

# **MORPHOLOGICAL AND MORPHOMETRIC STUDY OF FORAMEN OVALE AND FORAMEN SPINOSUM IN ADULT HUMAN DRY SKULLS**

## **ABSTRACT**

Foramen ovale and Foramen spinosum are two important foraminae present in the infra temporal surface of the greater wing of the sphenoid bone. Foramen ovale is of great surgical & diagnostic importance in procedures like percutaneous trigeminal rhizotomy in trigeminal neuralgia, transfacial fine needle aspiration technique to diagnose Squamous cell carcinoma, Meckel's cave lesion .Foramen spinosum is an important landmark for microsurgical procedures involving middle cranial fossa and infratemporal fossa. The Knowledge of morphology and morphometry of Foramen ovale and Foramen spinosum as well as their variations is important for Neurosurgeons for planning and management of surgeries involving the above foraminae.

Hundred adult human dry skulls from Institute of Anatomy, Madras Medical College were used for this study. Anteroposterior and Mediolateral diameters of the Foramen ovale and Foramen spinosum were measured. Different shapes and any bony growth around its margins of Foramen ovale were noted. Various shapes, Position of Foramen spinosum in relation to spine of sphenoid, Presence or Absence& Duplication of Foramen spinosum were noted. Incidence of Foramen of Vesalius also studied.

In the present study, the anteroposterior diameter of Foramen ovale was  $7.64 \pm 1.22$ mm (Rt side) &  $7.49 \pm 0.98$ mm (Lt side) and mediolateral diameter of Foramen ovale was  $5.09 \pm 0.96$ mm (Rt side) and  $5.24 \pm 0.83$ mm (Lt side). Foramen ovale was found to be oval in 57.5%, almond in 17.5%, round in 16% and slit in 9%. The bony out growth around the margin of Foramen ovale were bony plate 8%, spine 5.5% & tubercle 6%.

The anteroposterior diameter of Foramen spinosum was  $2.48 \pm 0.62$ mm (Rt side) &  $2.52 \pm 0.59$ mm (Lt side) and mediolateral diameter of Foramen spinosum was  $1.29 \pm 0.33$ mm (Rt side) &  $1.44 \pm 0.36$ mm (Lt side). The shape of Foramen spinosum was round accounted for 59.5% followed by oval 33.5%, pinhole 3% irregular 2% and the absence of Foramen spinosum observed in the present study was 2%.

In the present study, 96.5% of Foramen spinosum was anteromedial to spine of sphenoid, 0.5% was medial to spine of sphenoid & 1% lateral to spine of sphenoid. There was no duplication of Foramen spinosum observed in the present study. The incidence of Foramen of Vesalius accounted for 5% in the present study.

The data obtained will be useful to Neurosurgeons for planning various skull base surgeries. The finding will also be enlightening for Radiologist and Clinical anatomist.

**Keywords:** Foramen ovale, Foramen spinosum, Foramen of Vesalius, Trigeminal neuralgia, Percutaneous trigeminal rhizotomy