Perspective as a new skull base faculty - complex cases, approaches, and complication management

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Introduction

Transition from skull base fellowship to the first faculty position can be a daunting task, specially if there is no senior skull base surgeon in the practice. As one is never truly ready to make this transition, suddenly one is responsible for managing complex skull base cases. Here, I share my personal experience in an effort to better prepare the upcoming fellows for the next phase in their careers.

Methods

Cases performed in the first year of post-fellowship faculty position were reviewed and challenging cases were identified. Surgical approach, outcomes and complications were reviewed.

Results

Diverse set of cases were identified which encompassed 360-degree skull base and included both common and rare pathologies. From anterior to posterior, cases included olfactory groove, planum, tuberculum sella, cavernous, petroclival, and petrous meningiomas. Both common (vestibular) and rare (cisternal trigeminal, trigeminal V2, vagal) schwannomas were identified. Pituitary adenomas, both functioning and non-functioning, with cavernous invasion were commonly managed. Rare pathologies included clival chordomas. Functional procedures included treatment of trigeminal neuralgia, hemifacial spasm and optic nerve compression. Intra-axial tumors included gliomas in speech and motor areas and brainstem. Vascular lesions included brainstem cavernoma, arteriovenous malformations and cerebral aneurysms. The author favored endoscopic endonasal approaches either in isolation or rallied heavily on endoscope assistance even for open approaches. Complications included cerebrospinal fluid leak, transient cranial nerve palsies, small venous infarct and residual tumor. Non-operative challenges commonly faced included lack of appropriate training of residents and scrub nurses for complex skull base cases. Further, complex can have long recovery periods and longer hospital stay. Setting the expectations right for peri-operative staff takes some time and education. This applies to the patients as well. Patients who have had partial resections and have progressive tumors are very reluctant to undergo aggressive procedures. They have been told over a period of months and years that they have inoperable tumors. The key is to spend time with patients. The author usually setup at least clinic appointments in the presence of family to better prepare patients. This allows patients to process information much better than a single appointment.

Results

1. *Intra-axial tumors*
   a) Awake craniotomy
   b) Cortical mapping
2. *Pituitary adenomas*
   a) Functioning adenoma
   b) Cavernous invasion
3. *Skull base*
   a) Schwannomas/Neurofibromas – Vestibular, Trigeminal, Vagal, Cervical
   b) Meningiomas
   c) Chordoma/chondrosarcoma
   d) Esthesioneuroblastoma
   e) Sinonasal malignancy
   f) Anterior and lateral skull base defects – encephalocele/CSF leaks
4. *Functional microsurgery*
   a) Trigeminal neuralgia
   b) Hemifacial spasm
   c) Hemipharyngeal spasm
5. *Vascular*
   a) Cerebral aneurysms
   b) Cavernous malformations
   c) AVMs

Conclusions

Overall, the outcomes from complex cases were favorable. The choice of approach reflected the training path of the author. Having a senior and skilled otolaryngology skull base partner proved critical. Support of even a non-skull base chair is absolutely necessary, not only from a career mentorship standpoint and providing support after a complication but also understanding the complexity of cases and nature of skull base pathologies. Having a senior skull base partner can make this challenging transition easier. As with the author, in the absence of a senior partner, guidance from previous clinical mentors in patient and approach selection plays a pivotal role.

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