Vestibular schwannoma surgery

- A Case of Calcification Discovered Within the Membranous Labyrinth During Resection of a Vestibular Schwannoma
- Primary culture of inner ear schwannoma
- Failure of gamma knife radiosurgery for sporadic vestibular schwannomas: a systematic review and meta-analysis
- Falling Mechanics Are Altered After Vestibular Schwannoma Surgery-A Case Report
- Intralabyrinthine schwannoma masking as Meniere's disease
- Cerebrospinal fluid leakage after retrosigmoid craniotomy and craniectomy for cerebellopontine angle tumors: A comparative retrospective study
- Increased Hemorrhage During Excision of Bevacizumab-Treated NF2-Related Vestibular Schwannomas
- Prognostic Factors for Facial Nerve Outcome after Vestibular Schwannoma Surgery: A 12-Year Multicentric Retrospective Study

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Facial nerve preservation and hearing preservation have been achieved by significant advances in skull base microsurgical techniques and intraoperative neuromonitoring. Diffusion tensor imaging is a powerful and accurate method for preoperatively identifying the facial nerve in relation to vestibular schwannomas. Endoscopy offers excellent illumination of the anatomical structures and provides panoramic vision inside the surgical area [1)].

Goals

The goal of microsurgical removal of a vestibular schwannoma is to completely remove the tumor, to provide long-term durable cure. In many cases, less than gross total resection (GTR) is performed to preserve neurological, and especially facial nerve function.

In selected cases, hearing preservation.

In modern neurosurgery Madjid Samii is considered to be one of the leading experts in vestibular schwannoma surgery.

Vestibular schwannoma microsurgery via the suboccipital approach with the help of intraoperative brainstem auditory evoked potentials is a common treatment option [2)].

The procedure is performed under general anesthesia with cranial nerve monitoring.

Following suboccipital craniotomy craniectomy, durotomy, CSF release from the foramen magnum, and identification of cranial nerve position, the tumor is debulked internally. The internal auditory canal is drilled and dissection of the tumor progresses. Following resection, the IAC is waxed and a fat graft placed. A Water-tight pericranial graft is sewn in and a titanium mesh cranioplastyplaced. The muscle and skin are closed in layers. The video can be found here: http://youtu.be/ialtKy3cuPU [3)].

Recent advances in electrophysiological technology have considerably contributed to improvement in functional outcome of vestibular schwannoma surgery in terms of hearing preservation and facial nerve paresis. Perioperative intravenous nimodipine and hydroxyethyl starch may be valuable additions to surgery [4].

The endoscope may be useful, especially in surgical techniques where there is poor control of the internal auditory canal (IAC). An endoscopic support technique is strongly recommended to avoid residual disease, particularly in retrosigmoid and retrolabyrinthine approaches. Moreover, the recent introduction of the transcanal transpromontorial approach allows the endoscope to be used during all the procedures in patients affected by a vestibular schwannoma limited to the IAC or to support surgical procedures during an enlarged microscopic approach [5].

Positions

There is an ongoing discussion about the advantages and disadvantages of different surgical positions (semi-sitting and lateral positions) for vestibular schwannoma surgery. Each position has its advantages, disadvantages, challenges, and risk profiles. This issue is still debated after 30 years since the first large comparative study was published in 1989, so the study will be useful. Therefore, more high-quality studies are required to compare clinical outcomes, complications, and other factors associated with these two positions.

Trial registration: Chinese Clinical Trial Registry ChiCTR1900027550 . Registered on 17 November 2019 [6].

Subtotal resection

Vestibular schwannoma subtotal resection.

Approaches

see Vestibular schwannoma approaches.

Complications

see Vestibular schwannoma surgery complications

Outcome

see Vestibular schwannoma surgery outcome

Videos

<html><iframe width="560" height="315" src="*www.youtube.com/embed/ClrBPO6KULk" frameborder="0" allowfullscreen></iframe></html>

1)
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2) , 3)
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4)
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5)
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6)
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