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To Study the Anatomical Variation of Asterion in Human Dry Skulls in Vidarbha Region

Dr. Charulata Satpute[1], Dr. Abhilasha Wahane[2]

Abstract: ***Asterion are points of sutural confluence seen in the norma lateralis of the skull. Their patterns of formation exhibit population-based variations. Understanding of the sutural morphology of these points is important in surgical approaches to the cranial fossae. Sixty human skulls of unknown gender were examined on both sides. Sutural bones were found at the asterion in 9.1%of the cases***

Keywords: Asterion, sutural bones, sutural morphology, dry skulls, craniometric points

1. Introduction

The asterion is a sutural convergence of parietal, temporal and occipital bones[1]. The asterion is a vital surgical landmark for the location of ending of transverse sinus and beginning of sigmoid sinus[2]. Occurrence of sutural bones in this craniometric point has been reported to vary among different populations (BERRY and BERRY, 1967; KELLOCK and PARSONS, 1970). Presence of sutural bones at these points may complicate the surgical orientation leading to pitfalls (OGUZ, SANL and BOZKIR, 2004; EROY, EVLIYAOGLU, BOZKURT et al., 2003).it is an important surgical approach to the posterior cranial fossa[1]. Sutural morphology is classified into two types.[3]

Type I- when a sutural bone is present at its convergence Type II- When sutural bone is absent. Sutural pattern formation and variation will be helpful to the neurosurgeons. This study aimed at assessing the sutural morphology of asterion in crania of adult.

2. Aim

To study the anatomical variation of asterion in human dry skull.

3. Material and Methods

Present study was done taking into consideration 60 dry human adult skulls of unknown sex from bone bank of anatomy department and bone sets from 1st year M.B.B.S students. Asterion and its types were observed and recorded. Skull bones without any obvious deformity or trauma were considered as inclusion criteria. Bones with breakage were excluded from the study.

4. Results

Type I asterion was observed in 8.3% on right side and 10% on left side of the skull. Type I asterion was found .bilaterally in3.3%(symmetrically) skulls . Whereas typeII Asterion was seen in 91.66% on right side and 90% on left side of skull.Type II Asterion was found bilaterally in 96.66%.

Figure 1: Type I Asterion

Figure 2: Type II Asterion

Table 1: Table showing asterion pattern in present study

Asterion pattern (TYPE)	*Rt side N=60*	*Percentage (%)*	*Lt side N=60*	*Percentage (%)*	*Bilateral N=60*	*Percentage (%)*	*Total of both sides N=120*	*Percentage (%)*
1	5	8.3	6	10	2	3.3	11	9.1
2	55	91.66	54	90	58	96.66	109	90.83

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5. Discussion

Table 2: Shows study of Asterion done by various authors in different population group.

Population group	Author and year	No.of bones	Type of asterion	
			I (%)	II (%)
North american	Berry [4] 1967	50	12	88
South American	Berry[4] 1967	53	7.5	92.5
Egyptian	Berry[4] 1967	250	14.4	85.6
Indian- Burma	Berry[4] 1967	51	14.7	85.3
Indian-Punjab	Berry[4] 1967	53	16.9	83.1
Turks	Gumusburun [5] 1997	302	9.92	90.08
kenyans	Mwachaka [3] 2009	79	20	80
Indians	Hussain[6] 2011	125	23.15	76.85
South indians	r.sudha[2] 2013	150	7.6	92.3
Indians	Present study 2015	60	9.1	90.83

The incidence of type I asterion coincided with the finding of Gumusburun 1997. In present study bilateral type I asterion was found to be in 3.3% cases and Type II in 96.66% cases. Incidence was almost similar to south American and turks population**.**

6. Conclusion

Asterion Type I was found in 9.1% cases. Accessory sutural bone incidence will alert radiologist and neurosurgeons in interpretating x-ray or surgically correcting a fracture.

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Author Profile

Dr.Charulata Satpute Associate professor, Department of Anatomy, Indira Gandhi Government Medical College, Nagpur, Maharashtra, India

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