Incidence of Bregmatic bone in north Indian Skulls

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Abstract: Background and objective: Studies of non-meteric cranial variants have been a field of considerable interest to research workers specially because of their racial and regional importance. Supernumerary ossicles (or Wormian bones) of the cranial vault are formations associated with insufficient rate of suture closure. It was reported that there exists racial variability among the incidence of these bones. Material and methods: Studies of fifty north Indian skulls of Rohilkhand Medical College Bareilly and Shri Ram MurtiSmarak Institute of Medical Sciences, Bareilly, U.P. were studied for the incidence of Bregmatic bone cranial variant. Results: In our study the incidence of bregmatic bone was 4%, which was higher than reported elsewhere. Conclusion: The findings are discussed in the light of available literature and are of considerable racial and regional significance. We believe that the knowledge of bregmatic bone is of importance to the neuroanatomists, neurosurgeons, radiologists, anthropologists, paediatricians and morphologists.[Gupta R et al NJIRM 2013; 4(2) : 79-81]

Key Words: Bregmatic bone, Sutural bone, wormian bone

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Introduction: Wormian bones are formations associated with insufficient rate of suture closure according to Barberiniet al[1]. Additional ossificatorycenters may occur in or nearly sutures, giving rise to isolated sutural bones as mentioned by Williams PL[2]. Wormian bones are very common according to Bergman et al[3]. According to Parker[4], the shape of these bones may be round, oval, oblong, triangular, quadrilateral or polygonal and vary in size from less than a millimeter in diameter to the one measuring 5 by 9 cm. Nearly forty percent of skulls have sutural bone in the vicinity of lambdoid suture. The next most common is the epipteric bone. The occurrence of the periinterparietal bone at the lambda has been reported in previous studies by Malhotra V.K. et al[5], Pryles C.V. et al[6] and Saxena S.K. et al[7]. Nayak S.[8] and Berry et al[9] stated that the presence of wormian bone at bregma is rare cranial variant. The current study aimed to report the incidence of bregmatic none in north Indian human crania and to compare with available data of other races and regions from previous studies. The knowledge of bregmatic bone might be of importance to the neuroanatomists, neurosurgeons, radiologists, anthropologists, paediatricians and morphologists.

Material and Methods: We studied fifty skulls from the museum of RMCH, Bareilly and SRMSIMS, Bareilly U.P. for the presence of Bregmatic bone in north Indian crania.

Result: In our study, bregmatic bone was found in 2 skulls (4%, fig- 1, 2)

Fig-1 showing bregmatic bone

Fig-2 showing bregmatic bone

Table:1: Comparision with other studies

Workers	Global Region	Incidence (%)
Berry & Berry[9] (1967)	Egypt	0.8%
	Nigeria (Ashanti)	0%
	Palestine (Lachish)	0%
	Palestine (Modern)	0%
	Indian (Punjabi)	0%
	Burma	0%
	North America (British Columbia)	0%
	South America (Peru)	0%
Murlimanju et al[13] (2011)	Indian	0%
Hauser and De Stefano[11] (1989)	Middle Europeans	0%
Gupta Rakesh et al (2012)	North Indian	4%

Discussion: O'Loughlin VD[10] could not find any bregmatic bone in his study of 127 human crania. Hauser and De Stefano[11] reported that in a series of 100 adult middle Europeans there was none of these ossicles. According to Hauser and Bergman[12], ossicle at bregma is significantly correlated to the sagittal ossicle and the ossicle at lambda. Murlimanjuet al[13] studied 57 dried human crania in Indian population for the presence of wormian bones, out of which they could not find any bregmatic bone. Hence, presence of bregmatic bone in human crania is a rare entity.

Berry and Berry[9] in his global study observed the incidence of thirty cranial variants including bregmatic bone. They found bregmatic bone in only two skulls out of two hundred and fifty skulls in Egypt (summed) region. They also noticed fifty six Nigerian skulls (Ashanti), fifty four Palestine (Lachish) skulls, eighteen Palestine (Modern) skulls, fifty three Indian (Punjabi) skulls, fifty one Burmese skulls, fifty skulls of North America (British Columbia) skulls, fifty three South American (Peru) skulls. The findings are so rare that except in Egypt (summed) region, they could not find even a single bregmatic bone in any of the region mentioned above. We found bregmatic bone in two skulls out of fifty skulls studied. The incidence thus found is 4% in our study. The incidence is highest reported so far

Conclusion: After comparision with available data of other races and region, we have seen that there is significant difference in incidence of bregmatic bone in north Indian region than the incidence in other global regions; hence we believe that the knowledge of bregmatic bone is of importance to the anthropologists, neuroanatomists, neurosurgeons, radiologists, paediatricians and morphologists.

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