

Serous Choroidal Detachment associated with Cavernous Sinus and Superior Ophthalmic Vein Thrombosis Presenting as Fulminant Orbital Compartment Syndrome

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Introduction

- Cavernous sinus thrombosis (CST) and superior ophthalmic vein thrombosis (SOVT) are rare but vision- and life-threatening conditions that typically present with progressive ocular pain, proptosis, chemosis, ophthalmoplegia, and reduced vision¹.
- Although uncommon, CST may be preceded by trigeminal neuralgia-like pain due to involvement of V1 or V2 within the cavernous sinus².
- Sudden overnight decompensation resulting in orbital compartment syndrome with severe ocular hypertension is distinctly rare.
- CST/SOVT can also be associated with extensive choroidal detachment (CD), a complication sparsely reported in the literature.
- We present a fulminant case illustrating this unusual combination.

Case

- A 90 year old woman presented to the Emergency Department with sudden onset severe left orbital swelling, proptosis, profound vision loss and pain.
- Past medical history included Dyslipidemia, Hypertension, Chronic Obstructive Pulmonary Disease, previous Transient Ischaemic Attack, and Trigeminal Neuralgia.
- Five days earlier, she had experienced an unusually intense exacerbation of her trigeminal neuralgia, prompting an increase in her carbamazepine dose.
- Her vision and ocular status remained entirely normal until the night before presentation, with all orbital symptoms emerging suddenly upon waking.

Case

- Right eye BCVA was 6/19+2
- Left eye had no perception of light.
- IOP: 18mmHg OD and 80mmHg OS
- Slit lamp examination showed:
 - Tense periorbital oedema
 - Fixed, dilated pupil
 - Marked chemosis
 - Flat anterior chamber
 - Iris-corneal apposition
- Ocular movements were severely limited.
- B-scan USG of the left eye demonstrated massive 360-degree serous choroidal detachment.
- Emergency lateral canthotomy and cantholysis was performed.
- Contrast-enhanced CT imaging of the left orbit showed left proptosis, left superior ophthalmic vein and cavernous sinus thrombosis with associated orbital cellulitis.
- The patient was admitted under the medical team for intravenous antibiotics and anticoagulation.

Methods

- Clinical findings were obtained from patient records and imaging
- A focused literature search was performed using PubMed and Google Scholar was undertaken
- Search terms used were 'cavernous sinus thrombosis', 'superior ophthalmic vein thrombosis', 'choroidal detachment' and 'choroidal effusion'.

Results

- One week later, Left IOP reduced but BCVA remained as NPL.
- A month later, the periorbital swelling showed complete resolution.
- Unfortunately, the left eye was phthisical, with complete ophthalmoplegia and ptosis.

References

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Figure 1: Initial presentation of the left eye, demonstrating tense, periorbital oedema



Figure 2: Left eye image taken two months later showing complete resolution of periorbital swelling, with complete ophthalmoplegia



Figure 3: Computed tomography imaging of the left orbit, demonstrating the cavernous sinus thrombosis



Figure 4: Computed tomography imaging of the left orbit, demonstrating the left superior ophthalmic vein thrombosis

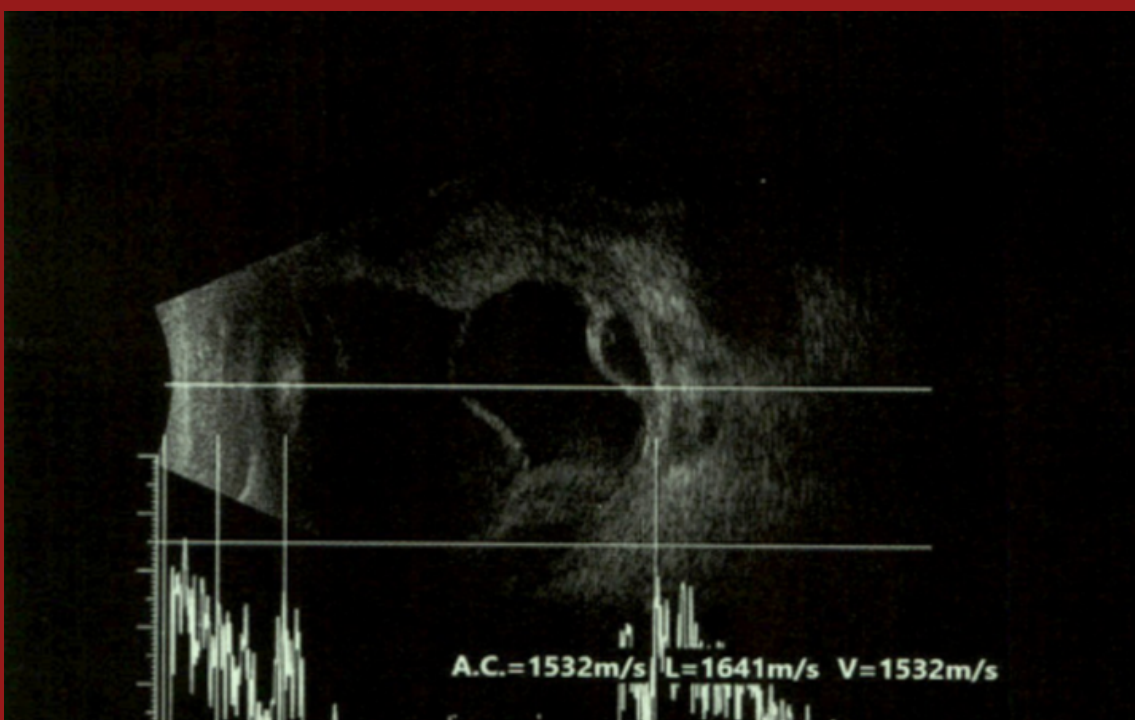


Figure 5: B-scan ultrasonography of the left eye showing left choroidal detachment

Discussion

- There have been documented cases of choroidal detachments occurring secondary to carotid-cavernous fistulas³ (CCFs).
- It is hypothesised that the primary mechanism of CD formation secondary to CCFs, is due to increased orbital venous congestion. This then leads to transudation of fluid within the suprachoroidal space.³
- Cavernous sinus thrombosis (CST) is also speculated to impair venous drainage within the eye, resulting in venous congestion⁴.
- We propose that a similar process occurred in our case, with CD formation secondary to cavernous sinus/left superior ophthalmic vein thrombosis.
- Interestingly, our patient had also experienced an exacerbation of her trigeminal neuralgia symptoms, prior to her presentation.
- In the cavernous sinus, the ophthalmic (V1) and maxillary (V2) branches of the trigeminal nerve pass through⁵.
- We propose that the cavernous sinus thrombosis likely led to compression of the trigeminal nerve, resulting in a prodrome of trigeminal neuralgia symptoms.

Key Takeaway Points

- This case highlights an explosive presentation of CST/SOVT, marked by sudden overnight orbital compartment syndrome with markedly elevated intraocular pressure and extensive choroidal detachment—an association rarely described in the literature.
- Clinicians should maintain a high index of suspicion for CST/SOVT in susceptible patients presenting with rapid-onset orbital swelling and pain.
- Trigeminal neuropathy may, in some cases, represent the earliest atypical manifestation of this life-threatening condition.