



# Endoscopic Endonasal Transethmoidal-Transsphenoidal Approach to a Cavernous Sinus Chondrosarcoma

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J Neurol Surg B

## Abstract

**Objective** We illustrate a cavernous sinus chondrosarcoma treated with an endoscopic endonasal transethmoidal-transsphenoidal approach.

**Design** Case report of a 15-year-old girl with diplopia and esotropia due to complete abducens palsy. Preoperative images showed a right cavernous sinus lesion with multiple enhanced septa and intralesional calcified spots (► **Fig. 1**). Considering tumor location and the lateral dislocation of the carotid artery, an endoscopic endonasal approach was performed to relieve symptoms and to optimize the target geometry for adjuvant conformal radiotherapy.

**Setting** The study was conducted at University of Insubria, Department of Neurosurgery, Varese, Italy.

**Participants** Skull base team was participated in the study.

**Main Outcome Measures** A transethmoidal-transsphenoidal approach was performed by using a four-hand technique. We used a route lateral to medial turbinate to access ethmoid and the sphenoid sinus. During the sphenoid phase, we exposed the medial wall of the cavernous sinus (► **Fig. 2**) and the lesion was then removed using curette. Skull base reconstruction was performed with fibrin glue and nasoseptal flap.

## Keywords

- cavernous sinus
- chondrosarcoma
- endoscopic endonasal approach
- proton therapy
- skull base

## Conflict of Interest

None declared.



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received  
July 28, 2020  
accepted  
November 3, 2020

DOI <https://doi.org/10.1055/s-0041-1726018>.  
ISSN 2193-6331.

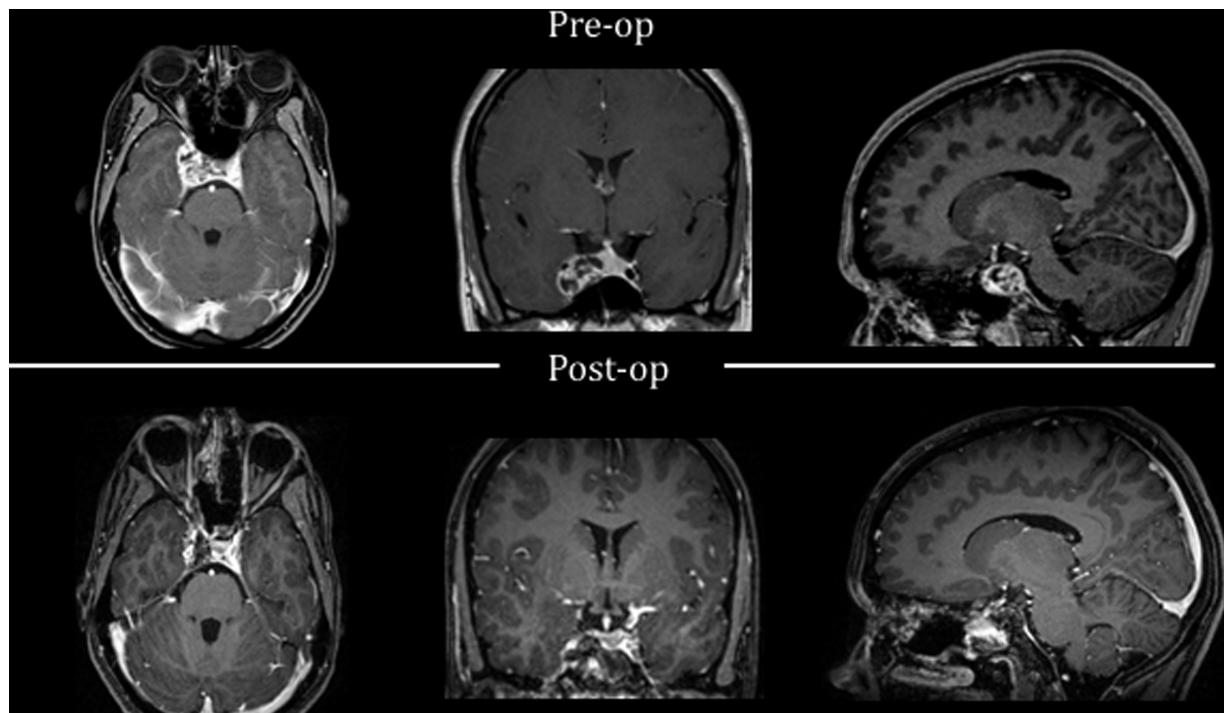
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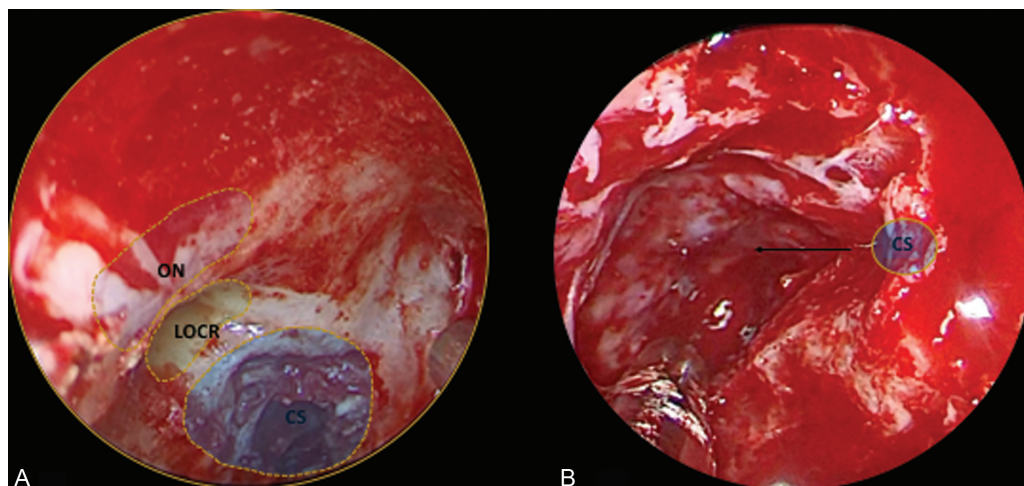
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**Results** No complications occurred after surgery, and the patient experienced a complete recovery of symptoms. A postoperative magnetic resonance imaging showed a small residual tumor inside the cavernous sinus (→**Fig. 1**). After percutaneous proton-bean therapy, patient experienced only temporary low-grade toxicity with local control within 2 years after treatment completion.

**Conclusion** Endoscopic endonasal extended approach is a safe and well-tolerated procedure that is indicated in selected cases (intracavernous tumors, soft tumors not infiltrating the vessels and/or the nerves). A tailored approach according to tumor extension is crucial for the best access to the compartments involved. The link to the video can be found at: <https://youtu.be/TsqXjquOws>.



**Fig. 1** Pre- and postoperative T1-weighted postgadolinium magnetic resonance imaging.



**Fig. 2** Intraoperative images of the surgical field. (A) Anatomical landmarks. (B) The cavernous sinus after tumor removal. CS, cavernous sinus; LOCR, lateral opticocarotid recess; ON, optic nerve.