This video demonstrates a complete resection of a pontine cavernous malformation through an endoscopic endonasal transclival approach.

A 46-year-old lady presented sudden diplopia and right hemiparesis 10 years ago with complete neurological recovery, followed by five more episodes of mild right hemiparesis. Brain MRI showed a 2.6-cm cavernous malformation in the pons with an exophytic portion in the prepontine cistern. The patient underwent an endoscopic endonasal transclival approach for a complete resection of the lesion. CSF leak was noted and corrected on the sixth postoperative day. The patient progressed with complete motor deficit recovery.

The video can be found here: https://youtu.be/ePgpyll2Wpo.

KEYWORDS brainstem; cavernous malformation; endonasal; endoscopic; transclival; video
in piecemeal. A large clot in the lateral portion of the lesion was mobilized and removed. The last piece of the lesion was removed and the pontine parenchyma with hemosiderin was inspected.

The surgical cavity was covered with oxidized cellulose hemostatic agent. The reconstruction was performed with an inlay and an onlay fascia lata, followed by fat, and the positioning of the nasoseptal flap. A Foley catheter was used to maintain the position of the nasoseptal flap.

There was a slight worsening of right hemiparesis in the postoperative period. The patient presented CSF leak on the sixth postoperative day, which was corrected the same day with a surgical revision. We noticed that the pulsation of the basilar artery displaced the layers of fascia lata. These layers were repositioned and fibrin glue was used to prevent further displacement. Fat and the nasoseptal flap were repositioned, followed by the Foley catheter. A lumbar drain was implanted.

An MRI performed after 6 months of surgery showed cicatricial alterations in the surgical borders with contrast enhancement, but no obvious residual lesion. There was complete resolution of the motor deficit.

We decided to propose surgical treatment, since the patient presented multiple episodes of bleeding, and a new episode could be catastrophic. Traditional approaches were considered. Retrosigmoid craniotomies, anterior petrosectomies, and presigmoid approaches are some options. All of them expose the lateral portion of the pons and allow access through safe entry zones, such as the peritrigeminal zone and the middle cerebellar peduncle zone. However, manipulation through the pontine parenchyma is required, and there is a risk of injury to eloquent areas, especially because there is important displacement of the normal structures, making anatomical recognition difficult. Also, the surgical corridor is narrow, in a lateral route between the cranial nerves.

We opted for an endoscopic endonasal transclival approach since it provides direct access to the ventral region of the pons and would allow us to access the lesion without having to cross the pontine parenchyma. The biggest disadvantage of this approach is the CSF leak rate, which is still higher than in traditional approaches. However, the advancement of surgical techniques has reduced its rate, and even when it occurs, it is most often treated with revision of the reconstruction.

We have shown the resection of a cavernous malformation in the ventral pons with a good functional outcome, and we believe that this case may reinforce the idea that the endonasal transclival approach is a good option for selected cases.

**Time points**

| Time  | Content                                  |
|-------|------------------------------------------|
| 0:30  | Patient’s history                        |
| 1:05  | Positioning                              |
| 1:15  | Nasal stage                              |
| 1:47  | Sphenoid sinus opening                   |

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**Disclosures**

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this article.