



Endoscopic, Endonasal, Transplanum, Transtuberculum Approach for a Pregnant Patient with Acute Right Vision Loss

UPMC
LIFE CHANGING MEDICINE

Robert J. Dambrino IV, MD, MPH¹; Sakibul Huq, MD¹; Michael Xie, MD²; Eric W. Wang, MD²; Carl H. Snyderman, MD, MBA²;

Georgios A. Zenonos, MD¹; Garret W. Choby, MD²; Paul A. Gardner, MD^{1,3}

¹Department of Neurological Surgery and ²Department of Otolaryngology, University of Pittsburgh Medical Center

³Department of Neurosurgery, NYU Langone Health

INTRODUCTION

Meningioma growth during pregnancy is well-documented and presents unique medical and surgical challenges. Hormonal changes, particularly elevated progesterone and estrogen levels, can accelerate tumor growth. Visual symptoms from tuberculum meningiomas may progress rapidly, requiring urgent surgical intervention even during pregnancy to prevent permanent vision loss.

OPERATIVE TECHNIQUE

Approach

- Endoscopic, endonasal, transplanum, transtuberculum approach
- Selected for direct access to tuberculum region with optic canal decompression

Key Surgical Steps

- Wide sphenoidotomy and posterior septectomy
- Tuberculum sellae and planum sphenoidale removal
- Intradural tumor exposure and debulking
- Right optic canal decompression
- Simpson Grade 1 resection achieved
- Multilayer skull base reconstruction

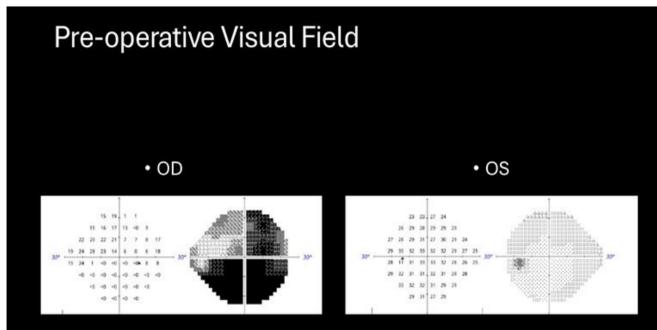
Pregnancy Considerations

- Multidisciplinary team including obstetrics and anesthesiology
- Continuous fetal monitoring during procedure

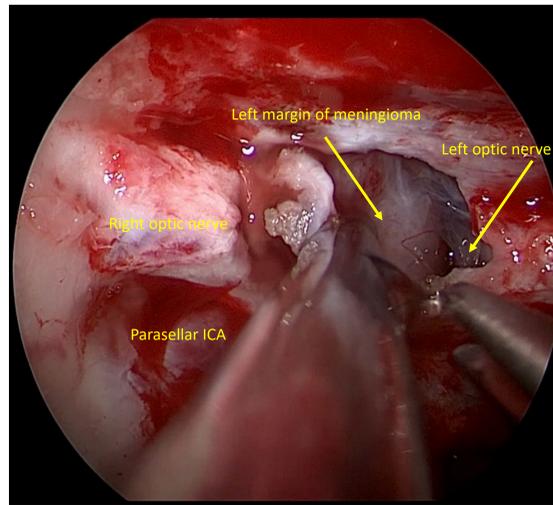
DISCUSSION

- Pregnancy-associated meningioma growth can cause rapid neurological deterioration
- Endoscopic endonasal approach provides direct access to tuberculum meningiomas with optic canal involvement
- Surgical intervention during pregnancy requires careful risk-benefit analysis and multidisciplinary coordination. Generally considered safe in the 3rd trimester
- Early induction could be problematic for the development of the fetus
- Early optic canal decompression is critical for visual recovery

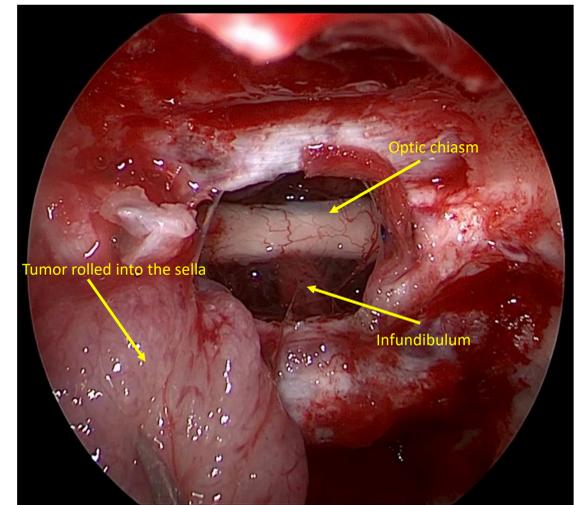
Pre-operative Visual Field



Pre-operative Visual Field



Visualization of left optic nerve



Tumor delivered after significant debulking into the sella with exposure of the optic chiasm and visualization of the infundibulum

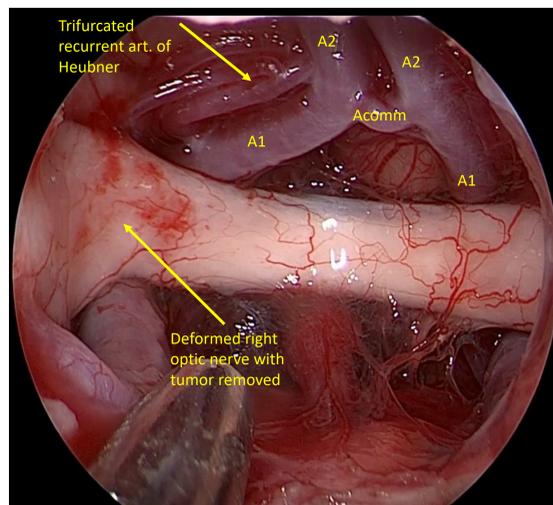
CASE PRESENTATION

Patient: 36-year-old female, G7P6, pregnant at 29 weeks and 3 days of gestation

Presentation: 2 months of progressive right vision loss with more acute vision loss over the past 1-2 weeks. She was at 29 weeks 3 days of gestation. Discussion with MFM deemed her too risky for early planned induction therefore more urgent surgical resection was planned.

Visual Acuity: Right eye 20/600, left eye 20/20

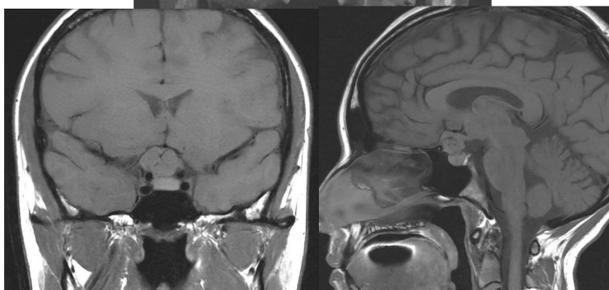
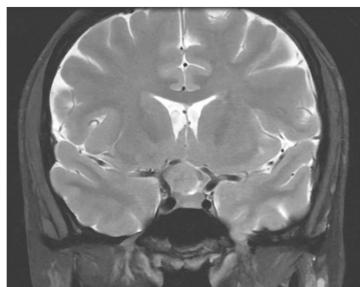
Imaging: MRI revealed a large tuberculum meningioma eccentric to the right with invasion of the medial optic canal (unable to receive contrast due to pregnancy)



Resection cavity showing deformed right optic nerve and a right trifurcated recurrent artery of Heubner with wider dural resection for Simpson 1 resection



Visual evoked potentials and intraoperative neuromonitoring improvement outlined in red



Pre-op non-contrast T1 and T2 MRI

CONCLUSION

The endoscopic endonasal transplanum transtuberculum approach is a safe and effective technique for resecting tuberculum meningiomas with optic canal involvement, even in pregnant patients. Simpson Grade 1 resection was achieved with excellent visual recovery from 20/600 to 20/40 postoperatively. The patient was discharged home on post-operative day 2. Both mother and fetus had favorable outcomes.