

# Extended Endoscopic Endonasal Approach for Craniopharyngioma Removal

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## Abstract

**Objective** Endoscopic transsphenoidal extended endoscopic approach (EEA) represents a valid alternative to microsurgery for craniopharyngiomas removal, especially for retrochiasmatic lesions without large parasellar extension. The present video illustrates the salient surgical steps of the EEA for craniopharyngioma removal.

**Patient** A 52-year-old man presented with a bitemporal hemianopia and a bilateral decreased visual acuity. MRI showed a Kassam type III cystic craniopharyngioma with a solid component (► **Fig. 1**, panels A and B).

**Surgical Procedure** The head is rotated 10 degrees toward the surgeons. The nasal step is started through the left nostril with a middle turbinectomy. A nasoseptal flap is harvested and positioned in the left choana. The binostril approach allows a large sphenoidotomy to expose the key anatomic landmarks. The craniotomy boundaries are the planum sphenoidale superiorly, the median opticocarotid recesses, the internal carotid artery laterally and the clival recess inferiorly. After dural opening and superior intercavernous sinus coagulation, the tumor is entirely removed (► **Fig. 2**, panels A and B). Skull base reconstruction is ensured by fascia lata grafting and nasoseptal flap positioning.

**Results** Postoperative MRI showed the complete tumor resection (► **Fig. 1**, panels C and D). At 3 months postoperatively, the bitemporal hemianopia regressed and the visual acuity improved. A novel left homonymous hemianopia developed secondary to optic tract manipulation.

**Conclusions** The extended EEA is a valid surgical approach for craniopharyngioma resection. A comprehensive knowledge of the sellar and parasellar anatomy is mandatory for safe tumor removal with decreased morbidity and satisfactory oncologic results.

The link to the video can be found at: <https://youtu.be/NrCPPnVK2qA>.

## Keywords

- craniopharyngioma
- extended endonasal approach
- endoscopy
- parasellar lesions
- transsphenoidal surgery

Conflict of Interest  
None.



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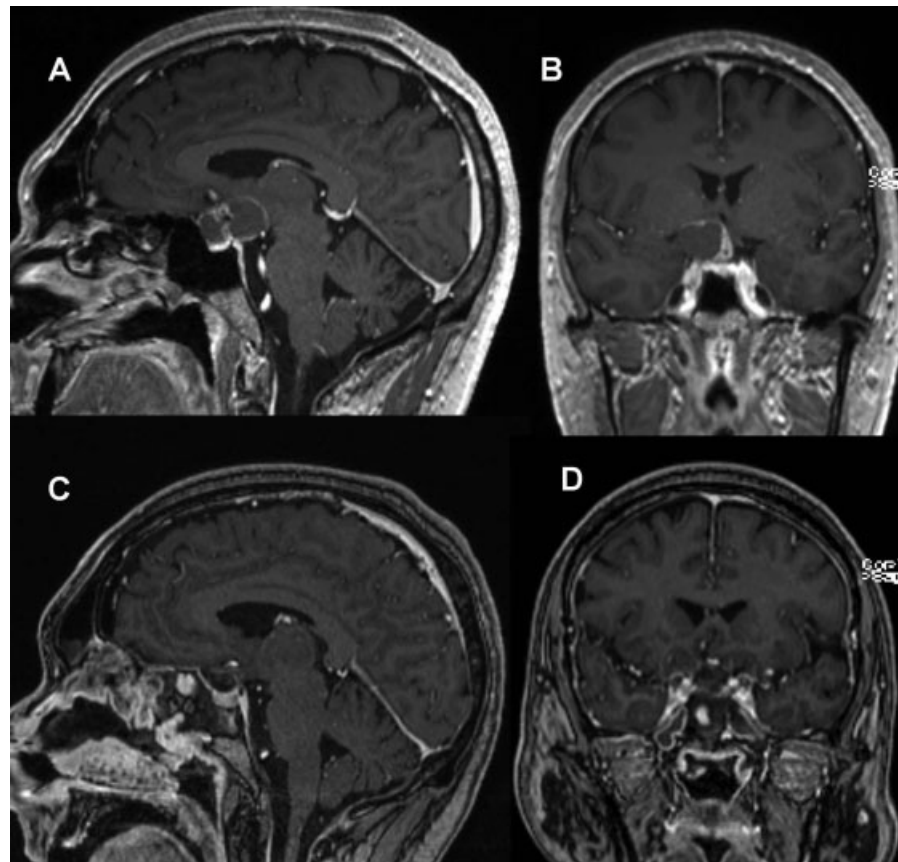
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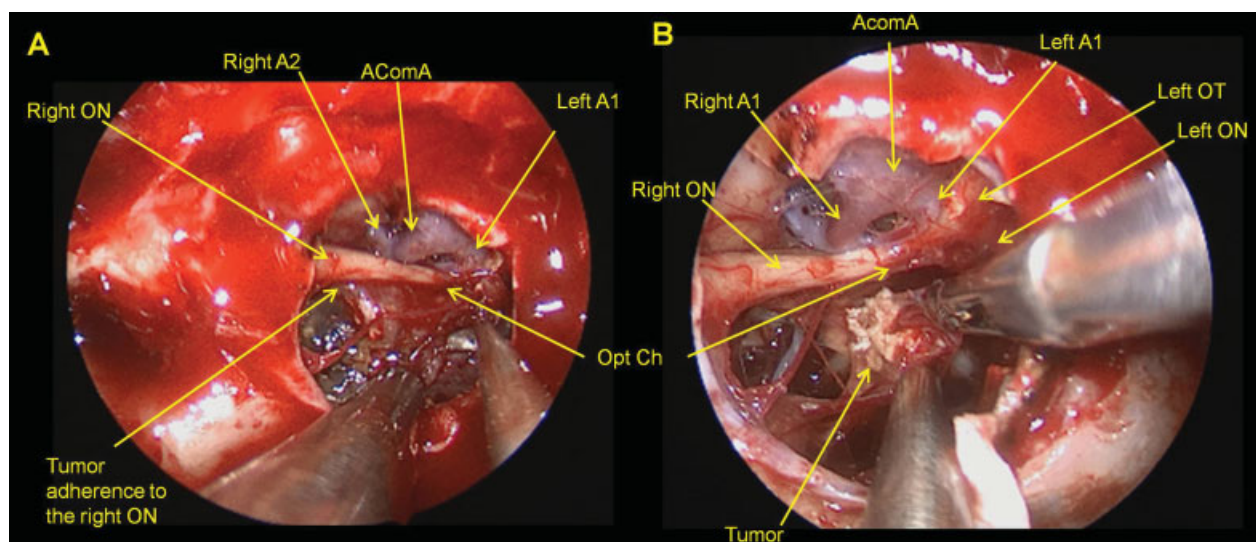
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**Fig. 1** Preoperative sagittal (A) and axial (B) MRI showing a Kassam III cystic craniopharyngioma with a solid component, exerting mass effect on the optic chiasm. Postoperative sagittal (C) and axial (D) MRI showing complete resection of the craniopharyngioma.



**Fig. 2** Operative pictures of the intradural phase. (A) shows tumor dissection from its adhesions to the right ON. (B) shows the resection of the residual craniopharyngioma after careful dissection from the right ON. The EEA allows wide exposure of the anterior communicating vascular complex, both optic nerves, the optic chiasm and tracts, the pituitary stalk. Abbreviations. AComA, anterior communicating artery; OptCh, optic chiasm; ON: optic nerve, OT, optic tract.