

Facial Nerve Function Following Acoustic Neuroma Resection is Associated with Surgeon Impression and Amplitude Required for Stimulation

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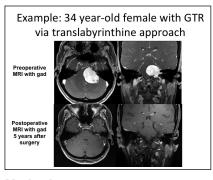
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Introduction

Facial nerve dysfunction is a risk of acoustic neuroma resection, and can have significant effects on the patient's quality of life. CN VII dysfunction following acoustic neuroma resection has been associated with tumor size, preoperative radiation / surgery, surgical expertise, nerve continuity, and evoked responses. However, other studies have inconsistently replicated these findings (Lee, 2016). Reported rates of good facial nerve function range from 77-96% (Rinaldi, 2012; Bruzzo, 2000).

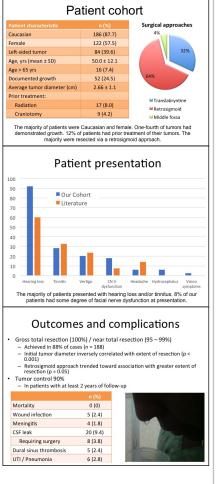
Objectives

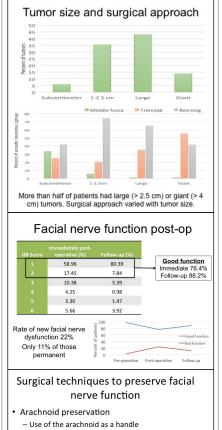
- Examine a series of patients undergoing surgical resection of acoustic neuromas by a single neurosurgeon at a tertiary care center.
- Assess facial nerve function immediately post-operatively and throughout follow-up
- Identify correlates of postoperative facial nerve function
- Do any intraoperative findings predict dysfunction and/or recovery?



Methods

We performed a retrospective chart review of consecutive cases by a single neurosurgeon (JJM) from 2005 - 2015. We identified 212 patients (mean follow-up 30 months). Facial nerve function was assessed postoperatively and at final follow-up, with outcomes dichotomized as good (House-Brackmann (HB) I-II) or poor (HB III-VI).





Preservation of the cochlear nerve to preserve

Sharp separation with needle point (Rosen), round knives, micro nerve hooks

Predicting facial nerve outcomes

Intra-operative facial nerve stimulation at 0.05 – 87% sensitivity Surgeon impression of abnormal nerve – 82% sensitivity Both with 50% specificity
* Significant in both univariate and multivariate analyses.

p=0.024

- Even if hearing preservation is not a goal

facial nerve blood supply

Papaverine instillation

Kartoush instruments

Conclusions

Immediate facial nerve weakness after aggressive surgical resection of acoustic neuromas is common, yet the majority of patients (90%) improve to HB I-II. Facial nerve outcomes correlate with surgical appearance of facial nerve and intraoperative stimulation, but not tumor size or surgical approach. These results justify the intention for gross total resection in experienced hands, modified by intraoperative judgment based on monitoring and facial nerve appearance.

References

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