

Endoscopic Endonasal Transclival Approach with Contralateral Transmaxillary Approach for Petroclival Chordoma

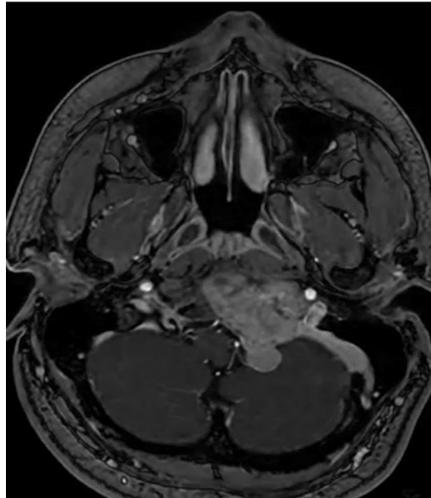
Robert J. Dambrino IV, MD, MPH¹; Kelly Daniels, MD²; Eric W. Wang, MD²; Carl H. Snyderman, MD, MBA²; Paul A. Gardner, MD³; Garret Choby, MD²; Georgios A. Zenonos, MD¹
 Departments of Neurological Surgery¹ and Otolaryngology², University of Pittsburgh Medical Center
 Department of Neurosurgery, NYU Langone Health³



UPMC
LIFE CHANGING MEDICINE

INTRODUCTION

Petroclival chordomas are rare, locally aggressive tumors arising from notochordal remnants. These lesions present significant surgical challenges due to their proximity to critical neurovascular structures. Endoscopic endonasal approaches have emerged as valuable techniques for accessing these midline skull base lesions, offering direct visualization while minimizing brain retraction.



Pre-op MRI



Post-op MRI

CASE PRESENTATION

Patient: 27-year-old female

Presentation: 2 months of progressive dysphagia, dysphonia, and diplopia

Physical Exam: Left cranial nerve X and XII palsies

Imaging: MRI revealed a large petroclival chordoma with erosion of the left occipital condyle

OPERATIVE TECHNIQUE

Approach

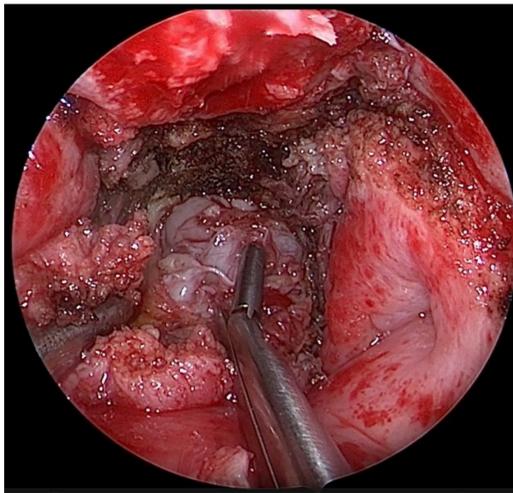
- Endoscopic endonasal transclival approach
- Right Caldwell-Luc approach for contralateral transmaxillary corridor
- Bimanual corridors to left petroclival region

Key Surgical Steps

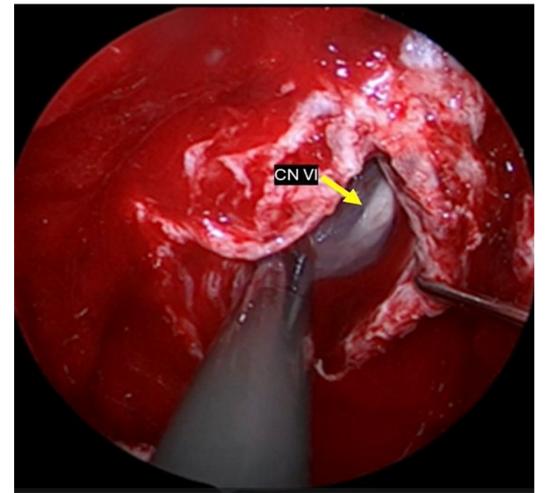
- Wide sphenoidotomy and posterior septectomy
- Transclival exposure of tumor and petrous ICA
- Right Caldwell-Luc for transmaxillary access to left petrous apex (Gardner's triangle) deep to petrous ICA
- Multilayer reconstruction performed

Stabilization

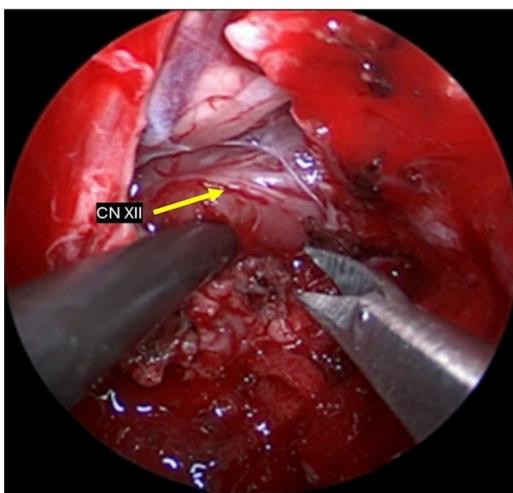
- Posterior occiput to C2 fusion performed for craniocervical stability



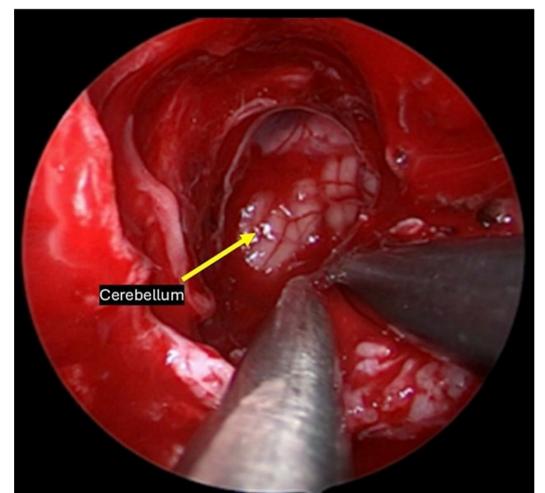
Chordoma behind the rhinopharyngeal flap



Exposure of left CN VI through clival dura



CN XII draped over the ventral aspect of the tumor



View of cerebellum after resection of tumor in the posterior fossa

DISCUSSION

- The combination of endoscopic transclival and transmaxillary approaches provides excellent visualization of petroclival lesions with lateral extension
- The Caldwell-Luc approach offers a wider working corridor compared to standard endonasal routes alone
- This technique minimizes brain retraction and provides direct access to the tumor
- Posterior fusion was necessary due to occipital condyle involvement
- The patient recovered well after surgery with stable cranial nerve deficits that she had pre-op
- Discharged to inpatient rehab

CONCLUSION

The endoscopic endonasal transclival approach combined with a contralateral Caldwell-Luc transmaxillary corridor represents an effective technique for accessing petroclival chordomas with lateral extension. The patient recovered well and was discharged to inpatient rehabilitation with improvement in symptoms.