Endoscopic Endonasal Approach for Petrous Apex Cholesterol Granulomas

Pamela S. Jones, MD MS MPH
Department of Neurosurgery
Massachusetts General Hospital
June 15, 2019
I have nothing to disclose.

No, within the last 12 months I have not had any type of financial arrangement or affiliation with commercial interests related to the content of this continuing education activity that requires disclosure.
EEA for the Petrous Apex

- Endoscopic endonasal route to paraxial lesions is growing in use
- Provides access to the medial and inferior aspects of the petrous apex
- Safe approach for biopsy of lesions, resection of chordomas, chondrosarcomas, petroclival meningiomas
- Allows for drainage and marsupialization of large petrous apex cysts
- Offers advantages over transcranial route:
  - Limits brain retraction, 4th nerve injury, 6th nerve injury, 7th nerve injury, 8th nerve injury, and CSF leak
Petrous Apex Cholesterol Granulomas

• Rare and benign lesions of petrous apex
• Can produce local mass effect resulting in headaches, hearing loss, diplopia, and vertigo from nerve and/or brainstem compression
• Transcranial approaches include the middle cranial fossa, transcanal infracochlear, infralabyrinthine, transsotic, and suboccipital
• Rate of clinical and/or radiologic recurrence following endoscopic drainage ~5% compared with ~15% for transsotic approaches (Gore et al. 2009)
Key Points

• It is important to study the CT and MR to define the anatomy
  • carotid artery locale, optic nerve, jugular bulb, facial nerve, pneumatization of the sphenoid sinus and temporal bone, bony dehiscence
  • The position and degree of bone covering/thinning of the petrous and clival portions of the carotid artery are very important.

• Open sphenoid sinus rostrum widely for maximum exposure

• Confirm location and position of the carotid artery (image guidance, doppler) before making incision into lesion
Case Presentation

• 57 year old woman with headaches and intermittent diplopia found to have large left petroclival lesion, bright on T1 and mixed signal on T2, suggesting a large cholesterol granuloma

• Underwent infra-cochlear approach for drainage, which temporarily helped but symptoms returned 2 months post-operatively
Case courtesy of Dr. Ralph Metson
Summary

• EEA approach for petrous apex lesions is safe with appropriate knowledge of anatomy and intraoperative stereotaxy

• Use of EEA for drainage of cholesterol granulomas has a low recurrence rate as compared to otologic routes due to larger opening and marsupialization path for ongoing drainage
  • Maximized by opening >1cm (if possible), nasoseptal flap, stenting

• Significant team experience with EEA is recommended for complex petrous apex lesions
Thank you