Endoscopic endonasal transcavernous sinus stent drainage of a symptomatic CP angle epidermoid cyst

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Introduction

Epidermoid cysts represent the third most common entity found in the cerebellopontine angle (CPA). Though histologically benign, complete surgical cure is often precluded by their intimate involvement with surrounding neurovascular structures. A variety of open transcranial approaches can be employed to address these lesions. Erosion into the petrous apex and middle fossa creates a surgical corridor that can be approached by purely endoscopic techniques. We present a unique case of a recurrent, symptomatic epidermoid cyst of the CPA with expansion into the petrous apex and middle fossa that was successfully managed with endoscopic stent drainage.

Case description

A 35 yo woman presented in 2005 with hearing loss, headache, and cranial neuropathy with imaging findings consistent with a large left CPA epidermoid cyst. She underwent an extended translabrynthine approach prior to presenting to us with similar symptoms in 2014. She underwent a middle fossa approach at UC Irvine for tumor resection and brainstem decompression. This was complicated by a postoperative wound infection and CSF leak. She developed delayed hydrocephalus and an infected cyst one month later with signs of sixth nerve palsy (see preoperative axial FLAIR MRI). An endoscopic endonasal quadrangular space approach was undertaken due to history of multiple prior craniotomies and previous infection. An endoscopic endonasal quadrangular space approach:

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An endoscopic endonasal approach was undertaken due to history of multiple prior craniotomies and previous infection. The epidermoid cyst epicenter was located superior to the petrous carotid and lateral to the paracaval segment, in the region of the quadrangular space. Due to medial and superior displacement of the parapharyngeal carotid, drilling commenced superior to the vidian canal.

Surgical technique

Immediate preoperative, immediate postoperative, and delayed axial FLAIR sequences demonstrating cyst decompression and resolution of brainstem compression after stent placement.

Conclusions

We present a unique fully endoscopic approach to a CPA epidermoid cyst. The endoscopic endonasal extended approaches have been well-described. The quadrangular space approach is commonly used to address lesions within Meckel’s cave. When permanent cyst decompression was not achieved with multiple craniotomies, we employed stent drainage via the endonasal route with durable results and no evidence of infection. This represents a novel salvage treatment paradigm when open microsurgical resection has failed.

References