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Original Article

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IS THE INCA BONE USEFUL FOR RACIAL IDENTIFICATION?

According to embryological data, the interparietal part of the occipital squama develops from one primary and two secondary ossification centers. Inca bones originate from incomplete ossification of these secondary pairs during embryogenesis, resulting in the formation of distinct bones separated by sutures. This study assessed the prevalence and variations of Inca bones across both modern and ancient human populations, analyzing 3,544 crania from contemporary populations in Europe, Siberia, the Americas, Asia, Africa, Australia, and Melanesia, along with 2,038 ancient crania from the Neolithic to the Medieval periods in Siberia, Armenia, Crimea, and Eastern Europe. The highest incidences of Inca bones, exceeding 4%, were observed in isolated groups such as the Orochi (15%), Ainu (8.5%), Melanesians (6.2%), and Malays (4.8%). The results of the study indicate that there is no correlation between the frequency distribution of this trait and specific regions. The presence of the Inca bone, being influenced by genetic factors, suggests that its occurrence in certain small, isolated populations is attributable to genetic drift. Among the structural variants of Inca bones identified, an extremely rare quadripartite type was observed in a Scythian cranium from Crimea. In this specimen, both pairs of secondary ossification centers in the upper part of the occipital squama manifested as separate bones, mirroring the structure found in lower vertebrates. The occurrence of various Inca bone variants in humans may represent atavistic regressions triggered by mutations that change the timing of suture closure and cranial ossification patterns. Given its hereditary nature, the Inca bone could be crucial for establishing kinship in fossil populations and in forensic medical practice. The possibility of encountering Inca bones should also be considered during surgical procedures.

Keywords: *skull anatomy, occipital bone, interparietal bone, quadripartite Inca bone, preinterparietal bone*

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