Comment on "Endoscopic endonasal versus transcranial approaches for trigeminal schwannomas", – the emerging role of the endoscopic transorbital approach

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Dear Editor:

We read with great interest the article by Pan et al.: "Endoscopic endonasal versus transcranial approaches for trigeminal schwannomas: choosing the optimal surgical corridor based on tumour traits," recently published in Rhinology [(1)]. The authors provide a valuable trait-based framework comparing endoscopic endonasal (EEA) (trans-meckel's cave, transclival, trans-lamina papyracea, and trans-prelacrimal recess approaches) and transcranial approaches (TCA) (intra/extradural subtemporal with or without anterior petrosectomy, Kawase, and zygomatic middle fossa approach) in the management of trigeminal schwannomas (TS), according to the Samii's classification [(2)].

However, we believe their analysis overlooks a key surgical option in the skull base surgeon's armamentarium: the endoscopic-assisted transorbital approach (ETOA) via the superior eyelid (or its variants such as the inferior transconjunctival or precaruncular ETOA) which merits consideration for this rare pathology (Samii types A, C-D) [(2)]. The ETOA provides a safe anterior-to-posterior corridor aligned with the tumour's long axis, without crossing or transposing neurovascular structures such as the internal carotid artery (ICA) or cranial nerves (abducent nerve) along their course toward the cavernous sinus, thanks to minimal brain retraction and excellent cosmetic outcomes [(3)]. When needed, an interdural ETOA, especially if associated with lateral orbital rim mobilization, offers a great surgical window from the anterior clinoid region to the arcuate eminence's area [(4)].

Reviewing the data reported in the literature, gross total resection or near-total resection was obtained in 87.2% of the cases [(3,5,6)] demonstrating low surgical morbidity, negligible CSF leak rate obviating routine lumbar drainage or fat grafting, and minimal enophthalmos [(3,5,6)]. Notably, it should be stressed that nasal consequences are completely avoided using ETOA and this aspect should not be underestimated. Last but not least, EEA risks combined vidian nerve (VN) and V1 damage, potentially causing severe dry-eye-related consequences from pterygopalatine ganglion disruption and corneal anesthesia. Thus, in our perspective, trans-pterygoid extensions seem inadvisable here. An extended EEA may suit V2 lesions extending into the sphenoid sinus or V3 lesions involving the infratemporal fossa, but for Samii type A, C and D1-2, ETOA remains a valid option.

ETOA is particularly viable for dumbbell-shaped tumours (type C), exploiting a tumour-created corridor to reach the posterior cranial fossa extension, though the retro-petrous portion behind the horizontal segment of ICA remains challenging, with risk of vascular injury.

Overall, ETOA suites all TS types except predominant posterior fossa involvement [(3)], where combined multiportal (staged or combined) strategies enhance resectability [(3,5)].

That said, while effective for TS up to 6 cm [(5)], ETOA is not advised for larger lesions (>6 cm) due to several key limitations, including the long working distance, narrow orbital corridor (despite lateral orbital rim removal), endoscopic challenges with complications (e.g. ICA bleeding), and its steep learning curve.

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Authorship contribution

SS, D-SK and ID equally to the conceptualization, drafting, and critical revision of the manuscript.

Conflict of interest

The authors hereby declare that they have no conflicts of interest to disclose in relation to the present manuscript.

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