



## Utility of Intraoperative MRI (iMRI) in Transphenoidal Surgery: Single Center 34 Month Experience

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### Introduction

We present a single center experience with iMRI to demonstrate its utility in improving extent of resection (EOR) in transphenoidal surgery.

### Methods

A retrospective review of all transphenoidal surgeries performed over a 34 month period in the intraoperative MRI suite (IMRIS 1.5T) at a single center was performed. During this time period, three surgeons performed 40 transphenoidal surgeries.

### Results

Twenty-four patients underwent initial resection with 14 patients undergoing second resection and 2 undergoing third resection. The composition of pathology was as follows: 36 pituitary adenomas, 1 metastatic tumor, and 1 mucocele. On initial iMRI scan, 15 patients demonstrated gross total resection with 25 patients demonstrating residual tumor. Of the 25 patients demonstrating residual tumor on initial iMRI, 16 proceeded to undergo further resection with 10 reaching gross total resection(GTR) . Six patients underwent further resection that was stopped as to avoid chasing tumor into the cavernous sinus. Nine patients demonstrated residual tumor on initial iMRI with no further resection conducted due to adequate optic chiasm decompression and residual tumor deemed to be unresectable. Two patients underwent 2 iMRI scans with one patient reaching GTR after the second iMRI scan. One patient underwent 3 iMRI scans with the third scan performed in preparation for stealth navigation for conversion to craniotomy due to suprasellar residual with eventual GTR after craniotomy. Overall, the use of iMRI lead to further resection in 16 patients, conversion to craniotomy in 1 patient, and increased the number of patients achieving GTR from 15/40 (38%) to 25/40 (62%).

### Conclusions

iMRI serves as a valuable aid in transphenoidal surgery to improve extent of resection and provide intra operative confirmation of adequate decompression of vital neurological structures. We add our experience to the emerging body of literature on the value of this technology.

### Learning Objectives

By the conclusion of this session, participants should be able to

(1) describe the utility of iMRI in transphenoidal surgery