is marked by the attachment of the serratus anterior. Between the grooves for the vein and artery and abutting on the medial border is a wedge-shaped bony projection. Surmounting this projection is a quadrilateral backwardly directed rough impression for the cartilage of a cervical rib; while anteriorly is a thin raised edge which marks the extensive attachment of the scalenus anterior. Apparently the anterior part of a cervical rib is ossified and fused to the first rib, while the posterior part persisted in a cartilaginous condition. The specimen thus exhibits two features of exceptional interest: (i) the relatively high position of the scalene tubercle, and (ii) the fusion of the ossified anterior part of a cervical rib the posterior part of which was presumably cartilaginous.

(2) PARTIAL LATERAL FUSION OF ATLAS WITH OCCIPITAL BONE

THE atlas appears to be twisted about a vertical axis to such extent that the anterior tubercle is in line with the hamulus of the right medial pterygoid lamina. Compared with the normal, the right half of the anterior arch is relatively short while the left half is elongated. The articular facet for the odontoid process is shifted leftwards and involves the anterior part of the foramen magnum and to a very slight extent the posterior surface of the anterior arch of the atlas.

THE right lateral mass lies antero-lateral to the right condyle of the occipital bone. The right inferior articular facet is reniform and slightly concave. The jugular process of the occipital bone and the right superior articular facet of the atlas are partially fused. The left lateral mass and the entire left half of the posterior arch are fused with the lateral condyle and the rim of the foramen magnum postero-laterally. An interval, however, exists for the vertebral artery which grooves the upper surface of the lateral posterior arch in its anterior part, the groove being continuous with the foramen for the vertebral artery entering the foramen magnum behind the left condyle of the occipital bone. The right half of the posterior arch is independent of the occipital bone. The two halves of the posterior arch of the atlas are discontinuous, there being an interval between them.

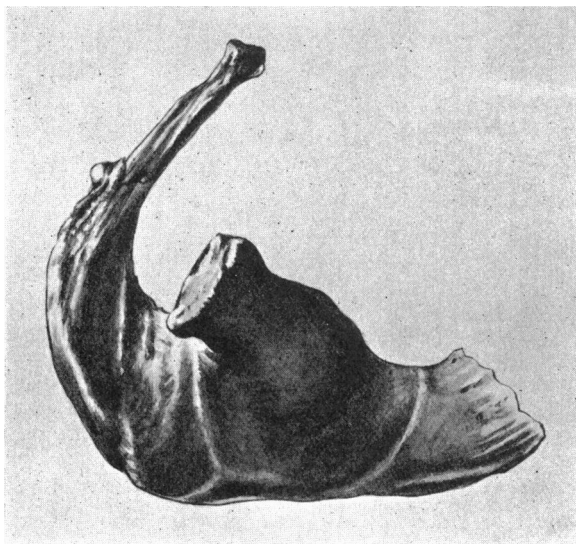


Fig. 1.

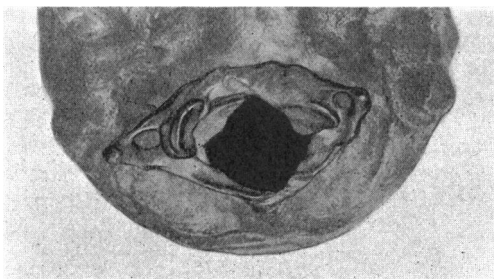


Fig. 2.



Fig. 3.

(3) ANTERIOR FUSION OF ATLAS WITH OCCIPITAL BONE

The anterior arch of the atlas is narrow and completely fused with the anterior margin of the foramen magnum. The anterior tubercle of the anterior arch is trifid and projects inferiorly and to the right. The superior articular facets are fused with the condyles of the occipital bone. The inferior articular facets are flat and not cup shaped. The left transverse process has a foramen transversarium and is distinct from the jugular process, while the right one has no obvious foramen transversarium, is fused with the jugular process laterally and helps to form a foramen between the condyle and the jugular process for the passage of the vertebral artery. The entire posterior arch is partially fused with the posterior margin of the foramen magnum.