

Tuberculum sellae meningioma surgery

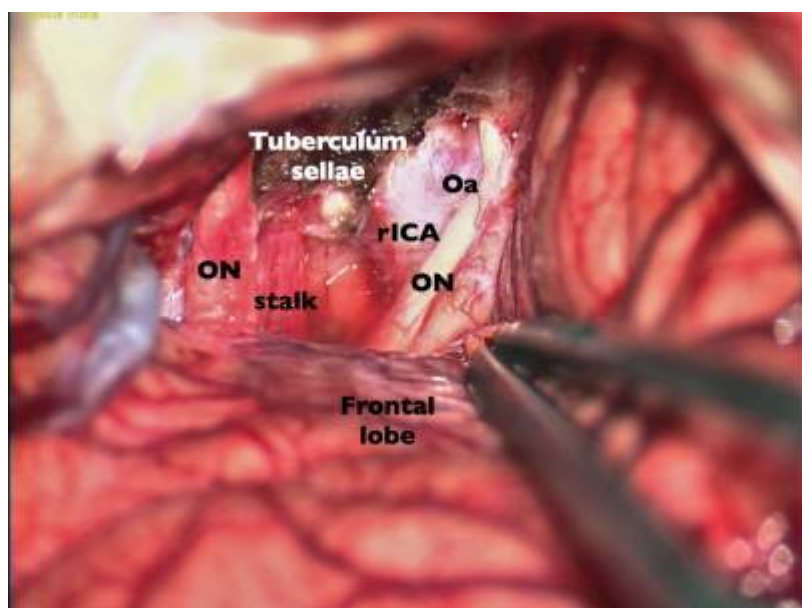
The treatment of choice for [Tuberculum sellae meningioma](#) is surgical [removal](#) with the goal of improving vision and achieving complete [tumor removal](#).

Management ideally consists of gross-total resection without injury to neighboring vital structure. The difficulty in surgically excising a Tuberculum sellae meningioma stems from its relationship to the optic nerves and chiasma and to the anterior cerebral and internal carotid arteries and their perforators, which are frequently encased and/or displaced.

The visual outcome is a matter of concern in surgical treatment. Because the inferior surface of the optic nerve and chiasm receives its blood supply from superior hypophyseal arteries that arise from the supraclinoid segment of the internal carotid artery, surgical dissection of the tumor from the inferior side of the optic apparatus is a more formidable procedure than removal of tumors above the optic apparatus ¹⁾.

Early attempts involved utilization of open transcranial routes. This included classic bilateral and unilateral frontal approaches, followed by pterional or frontotemporal approaches, which have evolved to incorporate skull base modifications, such as the supraorbital, orbitozygomatic, and orbitopterional approaches. Minimally invasive supraorbital keyhole approaches through eyebrow incisions have also been adopted. Over the past 25 years, the microsurgical transsphenoidal approach, classically used for pituitary and parasellar tumors, was modified to resect suprasellar TSM via the [extended endoscopic endonasal approach](#). More recently, with the evolution of endoscopic techniques, resection of TSM has been achieved using purely endoscopic endonasal transplanum transtuberculum approaches. Although each of these techniques has been successfully described for the treatment of TSM, the question still remains: is it better to access and operate on these lesions via a traditional, transcranial avenue, or are they better treated via endoscopic endonasal techniques? ²⁾.

Complete tumor resection with preservation or improvement of visual function is the goal of tuberculum sellae meningioma (TSM) treatment.



ICA. Internal Carotid Artery

ON. Optic Nerve

Oa. Ophtalmic Artery

rICA. Right Internal Carotid Artery

History

In the early 20th century, the first successful surgical removal of a [tuberculum sellae meningioma](#) (TSM) was performed and described by [Harvey Williams Cushing](#).

It soon became recognized that TSM pose a formidable challenge for skull base surgeons because of their deep and sensitive location, proximity to critical neurovascular elements, and often dense and fibrous nature. Because of this, over the next several decades controversy transpired regarding their optimal method of resection. Early attempts involved utilization of open transcranial routes. This included classic bilateral and unilateral [frontal approaches](#), followed by [pterional approach](#) or [frontotemporal approaches](#), which have evolved to incorporate skull base modifications, such as the supraorbital, orbitozygomatic, and orbitopterional approaches. Minimally invasive supraorbital keyhole approaches through eyebrow incisions have also been adopted. Over the past 25 years, the microsurgical [transsphenoidal approach](#), classically used for pituitary and parasellar tumors, was modified to resect suprasellar TSM via the extended transsphenoidal approach. More recently, with the evolution of endoscopic techniques, resection of TSM has been achieved using purely [endoscopic endonasal transplanum transtuberculum approaches](#). Although each of these techniques has been successfully described for the treatment of TSM, the question still remains: is it better to access and operate on these lesions via a traditional, transcranial avenue, or are they better treated via endoscopic endonasal techniques? ³⁾.

Approaches

[Tuberculum Sellae Meningioma Approaches](#).

¹⁾

Benjamin V, Russell SM. The microsurgical nuances of resecting tuberculum sellae meningiomas. *Neurosurgery*. 2005;56:411-7.

²⁾

Soni RS, Patel SK, Husain Q, Dahodwala MQ, Eloy JA, Liu JK. From above or below: The controversy and historical evolution of tuberculum sellae meningioma resection from open to endoscopic skull base approaches. *J Clin Neurosci*. 2013 Aug 12. pii: S0967-5868(13)00435-9. doi: 10.1016/j.jocn.2013.03.043. [Epub ahead of print] PubMed PMID: 24231561.

³⁾

Soni RS, Patel SK, Husain Q, Dahodwala MQ, Eloy JA, Liu JK. From above or below: the controversy and historical evolution of tuberculum sellae meningioma resection from open to endoscopic skull base approaches. *J Clin Neurosci*. 2014 Apr;21(4):559-68. doi: 10.1016/j.jocn.2013.03.043. Epub 2013 Aug 12. PubMed PMID: 24231561.

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