Resection of an Optic Canal Meningioma through a Contralateral Subfrontal Approach with Endoscopic Assistance: A 2D Operative Video

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Abstract

Objective To review the use of the contralateral subfrontal approach for the resection of an optic canal meningioma.

Design Operative video.

Results A meningioma, located in the inferomedial side of the optic canal (►**Fig. 1**), was found to cause significant visual deterioration. The subfrontal route was preferred to expose the tumor without mobilization of the optic nerve. Drilling of the anterior limb of the chiasmatic sulcus (limbus sphenoidale) provided adequate exposure of the medial aspect of the optic canal. Gross total resection (Simpson II) of the tumor was accomplished, and endoscopic assistance allowed identification and coagulation of an infiltrated dura mater in the chiasmatic sulcus and tuberculum sellae.

Conclusion The subfrontal approach grants an optimal surgical trajectory to the contralateral chiasmatic sulcus and optic nerve. When the medial side of the optic canal is drilled, tumors extending into the optic canal can be safely resected, under direct visualization of the inferomedial side of the optic nerve. Breach into the sphenoid sinus can occur during drilling of the anterior limb of the chiasmatic sulcus. Endoscopic assistance can provide a better view on blind areas of the surgical field, including the depth of the optic canal (►**Fig. 2**).

The link to the video can be found at: https://youtu.be/fS2udUCPH1g.

Keywords
- optic canal
- meningioma
- endoscopic assistance
- skull base

Conflict of Interest
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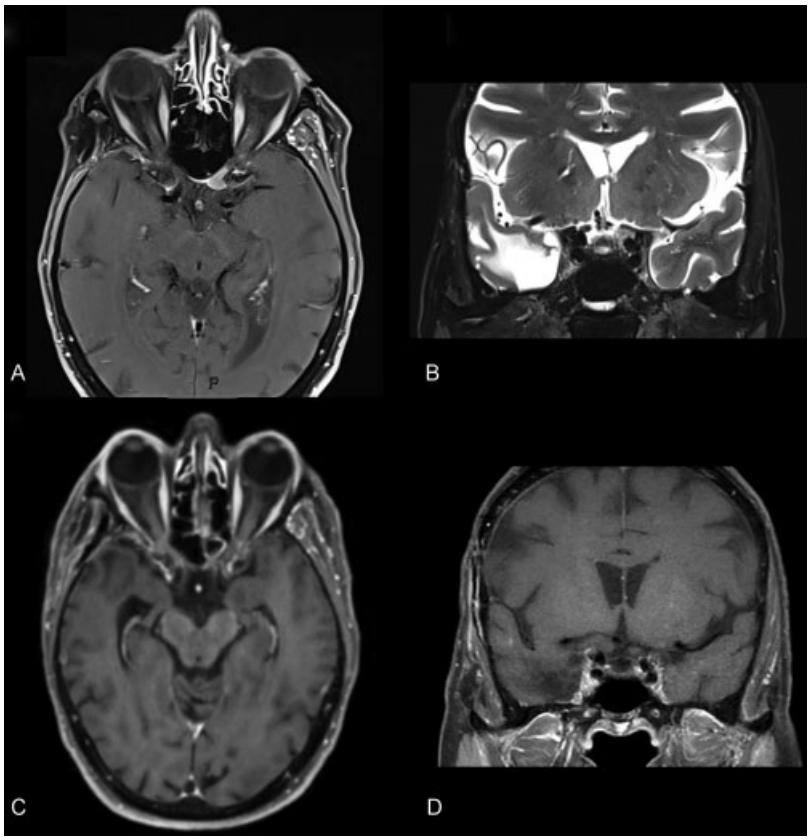

Fig. 1 Pre- and postoperative magnetic resonance imaging. Preoperative (**A**) and postoperative (**C**) Axial T1-weighted magnetic resonance images. Coronal T2-weighted preoperative (**B**) and coronal T1-weighted postoperative imaging. Gross total resection was achieved.

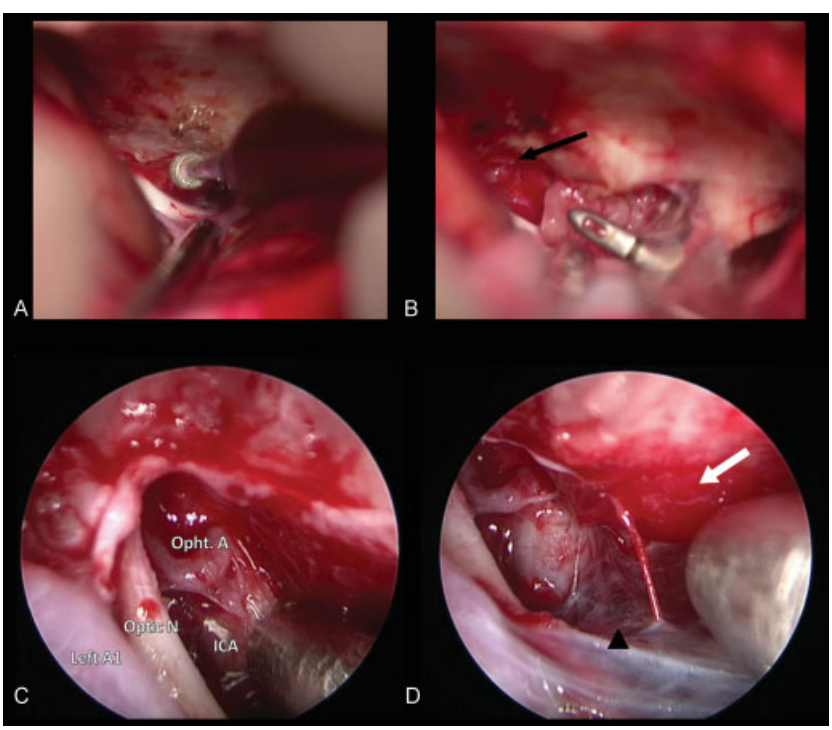

Fig. 2 Intraoperative pictures. (**A**) Early optic nerve decompression and improved intracanalicular exposure of the tumor was accomplished by drilling the limbus sphenoidale and medial optic canal. (**B**) Direct dissection of the tumor was possible, with identification and preservation of the ophthalmic artery (black arrow). (**C**) Endoscopic view inside the inferomedial optic canal. (**D**) The use of the 30-degree angled endoscope allowed identification of an area of invaded dura mater (white arrow), which could be coagulated. ICA; internal carotid artery; Left A1, left anterior cerebral artery; Opht.A, ophthalmic artery; optic N, optic nerve.