



Original Research Article

A study of the incidence of Metopism in adult skulls of Nellore district of south coastal Andhra Pradesh

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ABSTRACT

Background: Metopic suture is present between two halves of the frontal bone of the Skull of infants and children. By about 6-8 years, it disappears; the persistence of metopic suture is called Metopism.

Aim: To study the incidence of Metopic suture in adult skulls of Nellore South coastal District of Andhra Pradesh.

Materials and Methods: A study was conducted to observe the incidence of Metopic suture in adult skulls of Nellore south coastal district of Andhra Pradesh. For this purpose, 82 Skulls belonging to the Departments Anatomy and Forensic Medicine and Toxicology of Narayana Medical College, Nellore, are observed.

Results: Two out of 82 skulls showed Metopism.

Conclusion: The incidence of Metopism in the present study is 2.4% and is compared to similar studies.

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1. Introduction

The term Metopic is from the Greek meaning “in the middle of the face.” The Frontal or Metopic suture is present between two halves of the frontal bone in the midline. It usually starts closing by the 2nd year and is completely obliterated by the 8th year.¹ However, there may be partial or complete failure to obliterate, resulting in the persistence of Metopic suture in the adult skull. The suture may be partial or complete when extending from Nasion to Bregma. When the Metopic suture persists into adulthood, it is known as “Metopism.”

The Metopic suture helps in identification in case of unidentified bodies. It mimics a Skull fracture in X-rays. The suture is best identified in an A-P view of the Skull. This view can help differentiate it from a vertical skull fracture. The incidence of Metopism is about 0-7.4%, according to Gray’s Anatomy.²

A case of Metopism was reported in Journal of IAFM 1989(1) by Dr. P.S. Audi, Dr. M. S. Usaonkar, Dr. B. N. Reddy, Dr. Sapeco, Dr. Mainkar, and Dr. Bhandari with asymmetric growth of Skull and digits as “Metopic Syndrome.” Asymmetric skull growth with right-sided Metopism, prominent right frontal eminence, superciliary arch, and sharp supra-orbital margin was observed. In the right-hand, the 2nd and 4th fingers are equal, whereas, in the left, the ring and middle fingers are equal in length.

2. Materials and Methods

A study was conducted to observe the incidence of metopic suture in adult skulls of Nellore south coastal district of Andhra Pradesh. For this purpose, 82 skulls belonging to the departments of Anatomy and Forensic Medicine & Toxicology of Narayana Medical College, Nellore, are observed. Adult Skulls belongs to both sexes were considered. Complete persistence of Metopis suture is only considered. Partial persistence of metopic suture is not considered.

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2.1. Inclusion criteria

Adult skulls of both sexes with complete Frontal bone are included in the study.

2.2. Exclusion criteria

Fetal skulls and Skulls with broken Frontal bone were not included in the study.

3. Results

Two skulls out of 82 skulls showed complete persistent Metopic suture. (Metopism) that is 2.4%.

In the first one, the suture is about ten cm long, extending from the Nasion to the coronal suture. The Metopic suture fused with the Saggital suture 0.8 cms right to the midline. (Bregma).

In the second one, the suture is about 12.5 cms long, extending from the Nasion to the coronal suture. The Metopic suture fused with the Saggital suture 0.6 cms right to the midline. (Bregma).



Fig. 1:

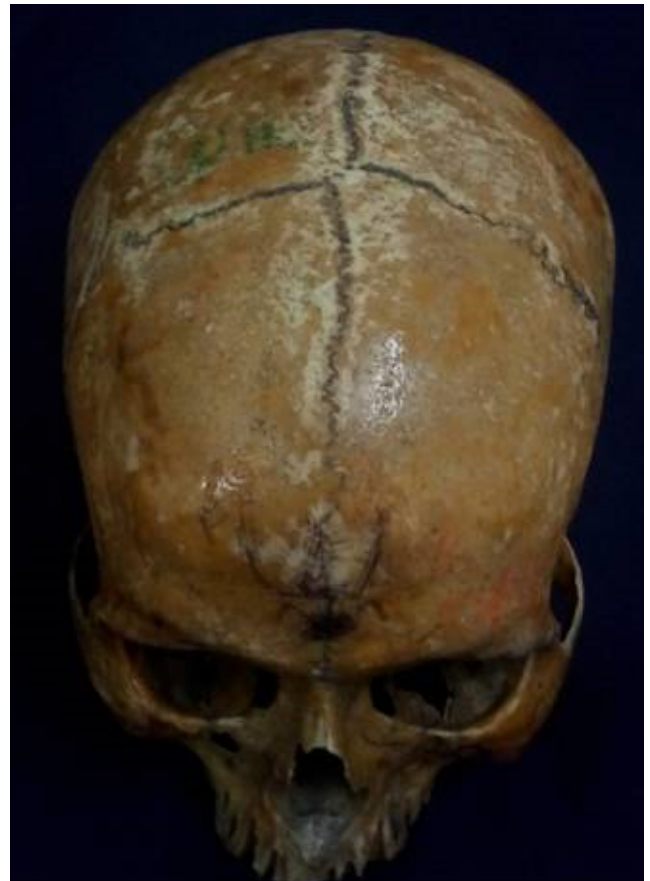


Fig. 2:

4. Discussion

4.1. Racial variations in metopism

It has been reported by various workers that the incidence of Metopism is different in different races throughout the world. According to Bryce (1915), Metopism is present in 9.5% of Scottish skulls, 8.7% of European crania, 5.1% of Mongolian subjects, 1.2% of Negroes, and 1% of Australian skulls. Breathnach (1958) reported it to be 7-10% in Europeans, 4-5% in Yellow races, and 1% in African skulls. According to Woo (1949), Metopism is more frequent among Whites and Mongoloids (about 10%) than among Negroids (about 2%).³ In the Study conducted by M.L. Ajmani, R.K. Mittal, and S.P. Jain on Nigerian skulls, the incidence of Metopism is 3.4% (7 out of 206 skulls showed complete metopic suture).⁴

4.2. Indian studies on metopism

Metopism was found to be 5% (Jit & Shah, 1948),⁵ 3.31% (Das, Saxena & Beg, 1973),⁶ and 2.66% (Agarwal, Malhotra & Tewari, 1979),⁷ varying according to different regions of the country. Anjoo Yadav, Vinod Kumar, R.K.Srivastava,⁸ in their study on North Indian skulls, found

that the incidence of Metopic suture was 18.04% and that of Metopism was 3.5%. One out of 80 skulls studied By Pankaj R Wadekar Sunil J Pundge, Mp Fulpatil, and S V Pandit Showed Metopism (1.25% In Maharashtra).³

4.3. South Indian Studies on Metopism

Ajrish George S and Thenmozhi⁹ observed incomplete Metopism in 7 skulls and complete Metopism in 2 skulls (4%) in their study on 50 south Indian skulls. K. Vidulatha, K. Parthiban, in their study on Skulls from Madurai TamilNadu observed that 10 out of 300 skulls showed Metopism (3.3%).¹⁰ Abraham Ratna Joseph Nayakanati, Bannur B M, M.V. Raghavendra Rao, Srinivasan K R, Shaik Hussain Saheb¹¹ studied 500 skulls from different colleges in south India and found that the incidence of Metopism is 2.2% (11 out of 500). One hundred eighty adult skulls ranging from 30-60 years of the age group from the department of Anatomy RIMS, Ongole, were studied for the presence of Metopic suture. One hundred three skulls were found to have no Metopic suture and nine skulls showed complete Metopic suture.¹² Similar results were observed by G. Hemalatha and M. Subba Rao¹³ in their study. Moula P. Akbar Basha, Raju Sugavasi,¹⁴ in their study on South Indian skulls, found that persistent Metopic sutures were completely seen in 1 skull among 100 dried human skulls. The incidence of complete Metopic suture is 1%.

5. Conclusion

Frontal or Metopic suture is present between two halves of the frontal bone in the midline. Failure to obliterate completely results in the persistence of Metopic suture in the adult skull. The suture may be partial or complete when extending from Nasion to Bregma. When the Metopic suture persists into adulthood, it is known as Metopism. The incidence of Metopism is about 2.4% in the present study, which is similar to the other studies.

6. Source of Funding

None.

7. Conflicts of Interest

Nil.

References

1. Moore KL, Dalley AF, Anne MR. Aqr –Clinically Oriented Anatomy. 7th ed. Wolters Kluwer;.
2. Standring S. Gray's Anatomy. 40th ed. Churchill Livingstone;.
3. Wadekar PR, Pundge SJ, Fulpatil MP, Pandit S. Study of incidence of Metopic suture in adult skulls. *Indian J Basic Appl Med Res.* 2014;4(1):277–83.
4. Ajmani ML, Mittal RK, Jain SP. Incidence of the Metopic suture in adult Nigerian skulls. *J Anat.* 1983;137(1):177–83.
5. Jit I, Shah MA. Incidence of frontal or metopic suture amongst Punjabi adults. *Ind Med Gaz.* 1948;83:507.
6. Das AC, Saxena RC, Beg MA. Incidence of metopic suture in U.P.subjects. *J Anat Soc India.* 1973;22:140.
7. Agarwal SK, Malhotra VK, Telewari SP. Incidence of the metopic suture in adult Indian crania. *Acta Anat (Basel).* 1979;105(4):469–74.
8. Yadav A, Kumar V, Srivastava RK. Study of Metopic Suture in the Adult Human Skulls of North India. *J Anat Soc India.* 2010;59(2):232–6.
9. George SA. Thenmozhi- Study of Occurrence of Metopic Suture in Adult South Indian Skulls. *J Pharm Sci Res.* 2015;7(10):904–6.
10. Vidulatha K, Parthiban K. Metopic Suture –A Study in South Indian Population. *J Med Sci Clin Res.* 2019;7(9):287–92.
11. Nayakanati ARJ, Bannur BM, Rao MVR, Srinivasan KR, Saheb S. A study of incidence of metopic suture in adult human dry skulls. *Int J Anat Res.* 2016;4(2):2235–7.
12. Pilli N, Sunder RR. Persistent Metopic Suture in Various Forms in South Indian Adult Skulls – A study. *Int J Sci Res Publications.* 2013;3(5):1–7.
13. Latha GH, Rao M. Persistent Metopic suture in Adult Skulls of Andhra Pradesh. *J Dent Med Sci.* 2016;15(12):4–06.
14. Basha M, Sugavasi R. Study of metopic suture in south Indian skulls. *Int J Res Med Sci.* 2015;3:2237–9. doi:10.18203/2320-6012.ijrms20150609.

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