



## Video Abstract

# Orbitozygomatic approach for large orbital cavernous hemangioma

Jose Orlando de Melo Junior<sup>1,2</sup>, Marcelo Francisco Alcantara Ribeiro de Castro<sup>2</sup>, Jose Alberto Landeiro<sup>3</sup>

<sup>1</sup>Department of Neurosurgery, Paulo Niemeyer State Brain Institute, Rio de Janeiro, Brazil, <sup>2</sup>Department of Neurosurgery, Santa Teresa Hospital, Petropolis, Brazil, <sup>3</sup>Department of Neurosurgery, Antonio Pedro University Hospital, Niteroi, Brazil.

E-mail: \*Jose Orlando de Melo Junior - jomjunior@gmail.com; Marcelo Francisco Alcantara Ribeiro de Castro - marcelocastroneuro@globo.com; Jose Alberto Landeiro - jalandeiro@gmail.com



### \*Corresponding author:

Jose Orlando de Melo Junior,  
Department of Neurosurgery,  
Paulo Niemeyer State Brain  
Institute, Rio de Janeiro, Brazil.

[jomjunior@gmail.com](mailto:jomjunior@gmail.com)

Received : 15 March 2021

Accepted : 03 June 2021

Published : 28 June 2021

### DOI

10.25259/SNI\_274\_2021

### Quick Response Code:



## ABSTRACT

**Background:** Cavernous hemangiomas, more accurately defined as cavernous venous malformations, constitute the most common primary intraorbital tumors of adults comprising 4–9% of all tumors,<sup>[4]</sup> and the second most frequent cause of unilateral proptosis after thyroid-related orbitopathy.<sup>[3]</sup> Over 80% are located within the intraconal compartment, most commonly in the lateral aspect.<sup>[1]</sup> Surgical treatment for orbital cavernous hemangioma is generally required in symptomatic cases, optic nerve compression, and cosmetically disfiguring proptosis.<sup>[2]</sup> Transcranial approaches, the most familiar approaches for neurosurgeons, provide wide access to the entire superior and lateral orbit. They usually offer direct visualization, allowing for a safer dissection, while minimizing significant injury to the native neural and vascular anatomy of the orbit.<sup>[5]</sup> Although transcranial approaches continue to evolve, in many cases, they have been supplanted by endoscopic skull base approaches and modifications to deep lateral orbitotomy approaches.<sup>[5]</sup>

**Case Description:** A 62-year-old male patient presented with slowly expanding left proptosis, which he had first noticed 3 years before presentation. He was already blind in his right eye due to a history of traumatic amaurosis in childhood. The left eye examination revealed severe proptosis with restricted eye movement in all directions and significant visual impairment (visual acuity of 20/300, expressed by Snellen test, with no improvement on correction). MRI of the orbit showed a large left superolateral intraconal cavernous hemangioma compressing and displacing the optic nerve, with the typical feature of slow gradual irregular enhancement with delayed washout on contrast-enhanced image. A one-piece modified orbitozygomatic approach was performed and a total *en block* resection was achieved. The bone flap was fixed with titanium miniplates and screws, the temporal muscle and the skin were closed in a standard fashion. The patient did not present any new deficit in the postoperative period. The patient had good functional and cosmetic outcomes with resolution of proptosis, restoration of eye movements, and improvement of visual acuity in the 3-month follow-up. Postoperative MRI showed total resection.

**Conclusion:** The orbitozygomatic approach for large orbital cavernous hemangioma provides satisfactory orbital decompression and large working space, reduces traction, and increases visualization and freedom to dissect small vessels and nerves that may be tightly attached to the tumor pseudocapsule.

**Keywords:** Orbital cavernous hemangioma, Orbital tumor, Orbitozygomatic approach, Skull base surgery, Surgical approach

### [Video 1]-Available on:

[www.surgicalneurologyint.com](http://www.surgicalneurologyint.com)

### Annotations<sup>[1-5]</sup>

- 1) 00:00 – Introduction.
- 2) 00:23 – Case presentation.

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

©2021 Published by Scientific Scholar on behalf of Surgical Neurology International

- 3) 00:50 – Preoperative imaging.
- 4) 01:18 – Positioning and skin incision.
- 5) 01:51 – Subfascial dissection.
- 6) 01:58 – Landmarks in a cadaver model.
- 7) 03:20 – Orbitozygomatic approach.
- 8) 03:26 – Tumor resection.
- 9) 04:34 – Postoperative imaging.
- 10) 04:39 – Outcome.

#### **Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent.

#### **Financial support and sponsorship**

None.

#### **Conflicts of interest**

There are no conflicts of interest.

#### **REFERENCES**

1. Baert AL, Sartor K, Müller-Forell WS, editors. *Imaging of Orbital and Visual Pathway Pathology*. Berlin, Heidelberg: Springer; 2006.
2. Calandriello L, Grimaldi G, Petrone G, Rigante M, Petroni S, Riso M, *et al.* Cavernous venous malformation (cavernous hemangioma) of the orbit: Current concepts and a review of the literature. *Surv Ophthalmol* 2017;62:393-403.
3. Cho KJ, Paik JS, Yang SW. Surgical outcomes of transconjunctival anterior orbitotomy for intraconal orbital cavernous hemangioma. *Korean J Ophthalmol* 2010;24:274-8.
4. Kim MH, Kim JH, Kim SE, Yang SW. Surgical outcomes of intraconal cavernous venous malformation according to their location in four right-angled sectors. *J Craniofac Surg* 2019;30:1700-5.
5. Srinivasan A, Bilyk JR. Transcranial approaches to the orbit. *Int Ophthalmol Clin* 2018;58:101-10.

**How to cite this article:** de Melo Junior JO, de Castro MF, Landeiro JA. Orbitozygomatic approach for large orbital cavernous hemangioma. *Surg Neurol Int* 2021;12:320.