

Bilateral septic cavernous sinus thromboses: an uncommon complication of paranasal and orbital infection

Shin Yin Ooi¹

Timothy SE Tan¹

Harvey ELJ Teo¹

Author details can be found at the end of this article

Correspondence to:
Shin Yin Ooi;
ooisyin@gmail.com

An 18-year-old man presented with a 1-week history of fever and worsening headache, with additional severe painful left orbital swelling over the last 3 days. Clinical examination revealed left-sided chemosis, proptosis and oculomotor nerve palsy. Urgent magnetic resonance imaging (Figure 1) showed features of extensive rhinosinusitis and left orbital cellulitis, complicated by bilateral cavernous sinus thromboses. Prompt management with broad-spectrum intravenous antimicrobial and anticoagulant therapy resulted in a good recovery.

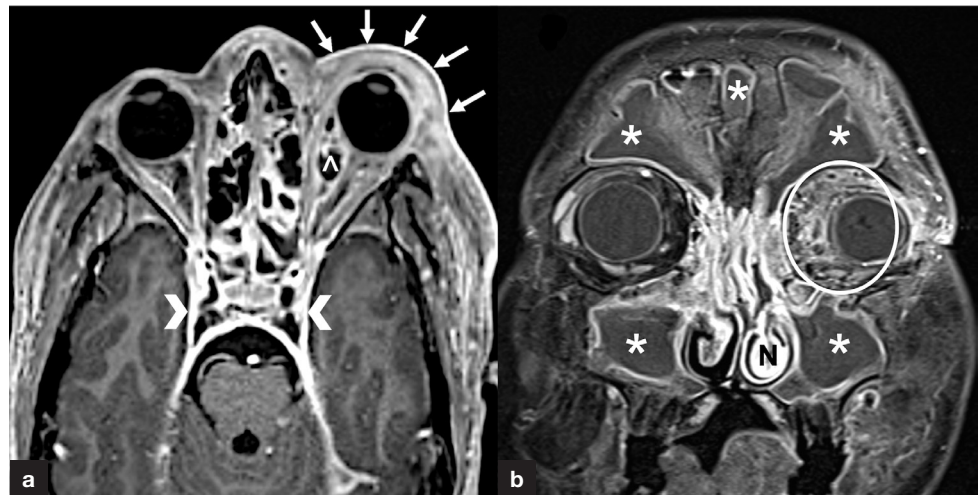


Figure 1. a. Axial and (b) coronal contrast-enhanced T1-weighted fat-suppressed magnetic resonance imaging of the orbits at the level of the cavernous and paranasal sinuses demonstrated intraluminal linear filling defects in the mildly swollen bilateral cavernous sinuses (white chevrons), consistent with thromboses. Extensive enhancing mucosal thickening and fluid in the bilateral paranasal sinuses (*) with concurrent left nasal mucosal enhancement (N) are present, consistent with acute rhinosinusitis. There is also extensive, heterogeneously enhancing left-sided pre-septal soft tissue swelling (white arrows) with marked intraconal fat stranding and abnormal enhancement as well as oedema of the extraocular muscles (white circle), reflecting left orbital cellulitis. A small rim-enhancing intraconal collection noted along the left medial orbit indenting the optic nerve is suspicious for an abscess (^).

Cavernous sinus thrombosis is an uncommon but serious complication of facial, orbital or paranasal sinus infections, often caused by *Staphylococcus aureus*. Septicaemia from infections in the nasolabial triangle can spread to the valveless cavernous sinuses retrogradely, causing septic cavernous sinus thromboses (Bhatia et al, 2020). Sinusitis involving the ethmoid sinuses can disseminate to the orbits via the thin lamina papyracea, increasing the risk of bilateral development of cavernous sinus thromboses, as seen in this patient. Complications of cavernous sinus thromboses include cerebral infarctions, meningitis and intracranial abscess, which are serious and life-threatening. These should be recognised early, with the patient assessed by close interval imaging (Lizé et al, 2015), best achieved via contrast-enhanced computed tomography or magnetic resonance imaging using venogram protocols (Branson et al, 2019).

Author details

¹Department of Diagnostic and Interventional Imaging, KK Women's and Children's Hospital, Singapore, Singapore

How to cite this article:

Ooi SY, Tan TSE, Teo ELHJ. Bilateral septic cavernous sinus thromboses: an uncommon complication of paranasal and orbital infection. Br J Hosp Med. 2024. <https://doi.org/10.12968/hmed.2023.0274>

References

- Bhatia H, Kaur R, Bedi R. MR imaging of cavernous sinus thrombosis. *Eur J Radiol Open*. 2020;7(100226):100226–19. <https://doi.org/10.1016/j.ejro.2020.100226>
- Branson SV, McClintic E, Yeatts RP. Septic cavernous sinus thrombosis associated with orbital cellulitis: a report of 6 cases and review of literature. *Ophthalmic Plast Reconstr Surg*. 2019;35(3):272–280. <https://doi.org/10.1097/IOP.0000000000001231>
- Lizé F, Verillaud B, Vironneau P et al. Septic cavernous sinus thrombosis secondary to acute bacterial sinusitis: a retrospective study of seven cases. *Am J Rhinol Allergy*. 2015;29(1):e7–e12. <https://doi.org/10.2500/ajra.2015.29.4127>