

Anatomy and prevalence of atlas vertebrae bridges in a Kenyan population: An osteological study

Abstract:

Atlas bridges are bony outgrowths over the third segment of the vertebral artery. They may exist as incipient, incomplete, or complete bridges, converting the groove into a deep sulcus, incomplete, or complete foramen respectively. These bridges and their associated foramina display bilateral and sex differences in their prevalence and type. Occurrence of these bridges may predispose to vertebrobasilar insufficiency and Barre-Lieou syndrome. The coexistence of lateral and posterior bridges as well as side predilection is not clear in either sex. Their relative occurrence may also point to some evolutionary patterns. We studied the prevalence, side predilection, coexistence, and anatomical features of atlas bridges using 102 dry atlases (49 males and 53 females) obtained from the osteology department of the National Museums of Kenya. Complete posterior bridges occurred in 14.7% and 13.7% on the right and left sides, respectively. A lateral bridge was found in 3.9% of cases on the right side only. There was positive correlation in the coexistence of the bridges. A retrotransverse foramen was found in 13% of cases. This study has found that posterior and lateral atlas bridges occur in association especially on the right side. Complete bridges were more prevalent in females and were more often present on the right side. This pattern seems to mirror the sexual predilection of vertebral artery compression syndromes. Gender roles may have an influence on the occurrence of these bridges and therefore the syndromes as well.