Endoscopic petrosectomy

Skull base lesions within the middle cranial fossa (MCF) remain challenging. Reports suggests that transorbital endoscopic approaches (TOEAs) might be particularly suitable to access the middle cranial fossa (MCF) and expose the lateral wall of the cavernous sinus and the Meckel's cave.

García-Pérez et al. developed a study to compare the nuances of the subtemporal approach (STA) with those of the lateral TOEA (LTOEA) to the MCF and posterior cranial fossa (PCF) in cadaveric specimens. After orbital craniectomy, interdural opening of the cavernous sinus lateral wall (CSlw), exposure of the Gasserian ganglion, and extradural elevation of the temporal lobe were performed. Next, an anterior endoscopic petrosectomy was performed and the PCF was accessed. They quantitatively analyzed and compared the angles of attack and distances between LTOEA and STA to different structures at the CSlw, petrous apex (PA), and PCF.

Cadaveric dissection through the LTOEA completely exposed the CSlw and PA. LTOA exhibited larger distances than the STA to all targets. Importantly, these differences were greater at the PA and its surrounding key anatomic landmarks. The horizontal and vertical angles of attack allowed by the LTOA were smaller both for the CSlw and PA. However, these differences were not significant for the vertical angle of attack at the CSlw.

LTOEA provides a direct ventral route to the medial aspect of MCF, PA, and PCF. Although TOEAs are versatile approaches, the unfamiliar surgical anatomy, and limited instrument maneuverability demand extensive cadaveric dissection before moving to the clinical setting [1)].

1)
García-Pérez D, Abarca J, González-López P, Nieto J, Lagares A, Paredes I. A Frontal Route to Middle and Posterior Cranial Fossa: Quantitative Study for the Lateral Transorbital Endoscopic Approach and Comparison with the Subtemporal Approach. World Neurosurg. 2022 Aug 6:S1878-8750(22)01086-5. doi: 10.1016/j.wneu.2022.07.129. Epub ahead of print. PMID: 35944860.