

# The Supraorbital and Endoscopic Endonasal Approach for Olfactory Groove Meningiomas: A Costminimization Study

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## Introduction

We performed a cost-minimization study, and demonstrate cost-savings with the use of the supraorbital craniotomy to treat olfactory grove meningiomas in comparison to the Endoscopic Endonasal Approach (EEA).

## **Methods**

We built a decision tree using probabilities of gross total resection and CSF leak rates, with EEA and supraorbital craniotomy. The cost (not charge or reimbursement) at each 'stem' of this decision tree, for both surgical options was obtained from our hospitals finance department. After a base case calculation, we applied plausible ranges to every probability and carried out multiple one-way sensitivity analyses. Probabilistic sensitivity analyses confirmed our results.

# Results

The probabilities of gross total resection (0.8) and CSF leak (0.2) for the supraorbital craniotomy were obtained from our series of five patients who underwent a supraorbital approach for resection of olfactory groove meningioma. Mean tumor volume was 54.6 cm3, range (17 – 94.2 cm3). Literature reported rates of gross total resection (0.6) and CSF leak (0.3) with the EEA were applied to our economic analysis. Supraorbital craniotomy was the preferred strategy with an expected value of \$29,423, compared to an EEA cost of \$83,838. Applying multiple one-way sensitivity analysis, we found that the supraorbital craniotomy remained the preferred strategy with a minimum cost-savings of \$46,000 to a maximum of \$64,000. The probabilistic sensitivity analysis revealed the lowest cost difference between the 2-surgical options to be \$ 37,431.

#### **Conclusions**

Compared to EEA, supraorbital craniotomy provides substantial cost-savings in the treatment of OGM. A cost-effectiveness analysis should be undertaken.

# **Learning Objectives**

By the conclusion of this session, participants should be able to understand the cost differences between the supraorbital craniotomy and endoscopic endonasal approaches for treating olfactory groove meningiomas1) Describe the importance of clinical decision analysis to study cost in light of peculiar surgical nuances 2) Discuss, in small groups, the role of cost-effectiveness of surgical options, 3) Identify an effective treatment in the light of the value of the treatment options available.

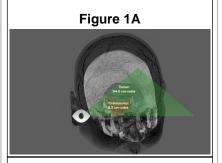
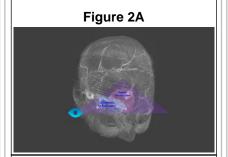
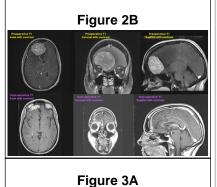
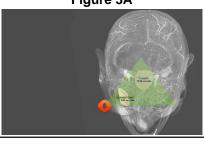


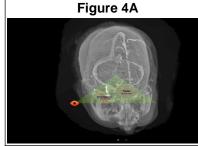
Figure 1B

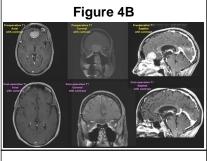


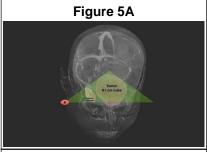


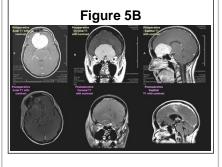


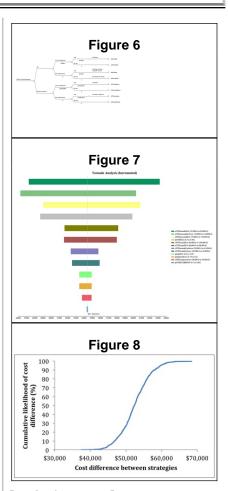












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