

Research Article

Study of metopic suture in south Indian skulls

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ABSTRACT

Background: The cranial sutures and their development is the most interesting in the field of cranial growing and shaping. Metopism is partially or totally persisting suture extending from the nasion to the anterior angle of the bregma of frontal bone.

Methods: Total 100 human adult dry skulls were collected from south India for present study to find out the incidence of metopic suture.

Results: Out of 100 skulls, found one complete and one incomplete metopic suture.

Conclusions: Present study may be useful for diagnostic and surgical intervention, particularly during frontal craniotomy.

Keywords: Skull, Metopic suture, Trauma, Incidence

INTRODUCTION

Metopic suture is a kind of dentate suture extending from the nasion to the anterior angle of the bregma. Metopism is the condition where, persistence of metopic suture is completely extends from nasion to bregma.¹

Incomplete metopic suture is considered as, if the suture is not present throughout and locates a small area between these two points.

Different authors were suggested the obliteration of metopic sutures at different periods, Williams² 6 to 8 years, Hamilton³ at 7th year, anatomical knowledge of persistence of metopic suture is important because its existence in radiological images can be mistaken as cranial fracture.

METHODS

The present study was conducted on 100 adult, unknown sexes of, dried human skulls. Dried skulls were collected for observing persistence metopic suture from various medical institutions in south Indian region from Departments of Anatomy, Viswa Bharathi Medical College, Kurnool, Fathima Institute of Medical sciences (FIMS), Kadapa and Rajiv Gandhi Institute of Medical Sciences (RIMS), Kadapa, Andhra Pradesh, India. Collected skulls were carefully observed for existence of metopic suture.

RESULTS

Present study found that, persistence metopic sutures were completely seen in 1 skull among 100 dried human skulls. This study shows the incidence of complete metopic suture is 1% in the South Indian population (Figure 1 & 2).

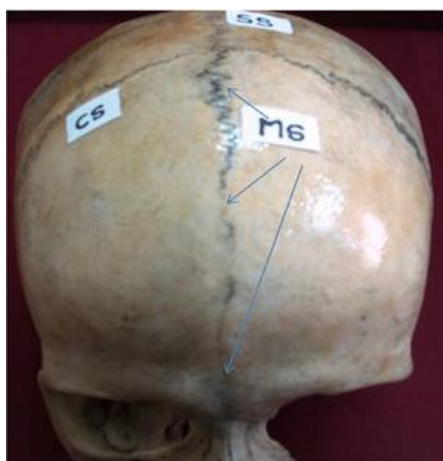


Figure 1: Anterior view of skull shows (CS: Coronal suture, SS: Sagittal suture, MS: Metopic suture).

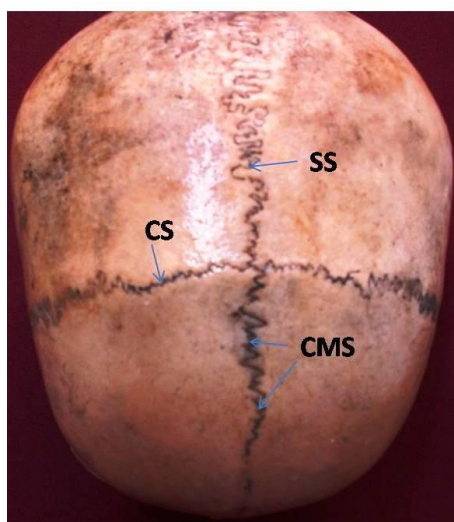


Figure 2: Superior view of skull shows (CS: Coronal suture, SS: Sagittal suture, CMS: Complete metopic suture).

DISCUSSION

Incidence of persistence metopic sutures in Indian populations were observed by previous authors as follows, B. V. Murlimanju, 52 (64.1%),⁴ Hussain Saheb S 3.2%,⁵ Agarwal 2.66%,⁶ Das 3.31%,⁷ Jit & Shah 5%.⁸ Incidence among other population were , Breathnach et al. in European population 7-10%,⁹ Woo et al. in Mongolians 10%,¹⁰ Chanwit Maneenin et al. in Northeastern Thai 10.12%,¹¹ Ajmani et al. Nigerians 3.4%,¹² Herker NG et al. in African and Maharashtra (Miraj) 1% & 3%.¹³ Pankaj R¹⁴ study showed the incidence of metopic sutures in Indian adults was complete metopic suture 1.25% and incomplete suture was (22.5%). William F. Masih et al.¹⁵ study shows, the incidence of metopism was 6.5%. Metopic suture is important for the radiologist and neurosurgeon for appropriate diagnosis to rule out the frontal bone fractures.

CONCLUSION

Incidence of present study is 1%. Persistent metopic suture may be wrong diagnosed as a skull fracture extending in the mid line of the head in trauma patient. Hence the surgeon should be aware of this anatomical variation of traumatized patient during surgical intervention especially in frontal craniotomy.

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Ethical approval: Not required

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