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Research Article

MORPHOMETRIC ANALYSIS OF THE EMISSARY FORAMENS OF THE SKULL

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ABSTRACT

Background: Emissary foramens of 20 unsexed skulls are studied randomly to know the variation in the pattern of their appearance. The study was important as knowledge of the emissary foramen is helpful during surgical process.

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INTRODUCTION

The emissary foramens of the skull are minute holes. They allow the passage of emissary veins that connect with intracranial venous sinus with extra cranial veins of the scalp base of the skull. In the greater wings of the sphenoid bone, medial to the foramen ovale a small aperture the Sphenoid Emissary Foramen may occasionally be seen opposite to the root of the pterygoid process also known as foramen Vesalli. The Mastoid emissary foramen is located at the mastoid portion of the temporal bone, near to occipitomastoid suture. The Parietal Foramen is located lateral to the sagittal suture, at the boundary between the posterior third and middle third of this suture. Anatomical variation of the skull had been of interest for the neuroanatomists due to clinical consequence that this structure can cause, especially in the area of neurosurgery and dentistry. Anatomical studies have focused on the various foramens of the human skull including the emissary foramen. The recognition of the emissary foramen is also important to distinguish normal from potentially abnormal structures. The emissary foramen also act as a source for the spread of the extra cranial infection to the intracranial structure thus it is important to morphometrically analyse the emissary foramen of the skull.

METHOD

The method includes random observation of about 20 unsexed dry skulls for the emissary foramens. The Sphenoidal

emissary foramen was observed closer to the foramen rotundum and foramen ovale. The mastoid emissary foramen was also studied in the same way by observation in the 20 skull. The mastoid foramen is present by the side of the mastoid process; it's sometimes even present on the occipital suture. The PARIETAL EMISSARY FORAMEN was observed on the parietal part of the skull, either on left or right or in some cases even on the suture



The picture represents parietal emissary foramen

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RESULT

Sphenoidal Emissary Foramen

Only left	Only right	Both the side	Absent
5	1	8	6

Mastoid Emissary Foramen

Only left	Only right	Both the side	Absent
2	3	15	0

Parietal Emissary Foramen

Only left	Only right	Both the side	Absent	Center
1	4	8	4	3

The emissary foramen were observed in irregular pattern in 20 unsexed dry skulls and the variation in their presence can be seen. The Sphenoidal Emissary Foramen observed had variation in the presence of the foramen. In about 5 dry skulls the foramen was present only on the left, it was present on the right for 1 skull and was not present or absent in about 6 skulls. In 8 dry skulls the foramen were on both the side of the sphenoid bone. 1 in a rare case the foramen is present by the left had *three foramen* in a group. The Mastoid Bone Bearing The Mastoid Emissary Foramen, among the twenty dry skulls 2 had the foramen on their left, 3 on the right and the rest 15 had the foramen on both the side. The Parietal Emissary Foramen Was Observed Exactly on the Center or on the SUTURE of the parietal bone for 3 skulls. It was absent in 4 dry skulls, present on the left for 1 among the twenty. It was on the right for 4 and on either side in about 8 dry skulls. This differentiation is due to the process of ossification.



The picture represents the mastoid emissary foramen

DISCUSSION

Among the 20 unsexed dry skulls present there was a great variation in the presence of the emissary foramen thus the result were compared and the total percentage was calculated for the emissary foramen. According to one of the research article of NCBI by G.I. BOYD, he calculated the presence of the emissary foramen in about 160 dry skulls and found that the sphenoid emissary foramen was absent for 63.5% of the skull, the mastoid was absent for about 31.9%, and the parietal emissary foramen was absent for about 39.6% of the dry skull observed but according to the random observation of the 20 unsexed dry skull it was found that in about 30% of the skull the sphenoid emissary foramen was absent, the mastoid emissary foramen was present for all the dry skull, and for 20% of the skull the parietal emissary foramen was absent. THE

Sphenoidal Emissary Foramen in about 25% of the skull it was on the left, 5% right, 40% on both the side. The Mastoid Emissary Foramen about in 10% of the skull it was on the left, 15% on the right, 75% on both the side. The Parietal Emissary Foramen it was on the left for 5%, right for 20%, on both the side in among 40% of the skull and in about 15% of the skull it was on the sagittal suture or on the center, so according to the data gather among the dry unsexed skulls 70% of the skull had sphenoid emissary foramen, all the skull had mastoid emissary foramen and in 80% of the skull the parietal emissary foramen was present.



The picture represents the sphenoid emissary foramen

CONCLUSION

The importance of knowing about SPHENOIDAL EMISSARY FORAMEN is that an infected thrombus from an extra cranial source may reach the cavernous sinus. The recognition of the MASTOID EMISSARY FORAMEN is important landmark that help in differentiation of species, and thus was their importance in forensic arthropology. The important significance of PARITILE FORAMEN is that it allows the passage of an emissary vein connecting the scalp vein with the superior sagittal sinus, with regard not only to drainage of the scalp, but also with the spread of infection to the sinuses of the duramater. The knowledge of the veins passing through this emissary foramen is also important for surgical purpose.

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