



Analysis of the Variations in the Morphology, Topography of the Pterion, and Their Implications in Neurosurgery: An Osteometric Study

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Abstract

Objective Pterion is an “H” shaped formation of sutures located in the temporal fossa of the skull. It is an important anatomical landmark and a craniometric point. The thinness of the skull and its inner relation with the middle meningeal artery make this anatomical landmark clinically significant. Variations in the pterion are imperative, especially for neurosurgeons in order to have the most suitable craniometric point to be minimally invasive.

Materials and Methods One hundred pterions were studied to report the variations in the type and location of the pterion. Murphy’s classification was used to classify the pterion into four types on the basis of bone articulation-sphenoparietal, frontotemporal, stellate, and epipteric.

Results All four types of pterions were observed, sphenoparietal being the most common. No significant gender difference was observed in terms of type and laterality of various pterions. The mean distance between the center of pterion to the superolateral point of zygomaticotemporal (PZT) suture and the anterolateral point of the frontozygomatic (PFZ) suture were 3.91 ± 3.79 cm and 3.68 ± 3.79 mm, respectively. Correlation analysis showed a strong positive relation between PZT and PFZ sutures.

Conclusion Accurate data on the morphology and morphometry of bony anatomical points are crucial, while performing intracranial surgery using them as recognizable landmarks. The morphometric parameters may help in determining the soundness of the pterion as an identifiable landmark for performing interventions like burr hole and other neurosurgical procedures in this area.

Keywords

- cranial sutures
- craniotomy
- burr hole
- pterion
- middle meningeal artery

Introduction

Floor of the temporal fossa in the skull is formed by greater wing of sphenoid, frontal bone, parietal bone, and squamous

part of the temporal bone. Here, these four bones meet at an H-shaped junction of the sutures termed the pterion.^{1,2} Being covered superficially by scalp and the origin of the

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