



Video Abstract

Keyhole supraorbital eyebrow approach for the resection of a tuberculum sellae meningioma with intraoperative endoscopic assistance

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ABSTRACT

Background: Tuberculum sellae meningiomas represent approximately 5–10% of intracranial meningiomas.^[2] Although benign, they are associated with substantial morbidity, especially visual disturbance. At present, there are three main treatment options for patients with tuberculum sellae meningiomas: observational, with serial imaging follow; microsurgical resection; and stereotactic radiosurgery. The advantages of the supraorbital eyebrow craniotomy are the direct visualization of the anterior cranial fossa, anterior circulation, and the optical apparatus, reducing the extent of brain retraction, and the absence of risks of temporalis muscle hypotrophy and posterior chewing discomfort. Conversely, minor drawbacks are a steeper learning curve related to a narrower surgical corridor than a standard frontotemporal approach and the minimal risk of supraorbital nerve injury.^[1,3]

Case Description: The authors report the case of a 42-year-old female who presented with acute-onset vision loss and only finger counting in her left eye associated with headache. Magnetic resonance imaging (MRI) showed a suprasellar extra-axial T1 enhancing mass with encasement of the left optic nerve and paraclinoid internal carotid artery and mass effect on the optic chiasm. A keyhole supraorbital eyebrow approach assisted with a microinspection tool was performed for tumor resection and optic nerve decompression. A Simpson Grade 2 tumor resection was achieved, and histopathology revealed a WHO Grade-I tuberculum sellae meningioma. The patient's presentation, rationale, key surgical steps, and outcome are discussed, and informed consent for surgery and video recording was obtained.

Conclusion: This surgical video illustrates the use of a keyhole supraorbital eyebrow approach assisted with a microinspection endoscopic tool for the resection of a tuberculum sellae meningioma. The tumor size, extension, and preoperative clinical status determine the optimal surgical corridor in tuberculum sellae meningioma. The keyhole supraorbital eyebrow approach allows safe and direct access to anterior cranial fossa lesions.

Keywords: Keyhole approach, Minimal invasive approach, Supraorbital craniotomy, Tuberculum sellae meningioma

Videos available on:

www.surgicalneurologyint.com

Annotations^[1-3]

0:00 – Introduction

0:12 – Clinical presentation

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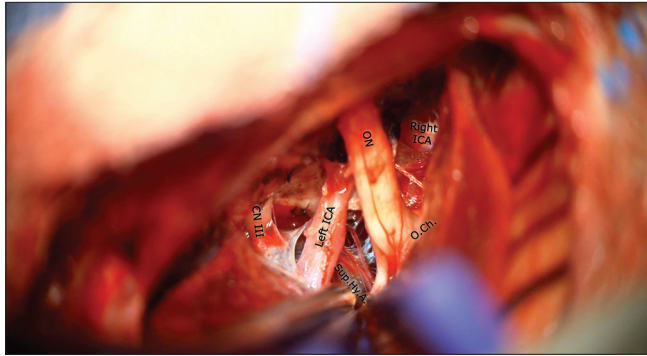
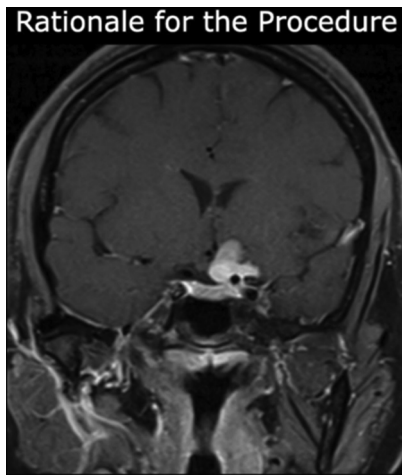


Figure 1



Video: Keyhole supraorbital eyebrow approach.

- 0:27 – Neurological examination
- 0:44 – Neuroimaging findings
- 1:01 – Rationale for the procedure
- 1:26 – Risks of the procedure and its potential benefits
- 1:43 – Alternatives/Why they were not chosen

- 1:59 – Description of the setup
- 2:28 – Key surgical steps
- 2:52 – Operative video
- 4:50 – Figure 1
- 6:11 – Review of clinical and imaging outcome.

Declaration of patient consent

Institutional Review Board (IRB) permission obtained for the study.

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Nil.

Conflicts of interest

C. Arturo Solares is a consultant for Medtronic. Gustavo Pradilla is a consultant for Stryker Corporation.

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