



Supraorbital Eyebrow Approach with Optic Canal Drilling and Medial Clinoidectomy for Resection of Glomangiopericytoma of the Optic Nerve



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Abstract

51-year-old-male presented with left-sided vision loss for 1 year with contrast contrast-enhancing lesion of the optic nerve extending into the optic canal, negative for inflammatory markers.

A supraorbital craniotomy with optic canal and strut drilling was done achieving gross total resection with rare pathology of myopericytic tumor. Endoscopic inspection and ICG injection is also highlighted to reflect the additional technical nuances.

Pre-Operative Course

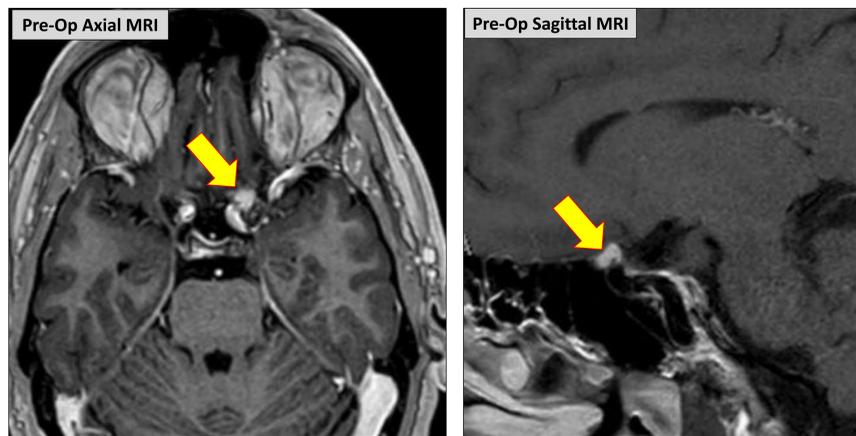
History of Present Illness: Patient with progressive vision loss in left eye x 1 year. No improvement of symptoms with steroids.

Past Medical/Surgical History: Non-contributory

Exam: GCS 15, EOMI, OS hand motion only, OD 20/25

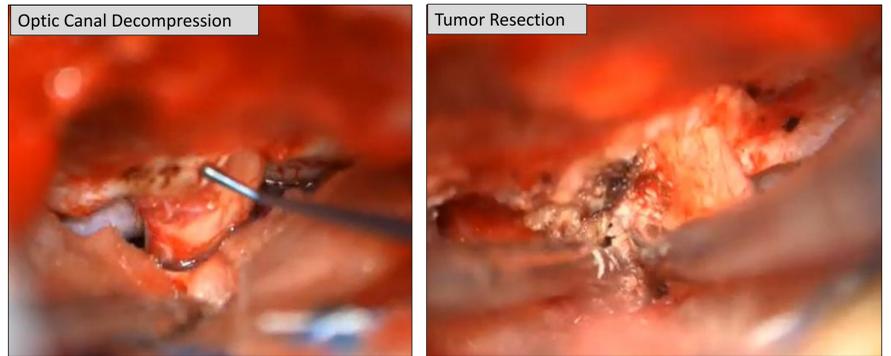
Diagnostics:

- CSF studies negative for MS (oligoclonal bands) and Sarcoidosis (ACE markers)
- MRI Brain w/o/w contrast: Post contrast enhancing lesion abutting optic nerve extending into optical canal.



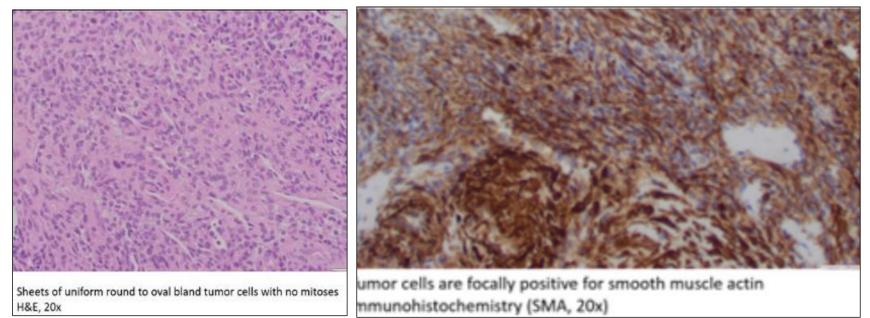
Video Discussion Continued

STAGE 2: Optic Canal Decompression and Tumor resection



Pathology Analysis

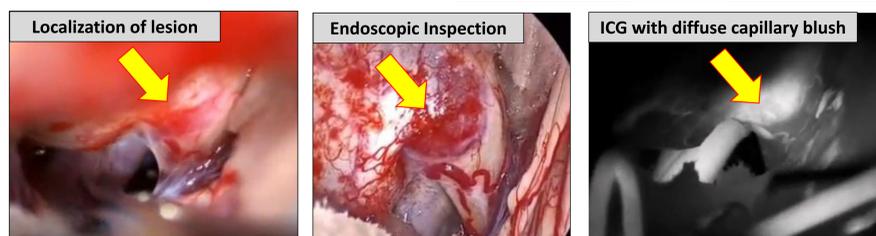
- **Glomangiopericytoma** involving the optic nerve extremely uncommon, often mimicking more frequent entities such as optic nerve sheath meningioma or inflammatory lesions.
- Low-grade perivascular tumors can cause profound visual morbidity when confined within the optic canal.
- **Early surgical intervention remains the most effective means of decompression and diagnosis.**



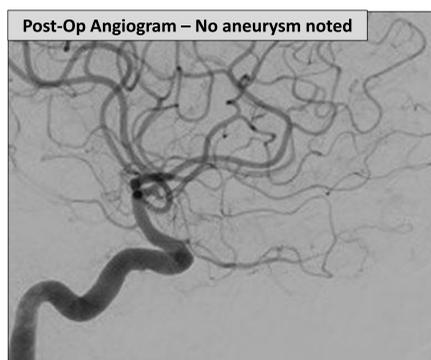
Video Discussion

STAGE 1 APPROACH:

- **Supraorbital eyebrow craniotomy and approach**
- Opening of optico-carotid cistern
- **Localization of lesion**
- **Endoscopic inspection**
- Optic canal decompression
- Medial clinoidectomy



- **Doppler and ICG dye positive.**
- Case reviewed with neurointerventionalist intraoperatively.
- **Case aborted for formal angiogram.**
- No aneurysm noted on angiogram.
- Decision made to return to OR following day for tumor resection.



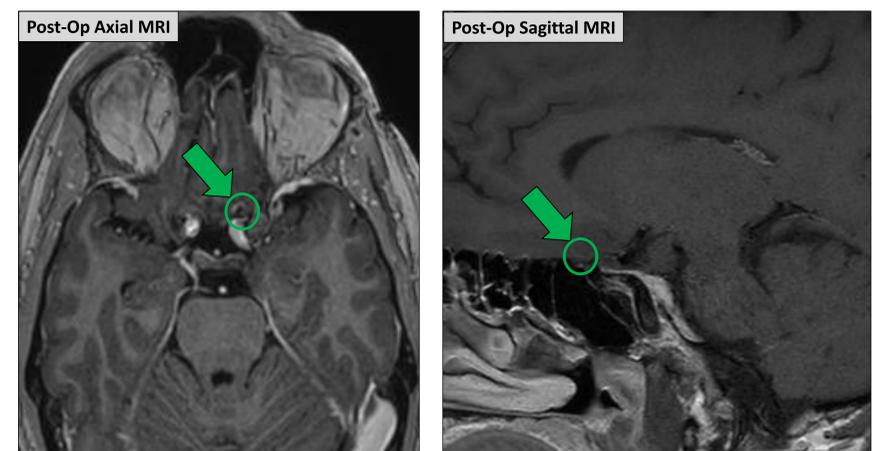
Post-Operative Course

DISCHARGE:

- Post op MRI: GTR
- Discharged POD 4; OS finger-counting present
- Pathology: Low grade myopericytic neoplasm (positive for smooth-muscle actin and negative for STAT 6 [A and B]).

1 YEAR POST OP:

- OS 20/25
- MRI Brain w/o/w: No evidence of recurrence



Conclusions

- Supraorbital eyebrow approach combined with optic canal drilling and clinoidectomy offer safe and minimally invasive approach for rare optic nerve tumors.
- Intra op endoscopic visualization and ICG angiography aids surgical complete removal of tumor.
- Present case highlights the importance of tailored skull base technique for rare optic nerve tumor to optimize visual outcome and tumor resection.

Contact

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References

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3. Shahid AH, Butler D, Dyess G, Baxton M, Harris L, Hummel U, Chason D, Thakur J. Supraorbital keyhole approaches in the first 3 years of practice: outcomes and lessons learned. Patient series. *J Neurosurg Case Lessons.* 2024;7(13):CASE23744. Published 2024 Mar 25. doi:10.3171/CASE23744