

Hearing preservation in acoustic neuromas. A retrospective study on 25 cases with preoperative AAO-HS

A and B (50/50) class, with reference to size of tumor and results.

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Learning Objectives

Serviceable hearing preservation depends on size of tumor. Microsurgery of AN offers high rate of HP, especially if maximum diameter is less than 2cm, identifying microsurgery as the first therapeutic option for small growing AN.

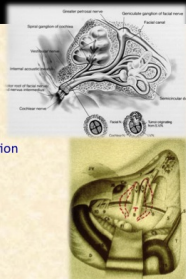
AN: General Considerations

1. Origin of Schwannoma:
ca 70% inferior vestibular nerve (IVN)
ca 20% superior vestibular nerve (SVN)
ca 10% cochlear nerve (CN)

2. Position of facial nerve: intraoperative stimulation
ca 70% ventral or ventral-superior
ca 20% superior
ca 10% inferior or ventral-inferior
ca 1% dorsal

3. Position of cochlear nerve:
Usually inferior or dorsal-inferior

- The possibility of hearing preservation is higher in ANs with max diameter <2cm, originating from SVN, with preop AAO-HS A and B (50/50) class
- In presence of tinnitus: hearing preservation usually impossible



Introduction

The goals of acoustic neuroma (AN) surgery are total tumor resection, facial nerve (FN) preservation, and -if possible- hearing preservation (HP). With advances in meticulous microtechniques, **HP has become possible in many patients with acceptable preoperative hearing** (A & B classes of AAO-HNS scale). This presentation deals with criteria for: patient selection for possible HP and evaluation of postoperative serviceable hearing, with reference to tumor size.

Methods

Twentyfive pts with socially useful hearing underwent AN surgery by retrosigmoid approach. Criteria for selection has been: pure tone audiogram better than 50dB loss and speech discrimination score better than 50% (50/50), namely A and B classes of AAO-HNS classification. Even if we attempted HP also in some patients with scores worse than 50/50 (class C), they were excluded from this study. In relation to maximum diameter, we identified 3 AN-groups: A) less that 2cm; B) 2-3cm; C) more than 3cm. In all cases surgery was performed with assistance of intraoperative BAER.



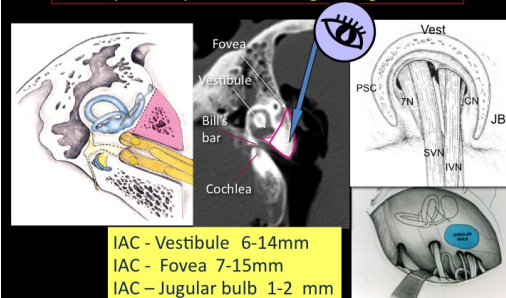
Head position:

1. Rotation to the opposite side
2. Flexion on the chin
3. Vertex down

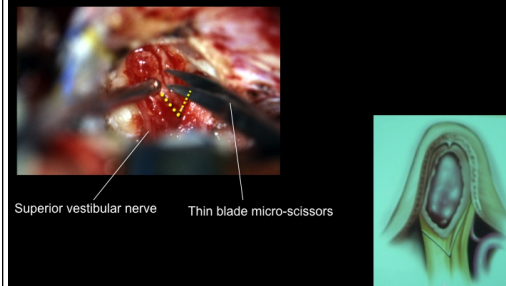
Mastoid has to be the highest point

Opening of internal auditory canal

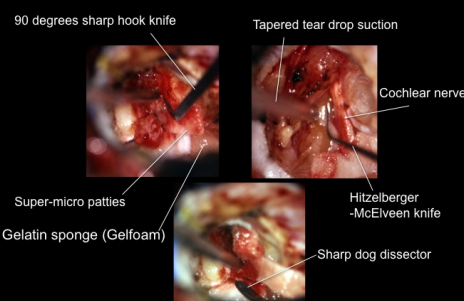
Anatomy of inner petrosa and drilling/shaving area of IAC



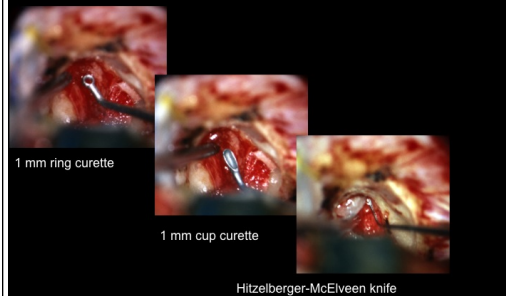
Capsular elavation (V-cut method)



Keep the dissection plane & elevate the tumor



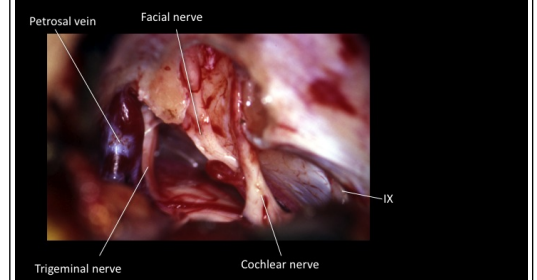
Procedure in the fundus



Results

Mean age was 47,2 and average maximal diameter 2cm. Total resection was possible in 19 cases (76%%), 88,2% of group A. In all cases FN was preserved; in 5 partial deficit was observed for maximum 6 months, recovering completely. HP was possible in 16 cases (64%%): 70,6% of group A, 50% B, and 50% C, respectively.

Final view



Conclusions

Compared to greater series, our data suggest that **microsurgery** of AN offers good rate of HP, **especially if maximum diameter is <2cm**, and can be considered the first therapeutic option for small growing AN.

Conclusions

- a. ANs usually require surgery.
Some cases: w&w (small AN in old & deaf pt)
- b. It is better to remove AN if max diameter is less than 2 cm, with socially useful hearing
- c. Surgery much better than radiotherapy

