

Autopsy Finding of Persistent Metopic Suture in Elderly

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ABSTRACT:

Metopic suture divides the two halves of the frontal bone and it can be seen in infants and children as it commonly fuses between 2-8 years of age. But in some individuals the metopic suture can persist even in later ages also and rarely up to the elderly age group, which is known as a persistent metopic suture. One such a rare case was brought to us for autopsy examination in which the skeleton of an elderly male was recovered from a deep well with multiple fractures of facial bones and persistent metopic suture. The metopic suture was completely extending from the nasion to bregma (Metopism). The case is presented here with the aim to discuss its medico-legal aspects and clinical implications as it is rare of its kind.

Key-words: Metopic suture, Metopism, Skull, Autopsy.

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INTRODUCTION

Metopic suture is a fibrous joint, which joins the two halves of the frontal bone and unites commonly between 2-8 years of age, but may persist in adult age also. Metopic suture extends from nasion to bregma but in cases of persistent metopic suture it may not be present completely. Persistent metopic suture is commonly found either in the form of continuous zigzagging line (Incipient closure) in mid line over frontal bone or the zigzag lines may be interrupted by area of complete closure (Closure in process) or it may be in the form of only pits (Advanced closure).¹ When the metopic suture present in its whole length from nasion to bregma it is known as metopism.²

The incidences of metopism reported in different parts of India are contrasting. Incidences were 6.5% in a study done in western India (Rajasthan),² while it was 3.2% in a study done in Southern part of India (Karnataka).³ The incidence of non fusion of metopic suture was found 0.1015% in a study done at North India (Punjab).⁴ Racial variations in the incidence of fusion

of metopic sutures and shapes were also observed in Naigerian skulls by Ajmani et al,⁵ while the Caffey claimed that metopic suture may persist up to the sixth year and even throughout life in about 10% of cases in dry skull studies.⁶ The case presented here belongs to the category of metopism, because there was a continuous zigzagging line in mid line over the frontal bone in a case where sign of disfigurement of the face with the heavy and blunt weapon were present in a skeletonized body. How it can create confusion during age estimation is discussed in this case.

CASE HISTORY

In November 2015, a dead body of a male aged about 45 years was recovered from a deep well at rural area of Vadodara (Gujarat). The deceased was missing from last 1 month and the body was identified by his relatives with the help of clothes. The body was sent to the Forensic Medicine Department, Medical College, Vadodara for autopsy. We received the dead body in skeletonized form and during autopsy we found that the bones belonged to a male aged

about 45 ± 5 years of age with stature about 178 cm. The skull and its base were intact while the facial bones, including both sides zygomatic, maxilla, nasal bone and mandible were fractured and some parts were missing. The biological age of the individual was corresponding (45 ± 5 years) as the 3rd molars were present with a fusion of medial end of clavicle and fused xiphi-sternal joint. Posterior third of sagittal suture was also partially fused. The skull was also showing a continuous zigzagging line in mid line over the frontal bone in the form of persistent metopic suture extending from nasion to bregma (Photograph-1A&1B). On meticulous examination, we found that the margins of fractured pieces of facial bones were showing ante mortem hematoma. Fractured parts of right side maxilla and right half of the mandible were present and showing third molar in the upper and lower jaw, while the first molar was missing in cavity in the lower jaw (Photograph-2). The lower end of the xiphi-sternal joint was also fused while the manubrio-sternal joint was found fractured (Photograph-3). All other bones were intact and not showing any signs of antemortem injury. The cause of death was concluded due to injuries caused by hard and blunt object over the face. Molar teeth were preserved for DNA profile to confirm the identity of the victim.

DISCUSSION

Persistent metopic suture is not uncommon and it has been reported by various authors in India²⁻⁴ as well as abroad,⁵⁻⁸ but there are very few cases in which a continuous zigzagging line extending from bregma to nasion (Metopism) is present. During radiological examination, it can be misdiagnosed with fracture of frontal bone, especially in patients of trauma where the neurological sign and symptoms are also present with low 'Glasgow Coma Scale', which can be avoided by CT scans.^{9,10}

In medico-legal practice persistent metopic suture can be distracting during age estimation of an unknown body as we found in the present case. In our case, persistent

metopic suture was a contradictory finding and causing distraction in age estimation of the skelotonized body of the unknown victim while the fused joints like, lower end of xiphi-sternum and medial end of clavicle with a fusion of the posterior part of sagittal suture was confirming adult age (>40 years). In the present case, there were also multiple fractures of facial bones, including both sides of zygomatic, maxilla, nasal bone and mandible with some parts of fractured bones were missing, which was caused by the application of blunt force over the face with a hard and blunt weapon. Most probably it was done to disfigure the face to avoid identification of the victim and the body was thrown into a deep well from where it was recovered. The autopsy surgeons should be aware about the possibility of persistence of the metopic suture during age estimation of the unknown and should be able to differentiate it from the fissured as well as suture fractures especially in cases of trauma.

CONCLUSION

The case is presented here to highlight the medico-legal issues related to persistent metopic suture especially in a case of trauma and to explain that how age estimation can be done in such a case with a contradictory finding of metopism.



Photograph-1A: Showing a persistent metopic suture



Photograph-1B: Showing a persistent metopic suture



Photograph-3: Showing fused xiphi-sternal joint and fracture of manubrio-sternal joint



Photograph-2: Fractured parts of right side maxilla and right half of the mandible showing 3rd molars

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