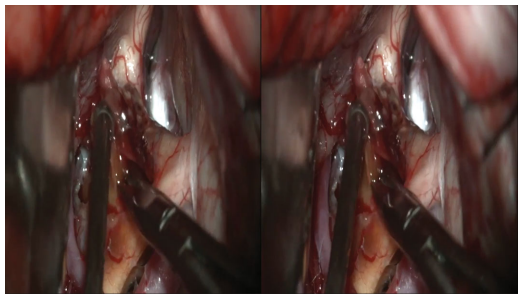
Microsurgical Resection of a Chiasmatic Cavernoma: 3-Dimensional Operative Video



Alvaro Campero, MD, PhD[*‡], Ignacio Casas-Parera, MD, PhD[§], Juan F. Villalonga, MD[*‡], Matías Baldoncini, MD[¶]

[*]LINT, Facultad de Medicina, Universidad Nacional de Tucumán, Tucumán, Argentina; [‡]Department of Neurological Surgery, Hospital Padilla, Tucumán, Argentina; [§]Department of Neurology, Oncologic Institute "Ángel H. Roffo," University Center of Neuro-Oncology, School of Medicine, University of Buenos Aires, Buenos Aires, Argentina; [¶]Department of Neurological Surgery, Hospital San Fernando, Buenos Aires, Argentina

Watch now at https://academic.oup.com/ons/article-lookup/doi/10.1093/ons/opab063

Correspondence: Matías Baldoncini, MD, Department of Neurological Surgery, Jorge Luis Borges 2240, Floor 4, Buenos Aires 1425, Argentina. Email: drbaldoncinimatias@gmail.com

According to reports from the literature,[1,2] depending on the location where cavernomas appear, range from the very common locations to unusual. Cavernous malformations arising from the optic nerve and chiasm are rare, with only few cases reported to date.[3-5]

We present a case of a 28-yr-old man who suddenly started with sever visual loss in the right eye and homonymous lateral hemianopia in the left eye. Because of the acute symptomatology, a brain MRI was immediately performed in order to diagnose the etiology. The MRI showed a chiasmatic mass with right extension, heterogeneous on T1 and T2 sequences, without enhancement after gadolinium. The surgery was carried out a week after the diagnosis. A right pterional transsylvian approach was performed and the cavernoma was resected with microsurgical maneuvers, preserving the optic nerve fibers, chiasm, and optic tract.

The patient evolved favorably, improving the visual deficit in the postoperative period as can be observed in the postoperative visual field study 7 mo after the surgery.

The patient signed an informed consent for the procedure and agreed with the use of his images and surgical video for research and academic purposes.

Our surgical case emphasizes the importance of a prompt diagnosis and surgery for chiasmatic cavernomas[3] associated to visual loss, providing early decompression of the optic apparatus and improvement of the visual field defects after surgery.

KEY WORDS: Optic chiasm, Chiasmatic cavernoma, Visual loss, Microsurgery

Operative Neurosurgery 0:1–2, 2021 DOI:10.1093/ons/opab063 **Received,** November 7, 2020. **Accepted,** January 3, 2021.

Funding

This study did not receive any funding or financial support.

Disclosures

The authors have no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

REFERENCES

1. Gross BA, Lin N, Du R, Day AL. The natural history of intracranial cavernous malformations. *Neurosurg Focus*. 2011;30(6):E24.
2. Marnat G, Gimbert E, Berge J, Rougier MB, Molinier S, Dousset V. Chiasmatic cavernoma haemorrhage: To treat or not to treat? Concerning a clinical case. *Neurochirurgie*. 2015;61(5):343-346.
3. Newman H, Nevo M, Constantini S, Maimon S, Kesler A. Chiasmal cavernoma: a rare cause of acute visual loss improved by prompt surgery. *Pediatr Neurosurg*. 2008;44(5):414-417.
4. Sun XY, Yu F. Microsurgical resection of a cavernous angioma that involves the optic pathway using a pterional approach: a case report and literature review. *Br J Neurosurg*. 2012;26(6):882-885.
5. Crocker M, Desouza R, King A, Connor S, Thomas N. Cavernous hemangioma of the optic chiasm: a surgical review. *Skull Base*. 2008;18(3):201-212.

COMMENT

Retrobulbar cavernous malformations are rare and challenging lesions due to their unusual and eloquent location. The authors showcase in this interesting 3-dimensional operative video the microsurgical resection of a chiasmatic cavernous malformation. Complete resection of the lesion is achieved with good results. Important concepts for achieving safe complete resection of this lesion would be to dissect the cavernoma along the hemosiderin plane without targeting the hemosiderin component itself in such an eloquent location, same concept that is followed for lesions in the brainstem for example. Care must be taken to remove all components of the cavernous malformation if this has to be resected in a piecemeal fashion, as any residual could still cause hemorrhage and regrow. In the event where a developmental venous anomaly is present, care must be taken to preserve it. Regular postoperative MRI follow-up is also recommended.

Ziad A. Hage
Charlotte, North Carolina, USA