Atlanito-occipital fusion: an osteological study with clinical implications.

Abstract

Atlanito-occipital fusion may be symptomatic or asymptomatic in nature. The anomaly may be incidentally detected at autopsies or during routine cadaveric dissections. The fusion of the atlas with occipital bone may result in the compression of vertebral artery and first cervical nerve. A total of 55 dried occipital bones in the Department of Anatomy, Universiti Kebangsaan Malaysia (UKM) and Department of Anatomy, Universiti Malaya (UM) were included in the study. The presence of atlanitooccipital fusion was closely observed and morphometric measurements were taken. Out of 55 dried occipital bones studied, we observed atlanito-occipitalization in two bones (3.63%). A total of 53 occipital bones (96.37%) did not exhibit any anomalous fusions. Out of the two anomalous atlanito-occipital fusions, one was complete while the other had unilateral right-sided fusion of the atlas with the occipital bone. Atlanito-occipitalization may result in the compression of vertebral artery thereby influencing the blood flow to the brain. Atlanito-occipitalization may also result in compression of the first cervical nerve. The action of the postural muscles on the extensor surface may be affected as a result of this anomaly. The present article discusses the clinical implications of atlanito-occipitalization, which may be beneficial for neurosurgeons, neurologists and radiologists in day-to-day clinical practice (Fig. 3, Ref. 17).