

# POST - OPERATIVE FACIAL NERVE PRESERVATION AFTER VESTIBULAR SCHWANNOMA (VS) RESECTION: A COMPARATIVE META-ANALYSIS OF ENDOSCOPIC VS. OPEN RESECTION SURGERY

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## Introduction

Vestibular schwannoma: a benign SCHWANNOMA of the eighth cranial nerve (vestibulocochlear nerve), mostly arising from the vestibular nerve, during the fifth or sixth decade of life. During the last few decades, the remarkable improvement in technology has shifted the focus not only to save patients life, but also to facial nerve preservation and preservation of serviceable hearing; and to the target of gross total tumor removal. Some groups in the world start using endoscope for vestibular schwannoma resection, with promising results.

## Objectives

To determine whether patient outcomes and complications differ depending on surgical approach of either endoscopic or open resection methods for the removal of Vestibular Schwannoma. The primary Outcome: rate of facial nerve preservation. Secondary Outcomes: CSF leak, Vestibular nerve preservation, tumour size, degree of resection, wound infection, recurrence rate, and death.

## Methods

Retrospective meta-analysis.

### Inclusion Criteria:

- Case series with > 20 adult patients
- Endoscopic or open resection
- Retrosigmoid approach
- Adults
- English language.

### Exclusion Criteria:

- Other approaches: translabyrinthine, middle fossa
- Animal, cadaver, and basic science studies
- Comparative studies.

## Results:

1861 articles had been reviewed by two independent reviewers. Both excluded 1731, both included 44, and they disagreed on 86 articles. After review, 44 articles were included. At the time for final analysis, 25 articles were available: 4 endoscopic and 21 open. Total population: 3026 for open, 790 for endoscopic. Tumor size was not significantly different between the two groups.

Good facial outcome (House and Brackman I or II) was more in the endoscopic group (94 vs. 67%). Better cochlear nerve function, less CSF leak, more GTR all were more seen in endoscopic group too.

## Limitations:

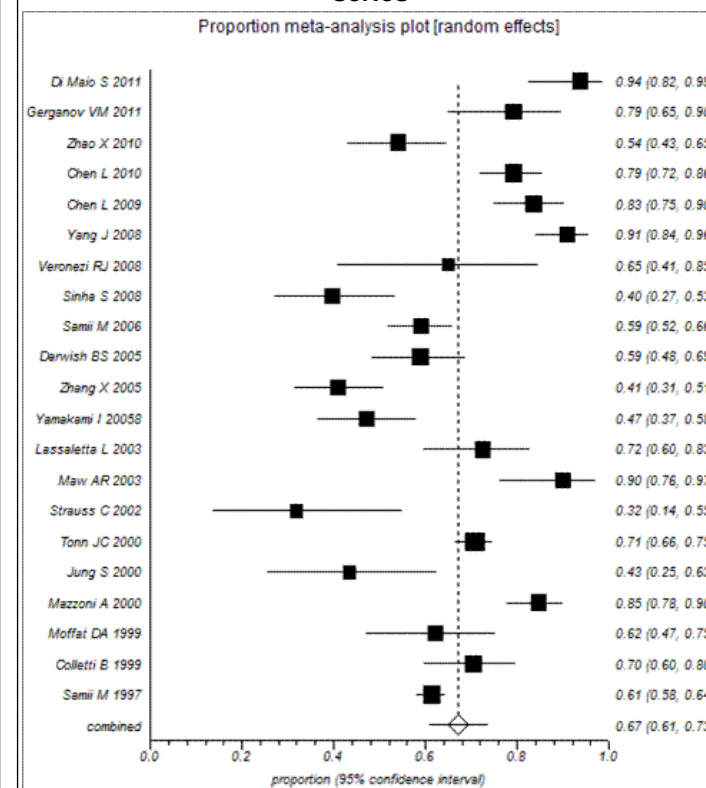
- Heterogeneity.
- Many information not available.
- Different definitions.
- Cross population between some studies
- This is a summation of case series.

## Conclusions:

Although we don't have the strongest methods of evidence, but at least we can say: endoscope is not inferior to standard open approach. With expert hand; endoscope can offer result as good as open, with potential benefits, such as: less pain and shorter length of stay in hospital. There is a need for more control studies for definitive comparison.

Outcome measure	Open surgery % (95% CI)	Endoscopic surgery % (95% CI)
Weighted mean tumor size	2.5 cm	2.7 cm
Facial nerve outcome: Good	67.0% (61 – 73%)	94% (92 – 95%)
GTR	91% (80 – 98%)	97% (92 – 99%)
cochlear nerve: functional hearing	22.6% (10.4 – 37.6%)	46% (38 – 54%)
CSF leak	8.2% (4.8 – 12.3%)	4.6% (2.3 – 7.2%)
Wound infection	1.3% (0.6 – 2.3%)	2.6% (1.5 – 4.0%)
Recurrence	5.4% (1.8 – 10.1%)	2.2% (1.3 – 3.4%)
Death	0.9% (0.3 – 2%)	0%

## Forest plots for good facial nerve outcome in open series



## Forest plots for good facial nerve outcome in endoscopic series

