Endoscopic Endonasal Extradural Transdorsum Posterior Clinoidectomy to Access the Posterosuperior Compartment of the Cavernous Sinus

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Disclosures

• No Disclosures
Introduction

• The cavernous sinus is broken up into four compartments: anteroinferior, medial, lateral, posterosuperior.

• The posterosuperior compartment is bound by the C4 segment of internal carotid artery and the posterior half of the roof of the cavernous sinus.

• The approach to the region is not well delineated and requires navigation between various neurovasculature structures: internal carotid artery, cranial nerves III-VI, and venous networks.

• Access to the posterosuperior compartment is necessary for surgical treatment of some pituitary adenomas, chordomas and chondrosarcomas.

• We describe access to the posterosuperior compartment via an endoscopic endonasal extradural posterior clinoidectomy.
Methods

• We performed an endoscopic endonasal transsphenoidal transdorsum approach with extradural bilateral posterior clinoidectomy on eight silicon-injected cadaveric heads and two patients.

• Using a 30-degree Storz endoscope, bilateral sphenoidectomies and a posterior septectomy were performed with bilateral posterior ethmoidectomies.

• The dorsum sellae was removed extradurally using a medial to lateral technique, and the posterior clinoid processes were carefully dissected away from their bony and ligamentous attachments.
Results

• Our approach for endoscopic endonasal extradural posterior clinoidectomy was reproducible in eight cadavers and two patients.

• The procedure was used to remove one pituitary chondrosarcoma and one pituitary adenoma.

• The technique was performed without damaging the vital structures, including preservation of the pituitary gland.

• Furthermore, the approach allowed for optimal visualization of the surrounding critical structures.

• Both patients had no post-operative neurological complications.
Results

Endoscopic Endonasal View of the Parasellar Region

Left Posterior Clinoidectomy

Left Posterior Clinoidectomy
Results
Endoscopic Endonasal View of the Parasellar Region

- Posterosuperior Compartment of the Left Cavernous Sinus
- Posterosuperior Compartment of the Right Cavernous Sinus
Discussion

• Literature on approaches to the posterosuperior compartment is limited and includes the frontotemporal transcavernous, posterior combined petrosal, and subtemporal transpetrosal approach.

• Our approach is minimally invasive and uses the natural contours of the face.

• The straight and angled endoscopes allow for a panoramic 360° view of the region.

• This facilitates clear visualization of the C3-C4 bend of the internal carotid artery, the C4 segment of the internal artery, and CN VI as it enters Dorello’s canal.

• Access through the posterior wall reduces the risk of damaging the cranial nerves, especially the trigeminal nerve.
Summary Points

• We describe a novel approach to the posterosuperior compartment of the cavernous sinus.

• The approach is a safe and effective and minimizes some of the risk of navigating through the sensitive neurovasculature.

• The approach provides both a panoramic view and a minimally invasive route to the region.

• The approach should be considered when targeting pathologies in the posterosuperior compartment of the cavernous sinus.