A STUDY OF METOPIC SUTURE IN ADULT HUMAN SKULL
Radha Pujari¹, Naveen N. S², Ravi Shankar G³, Roopa C. R⁴

HOW TO CITE THIS ARTICLE:

ABSTRACT: The metopic suture is formed as the meeting of the two halves of frontal bone in the midline. It is caused due to failure of the closure of two halves of frontal bone. Usually it extends from the nasion to the bregma. The time of closure of metopic suture varies from one to eight years and it can persist until adult age. Metopic suture may persist as a complete/Incomplete metopic suture. Complete metopic suture: extends from the nasion to the bregma. Incomplete metopic suture: show variation in superior middle& lower part of the frontal bone. The study was carried out on 100 skull from the Anatomy Dept. of Navodaya Medical College, Raichur, Karnataka. Metopic suture was found in 3% of studied skulls.

KEYWORDS: Metopic suture, Frontal bone, Adult skull, Metopism.

INTRODUCTION: Metopic suture is caused due to failure of the closure of the two halves of the frontal bone even after childhood. The time of closure of metopic suture is between 1-8 yrs of life and it can persist until adult age.

OBJECTIVE: It is essential to know about metopic suture failing which can be easily misunderstood as fracture of frontal bone. It is also important for paleodemography and forensic medicine.

Metopic suture can be due to various causes such as abnormal growth of cranial bones. Growth interruption heredity, sexual, hormonal influence, cranial malformation & hydrocephalus.

The persistence of the metopic suture has been reported in 1-12% of skull. Keith¹ mentioned that the metopic suture disappears at the end of the first year or beginning of the second year of life. Piersol² claim that it may close by the end of 4th year. Basmajian³ claim that the two halves of the frontal bone fuses by about 2nd yrs, but in some skull they remain separate i.e., metopic suture persist. Hamilton⁴ state that the metopic suture disappears by the 7th year.

Warwick and William⁵ states that the two halves of the frontal bone begin to unite in the 2nd yr & the suture is usually obliterated by 8th yrs.

MATERIAL & METHODS: Material for the present study consisted of 100 adult skull collected from Dept. of Anatomy Navodaya Medical College Raichur, Karnataka. The skulls were studied for the presence of complete metopic suture.
RESULTS: Among the 100 skulls, complete metopic suture was found in only 3 cases. (3%) as shown in Figs. 1 & 2.

DISCUSSION: In the present study metopism or metopic suture was found in 3% cases.

According to Baaten, et al people who live in rural area have a high incidence of metopism compared to people living urban area, with ratio 4: 1 to 4: 2. Ajmanietal noted metopism in 3.4% of cases. Breathnach in 1958 reported incidence in 7-10% in Europeans.

According to Woo metopism is more frequent among whiter & Mongoloids 10%.

This shows that incidence of complete metopic suture was more in the skull from temperature region. Whereas incidence of complete metopic suture was less in Indian skull.

It was reported as:

Das, et al reported in 3.33% of skull. Agarwal observed in 3.4%. Fakhruddin & Bhalarao observed in 3.3% in 1967. This suggests that an overall incidence was more in tropical region. But in the present study metopism was observed in 3% which is in sync with earlier studies & it strengthens this hypothesis.

Metopic suture is a kind of denate suture normal physiological closing time of metopic suture is controversial some authors stated that the metopic suture normally closed at birth while some authors proposed that the metopic suture doesn't fuse until the second year of the age.

In the patients with head injury delayed closure of the metopic suture may be treated like a vertical fracture persistent metopic suture can easily diagnosed by anterio-posteri or x-rays. Even plain x-ray's is enough to diagnose this anatomical variation it may be strongly mis diagnosed with vertical fracture.

The knowledge of the anatomy of the metopic suture is important because its permanence can be mistaken for cranial fracture.

CONCLUSION: Incidence of metopic suture is 3% in present study, on correlating the previous study incidence is almost equal to the earlier studies. Therefore it seems that complete metopic suture is higher in the temperate region while low incidence has been recorded in tropical region. So it seems that regional or climatic bearing are more significant than the racial ones.
In the present study 100 adult skulls were studied among them 3 had metopic sutures and it was concluded that incidence of metopic suture was 3% in tropical region.

REFERENCES:

AUTHORS:
1. Radha Pujari
2. Naveen N. S.
3. Ravi Shankar G.
4. Roopa C. R.

PARTICULARS OF CONTRIBUTORS:
1. Tutor, Department of Anatomy, Raichur Institute of Medical Sciences, Raichur.
2. Assistant Professor, Department of Anatomy, Raichur Institute of Medical Sciences, Raichur.
3. Associate Professor, Department of Anatomy, Raichur Institute of Medical Sciences, Raichur.
4. PG-Cum-Tutor, Department of Pharmacology, Nijalingappa Medical College, Bagalkot.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Radha Pujari,
Tutor, Department of Anatomy,
Raichur Institute of Medical Sciences,
Raichur.
E-mail: grr_sai@yahoo.co.in

FINANCIAL OR OTHER COMPETING INTERESTS: None

Date of Submission: 07/04/2015.
Date of Peer Review: 08/04/2015.
Date of Acceptance: 11/04/2015.
Date of Publishing: 17/04/2015.