



Management of Intracranial Meningiomas Using Keyhole and Endonasal Techniques

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Introduction

Keyhole craniotomies and endoscopic endonasal approaches are being increasingly explored for lesions of the skull base. We evaluate technical aspects and discuss surgical nuances of these approaches for management of 28 patients with a total of 32 intracranial meningiomas.

Methods

We performed a retrospective review of all patients treated for intracranial meningiomas by the senior author at our institution using “keyhole” or endoscopic procedures from January 2012 to June 2013.

Results

28 patients had tumors in a variety of locations, including supratentorial (9 patients), anterior fossa (5 patients), middle fossa (7 patients), posterior fossa (6 patients), and complex skull base (5 patients). All but two patients had WHO grade I tumors. Mean operative time of individual approaches for skull-base tumors was 7 hours, 58 minutes (range=2:55-16:14); mean operative time for supratentorial individual approaches was 4 hours, 20 minutes (range=1:45-7:13). Simpson Resection grades were: Grade I=5, II=6, III=1, IV=14, V=0. Mean post-operative hospital stay was 5 days (range=1-20 days). Eleven patients received adjuvant radiation. The most common presenting symptoms were visual loss (36%; n=10), and cranial nerve palsies (25%; n=7). In ten patients with some kind of visual loss, three patients had residual visual deficits postoperatively; the others improved or resolved completely. In those with cranial nerve palsies, all but one patient experienced improvement or resolution postoperatively. Four patients experienced new perioperative cranial nerve palsies, all of which improved or resolved at last follow-up.

Conclusions

Our results show satisfactory outcomes with minimal complications, morbidity and no mortality utilizing tailored keyhole approaches for resection of various intracranial meningiomas. With careful preoperative evaluation of imaging and tumor characteristics, single approaches or combinations of specifically tailored corridors can be utilized to manage a range of lesions from straightforward to extremely challenging locations with satisfactory results.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the feasibility of using tailored keyhole craniotomies for selected meningiomas, and 2) Discuss, in small groups, the operative planning of the approaches described for various skull base and supratentorial meningiomas.

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