Endoscopic endonasal approach for a tuberculum sellae meningioma

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The authors present the technical and anatomical nuances needed to perform an endoscopic endonasal removal of a tuberculum sellae meningioma. The patient is a 47-year-old female with headaches and an incidental finding of a small tuberculum sellae meningioma with no vascular encasement, no optic canal invasion, but mild inferior to superior compression of the cisternal segment of the left optic nerve. Neuroophthalmology assessment revealed no visual defects. Treatment options included clinical observation with imaging follow-up studies, radiosurgery, and resection. The patient elected to undergo surgical removal and an endonasal endoscopic approach was the preferred surgical option.

Preoperative radiological studies showed the presence of an osseous ring between the left middle and anterior clinoids, the so-called carotico-clinoidal ring. The surgical implications of this finding and its management are illustrated. The surgical anatomy of the suprasellar region is reviewed, including concepts such as the chiasmatic sulcus and limbus sphenoidale, medial and lateral optico-carotid recesses, and the paraclinoidal and suprachiasmatic segments of the internal carotid artery. Emphasis is made in the importance of exposing the distal dural ring of the optic nerve for adequate intradural dissection. The endonasal route allows for early coagulation of the tumor meningeal supply and extensive resection of dural attachments, and importantly, provides an inferior to superior access to the infrachiasmatic region that facilitates complete tumor removal without any manipulation of the optic nerve. The lateral limit of dural removal is formed by the distal dural ring, which is gently coagulated after the tumor is resected. A 45° scope is used to inspect for any residual tumor, in particular at the entrance of the optic nerve into the optic canal and at the most anterior margin of the exposure (limbus sphenoidale). The steps for reconstruction are detailed and include intradural placement of dural substitute and extradural placement of the nasoseptal flap. The nuances for proper harvesting, positioning, and reinforcement of the flap are described. No lumbar drain was used.

The patient had an uneventful recovery with no CSF leak or any other complications. Imaging follow-up at 6 months showed complete removal of the tumor. The patient had no sinonasal or neurological symptoms, and olfaction was fully preserved.

The video can be found here: http://youtu.be/kkuV-yyEHMg.
(http://thejns.org/doi/abs/10.3171/2012.V8.FOCUS11308)

KEY WORDS • endoscopic endonasal approach • tuberculum sellae meningioma • surgical anatomy • video