TREATMENT OF GIANT ACOUSTIC NEUROMAS

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Introduction

To analyze the treatment modality and outcome of a series of patients sustaining Giant Acoustic Neuromas. A particular type of tumor characterized by their size (extracanalicular diameter of four centimeters or more) and high morbidity and mortality.

Methods

Retrospective unicenter study of patients with Acoustic Neuromas treated in a period of twelve years. In our institutional series of 108 acoustic neuromas operated on during that period, we found 13 (12%) cases of Giant Acoustic Neuromas. We review the available data of these cases including presentation and several clinical, anatomical, and microsurgical aspects.

Results

All patients were operated on by the same neurosurgeon and senior author (EU)

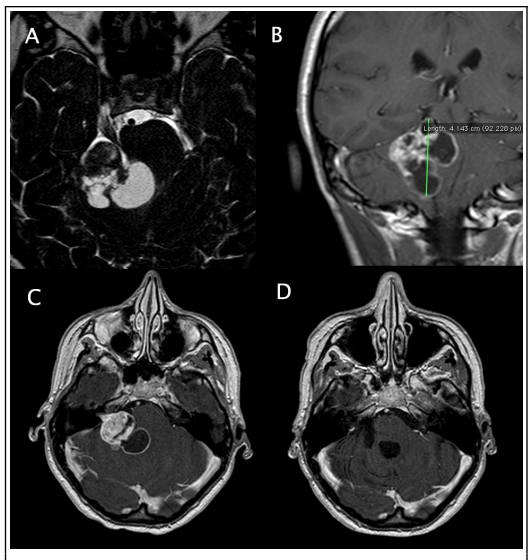
through the suboccipital retrosigmoid approach in semi-sitting position and complete microsurgical removal was achieved in 10 cases. In one case, near total removal was deliberately carried out, in another case a CSF shunt was placed as the sole treatment measure, and in the remaining case no direct treatment was intended. One patient died in the immediate postoperative period. One year after surgery, four patients showed facial nerve function of III or more in the House-Brackman scale.

Learning Objectives

To highlight the most important clinical aspects and general advice for the giant vestibular schwannoma surgery.

Conclusions

The four most important prognostic characteristics of giant acoustic neuromas are: size, adhesion to surrounding structures, consistency, and vascularity. Just the former is evident in neuroimaging. Giant acoustic neuromas are characterized by high morbidity at presentation as well as after treatment. Nevertheless, the objective of complete microsurgical removal with preservation of cranial nerve function is attainable in some cases through the suboccipital retrosigmoid approach in semi-sitting position.



MRI showing a typical giant acoustic neuroma with cystic degeneration. (A), (B), and (C) before surgery. (D) after complete removal.

References

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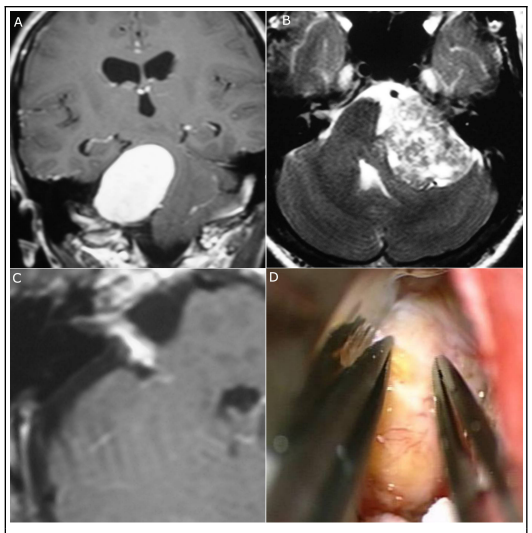

(A) Extracanalicular (medial) giant acoustic neuroma. (B) Giant acoustic neuroma with brain stem edema. (C) After complete removal of the tumor lineal enhacement of facial nerve on MRI is usually seen, but this findig is no asociated with higher risk of regrowth. (D) Surgical field.

Signs and symptoms at presentation

Signs and symptoms	Number of patients (%)
Hearing loss (any degree)	13 (100)
"Useful" hearing	5 (38)
Tinitus	5 (38)
Facial palsy	0 (0)
Trigeminal hypoesthesia	2 (15)
Trigeminal neuralgia	0 (0)
IX, X, or XI nerve dysfunction	1 (8)
VI nerve palsy	1 (8)
Ataxia	7 (54)
Intracranial hypertension	3 (23)
Hydrocephalus	9 (69)
Long tract deficit	0 (0)

Functional outcome in the present series*

Outcome	Number of patients (%)
Deafness (ipsilateral)	10 (91)
useful hearing (ipsilateral)	1 (9)
Facial palsy (House-Brackman > III)	4 (36)
Ataxia	0 (0)
CSF leak	0 (0)
IX, X, or XI nerve dysfunction	1 (9)
Long tract deficit	0 (0)
Ophthalmoplegia	1 (9)
Trigeminal hypoesthesia	3 (27)
Trigeminal neuralgia	0 (0)

*12 months after surgery

Clinical presentation (on 13 patients) and surgical outcome (on 11 patient) in the present series.