

Ten Year Experience of Endoscopic Endonasal Surgery for Skull Base Chordomas

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Introduction

The treatment of skull base chordomas represents a surgical challenge because of the location, invasiveness and tumor extension. In the last decade, endoscopic endonasal surgery (EES) has been employed in our Department with notable outcomes.

Methods

From April 2003 to March 2013, 90 patients underwent EES for skull base chordomas at the University of Pittsburgh Medical Center. We evaluated the degree of resection, complications and recurrence rates following EES.

Results

Ninety patients (61% male) with a mean age of 45 years (range 4-88) underwent EES for primary (n=62) or recurrent (n=28) skull base chordomas. The overall rate of gross total resection (GTR) was 69% (81% in primary and 43% in recurrent cases). Near total resection (>95% of tumor) was achieved in 15%, subtotal (>85%) in 7% and partial in 9% of the patients. The most frequent complication was cerebrospinal fluid leak in 18 cases (20%) resulting in meningitis in 3.3%. Neurological complications included new cranial neuropathies in 4 cases (4.4%) and pontine hemorrhage in one patient. Carotid injuries occurred in 3 cases without any resulting deficit. There was no operative mortality in our series. Following EES, 48 patients (53%) received radiation therapy (proton beam in 39 cases). During a mean follow-up of 25 months (range 1-91), the tumor recurrence rate was 34% (26% after GTR and 54% after non-GTR) and most of these cases (74%) underwent repeat EES. The recurrence free period varied from 1 to 57 months (mean 15 months). In the most recent follow-up, 54 patients (60%) remain free of tumor and 11 (12%) have died due to disease progression.

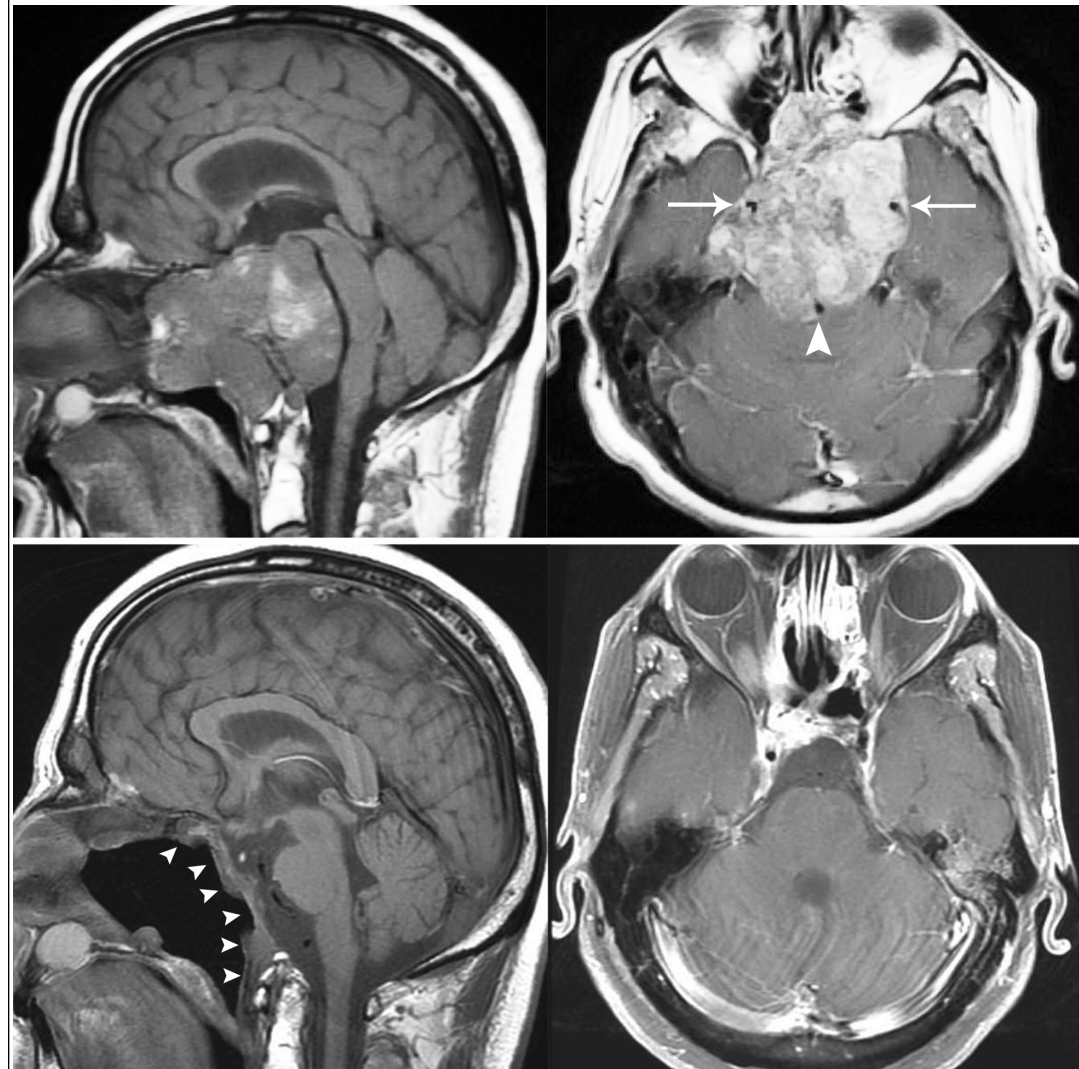
Conclusions

EES represents a competitive alternative to craniotomies for the treatment of skull base chordomas with minimal morbidity and high rates of GTR when performed by an experienced skull base surgical team.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of EES in the treatment of clival chordomas. 2) Discuss the advent of endoscopic technologies and techniques that facilitates maximum tumor resection with minimal complications compared to open approaches. 3)

Gross total resection of a giant skull base chordoma



Preop MRIs show a giant skull base chordoma extending from the planum sphenoidale to the level of first cervical vertebra. The mass encases both internal carotid arteries (arrows) and the basilar artery (arrowhead), compresses the brainstem and extends laterally to the petrous apices. Lower: Postop MRIs after a staged EEA. The surgical defect was reconstructed with a vascularized nasoseptal flap (arrowheads). The pons and medulla are totally decompressed and the cavernous sinuses are free of tumor.