

Complete Type of Metopism in Adult Human Dry Skull – Anatomical Variation

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Abstract

We have observed one adult human dry skull with a complete type of metopic suture in frontal bone extending from the nasion to bregma of the skull in the Department of Anatomy, Sree Balaji Dental College and Hospital, Chennai. Metopic suture was extended from nasion and fuses with the coronal suture near the bregma which was considered under the complete type of metopic suture as per previous literature. The incidence (5%) of our case report is similar to the incidence of Punjabi Indians, yellow race and Mongolian population. Our case report helps the neurosurgeons before planning any frontal craniotomy and knowledge on anatomical variation of sutural bones would be useful to the anthropologists and forensic experts in medico – legal conditions.

Keywords: Bregma, Frontal bone, Metopic suture, Craniotomy, Anthropologist

Introduction

The frontal bone is an unpaired bone of the skull which ossifies in the fibrous membrane at 8th week of intrauterine life from two primary centers [1]. The frontal suture divides the two halves of the frontal bone in infants and children. It is also called as metopic sutures. The morphology of the metopic suture varies. Metopic suture extends from bregma to nasion is called as complete metopic suture or sutura frontalis persistens. The fusion of this metopic suture starts at the anterior

fontanelle and terminates at the nasion [2, 3]. Metopic suture can be due to various causes such as abnormal growth of cranial bones, growth interruption, heredity, sexual, hormonal influence, atavism, cranial malformations, and hydrocephalus [4]. In some individuals this sutures may persist into adult which is referred as persistent metopic suture. Sometimes the metopic suture can be confused with supranasal sutures which are superior to glabella.

Case History

We have utilized 25 human dry skulls of both the sexes from the Department of Anatomy to study the sutures of skull and their variations. We have observed one skull with complete type of metopism extending from the nasion to the bregma [Figure-1]. We have also observed the

sutured pattern of this metopic suture in its extent from the nasion to bregma. The metopic suture joining with the coronal suture is very close to the bregma [Figure-2]. According to the previous literatures we considered this metopic suture as complete metopism of human skull due to its extension from nasion to bregma of the skull.

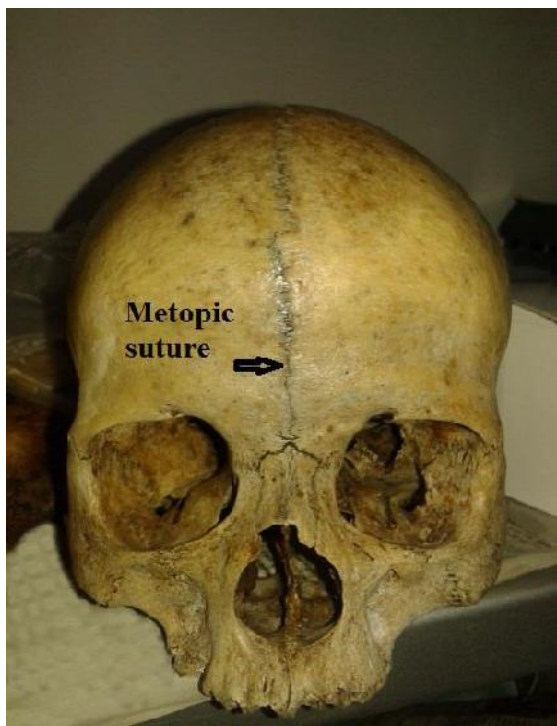


Figure -1: Adult dry skull with complete type of metopism extending from the Nasion to the Bregma (*Metopic suture – Arrow*)

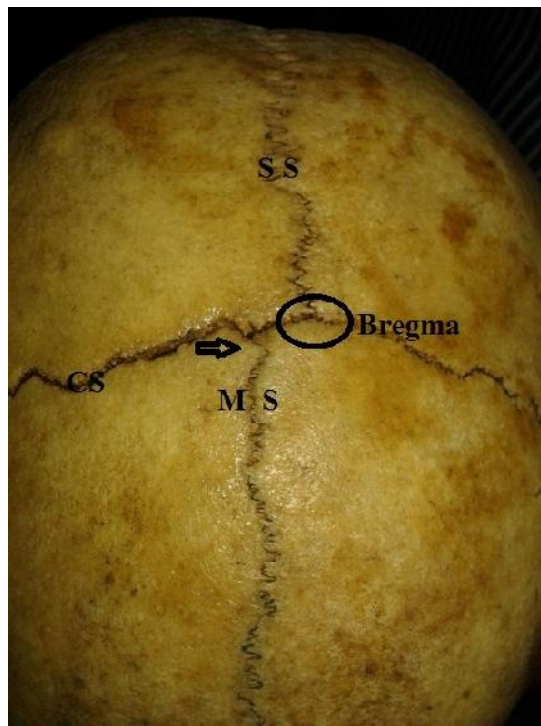


Figure -2: Metopic suture joining with the coronal suture very close to the bregma (*M S – Metopic Suture, SS – Sagittal Suture*)

Discussion

Metopism is found in 5.1% of Asians and 8.7% in European Caucasians. Sutural bones are very commonly found in the skull. Nearly 40% of skulls contain sutural bones in the vicinity of the lambdoid suture [5]. Metopism was observed in 3.2% of the skulls, and incomplete metopic suture was present in 26.4% of the 125 adult skulls that were examined in south Indian population [6]. Bryce reports metopism is present in 5.1 % of Mongolian subjects, 8.7 % of European crania, 9.5 % of Scottish skulls, 1.2 % of Negroes and 1% of Australian skulls [3,7]. In our study, metopism was found in one skull out of 20 human dry skulls with an incidence of 5% which similar

to the incidence of Punjabi Indians, yellow race and Mongolian populations [8]. The incidence of our report is lesser than the incidence of European, Scottish, Mangoloid population [9] and higher than the incidence reported in other races [10,11]. Caffey stated that metopic suture may persist up to the sixth year and even throughout life in about 10% of cases in dry skull studies [12].

Conclusion

It is important to know about the presence of metopic suture and the type of metopic suture because they can mislead in the diagnosis of fracture of frontal bone in medico legal cases

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