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Research Paper

Study of Interparietal Bone in 100 Human Skulls

Medical Science

KEYWORDS : Skull, Interparietal bone

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ABSTRACT

Interparietal bones have a definite anthropological value. It is very commonly found at the junction of lambdoid suture and sagittal suture. Their size, shape, numbers and positions are variable. A study was undertaken to find occurrence of Interparietal bones in population of Gujarat. Five out of hundred skull studied had Interparietal bone of varying shape and size. The skulls were examined thoroughly.

Introduction:
Interparietal bones are supernumerary bones in the Interparietal region. There morphogenesis depends on partial or complete failure of fusion of ossification centers of squamous part of occipital bone. Variation is very common in this bone. The Interparietal bone may exist in three or four pieces, some find it as bipartite or single. Inca population has common manifestation of Interparietal bones, that's why it is also called 'os Inca' which suggest their ethnic correlation and genetic inheritance. The formation of such bones may be attributed by stress which causes cranial deformation because of environmental variations in dural strain within open sutures and fontanelle.

Materials and Method:
The present study was conducted at Anatomy department of Smt.N.H.L. Municipal medical college, Ahmedabad. We observed 100 dry human skulls of unknown age and sex for the presence of Interparietal bone. Interparietal bones were found only in five skulls. Their numbers, size, position were noted. The maximum width and height of the bone were measured.

Observations:
Out of hundred skulls examined by us five skulls have Interparietal bones. Incidence of Interparietal bones was 5% in present study.

On examination we observed in one skull large separate bone at the junction of lambdoid suture and sagittal suture. It was rhomboid in shape. This has 5.3cm vertical length and 5.6cm transverse diameter. External occipital protuberance was 2cm below its inferior angle. It articulates on two sides with parietal bone and at base it articulates with the squamous part of occipital bone. In other skulls, Interparietal bones are of varying size and shape. There were several sutural bones also found .Rest of the skull did not show any other abnormality.

Discussion:
There is not clear classification of supernumerary bones but they have definite morphogenesis. Squamous part of occipital bone above the highest nuchal line developed from membrane and part below the highest nuchal line is developed from the two cartilaginous centers. All these fuse developmentally. But sometimes membranous part is failed to fuse and persist as separate bone throughout life which is known as Interparietal bone. Interparietal bones are commonly present due to defecive ossification; partial or complete non fusion of ossification centers of occipital bone.

Keith[4] described the part of the occipital bone above the superior nuchal lines develops from the four centers of ossification in membrane. According to Breathnach[2], lower squamous part develops from one center. Shrivastava HC[10] described that Interparietal part develops from three pair of centers in membrane. Pal GP [8]et al described the same thing.

The incidence of presence of inter parietal bone varies among different populations. It is 15% in Nigerians, 1.2% in Europeans , 0.8%in Australians, 4.8% in North Americans, 2.4% in Indians, 2.8% in Turkish as cited in Yucel et al.[13] Dharwal[3] found 2.7% in Indian population. Also compare different rate incidence with other studies as shown in table 1. Incidence is high compare to other studies. May be due to different population or sample size is small. The occurrence of Interparietal bone has been used as nonmetrical epigenetic trait in racial differentiation.

Table---1

Author	Site	Number	Percentage
ShrivastavaHC (1977)[10]	India	620	0.8
Pal GP et al (1984)[9]	India	348	2.6
Yucel F,Egilmez H,Akgun Z (1998)[13]	Turkey	540	2.8
Marathe et al (2010)[6]	India	380	1.3
Dharwal K (2011)[3]	India	150	2.7
Present study (2012)	India	100	5

Clinical correlation between Interparietal bone and defect in ossification, metabolic disorder, pathology of central nervous system or it may be a part of some syndromes. Also by the presence of Interparietal bone can have grave radiological, neurosurgical and medicolegal implication.

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