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Terson's Syndrome: An Underdiagnosed Complication of Subarachnoid Hemorrhage

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Background

- Terson's Syndrome refers to an intraocular hemorrhage in patients with severe subarachnoid hemorrhage (SAH), traumatic brain injury or intracerebral hemorrhage.¹
- Mechanism of injury: increased intracranial pressure which transmits into the optic nerve sheath and causes rupture of the retinal vessels and subhyaloid hemorrhage.²
- Despite its relatively common incidence of up to 46%, the syndrome remains under-diagnosed or delayed.³
- Early recognition of the intraocular hemorrhage on head CT and treatment is significant to a patient's outcome.⁴

Case Description

- Forty-six-year-old man with a past medical history of excessive EtOH who presented to the emergency department with sudden onset of severe headache, nausea, and brief loss of consciousness.
- Acute decompensation with tonic clonic seizure associated with hypertension, tachycardia, and vomiting.
- A stat head CT revealed subarachnoid hemorrhage involving the perimesencephalic cisterns, intraventricular hemorrhage, and hydrocephalus.
- CT Angiography revealed a left vertebral artery V4 dissecting-type aneurysm. Hunt and Hess Scale score was 2 and modified Fisher score was 4.
- An external ventricular drain (EVD) was inserted and he underwent cerebral angiography with deployment of flow-diverting stent in the left vert V4 dissecting aneurysm.
- After extubation, the patient complained of bilateral blindness. Examination revealed inability to track movements, or blink to threat.
- It was believed that the vision loss was due to a bilateral posterior cerebral arteries (PCA) strokes versus manifestation of acute encephalopathy.
- Ophthalmology was consulted and B scan revealed bilateral vitreous and subhyaloid hemorrhages, concerning for Terson's Syndrome.
- Retrospective review of head CT from admission showed bilateral crescentic hyperdensity in the posterior vitreous that is consistent with the diagnosis of Terson's syndrome.

Imaging

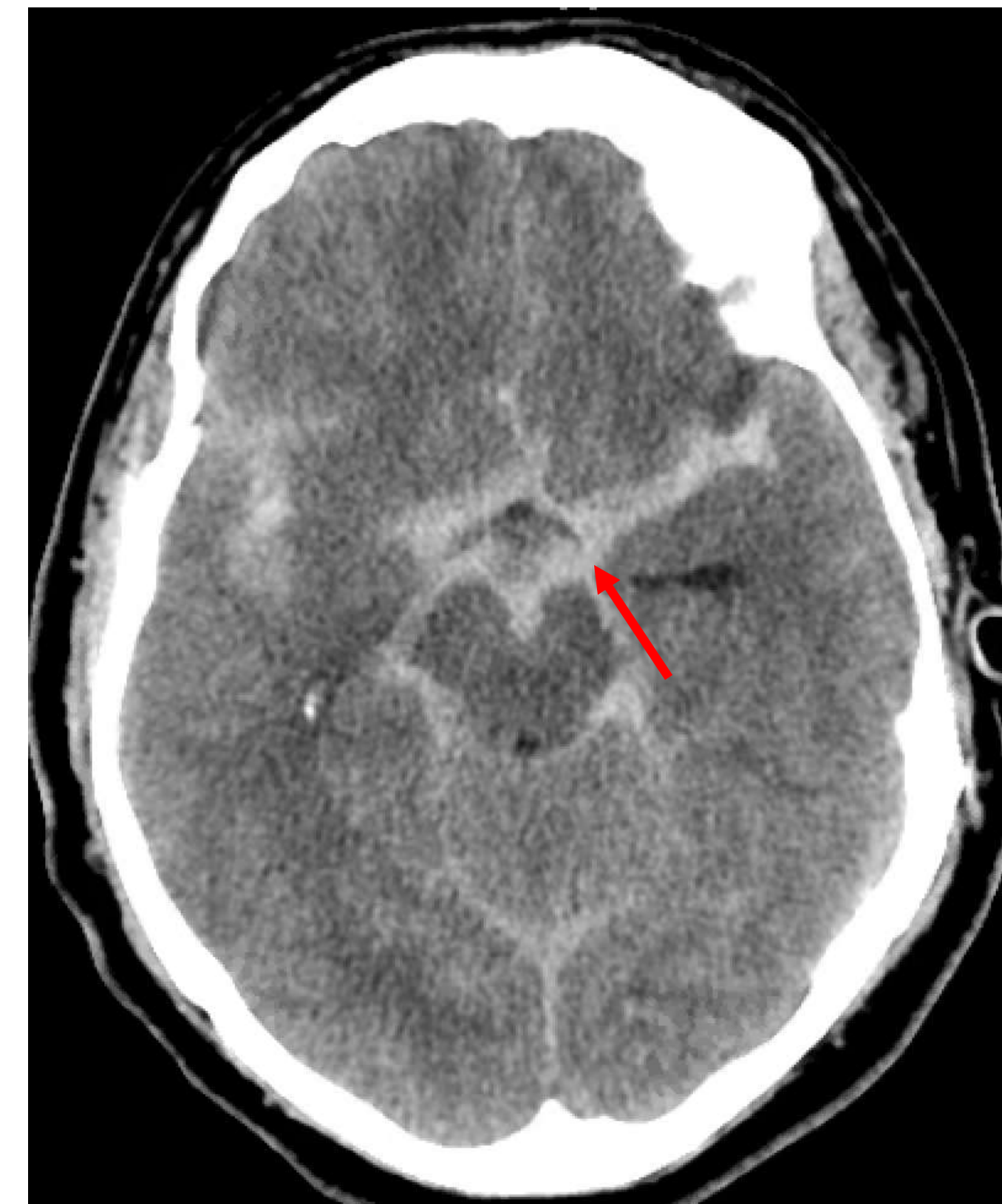


Figure 1. CT head without contrast on presentation revealing subarachnoid hemorrhage involving the perimesencephalic cisterns (A), intraventricular hemorrhage, and hydrocephalus.



Figure 2. CT head without contrast on presentation revealing the bilateral posterior vitreous crescentic hyperdensity that represents hemorrhages.



Figure 3: B-Scan ultrasound imaging showing normal vitreous (A). (B) Multi-layered ocular hemorrhages consistent with Terson syndrome in this clinical setting. The vitreous is hyperechoic consistent with hemorrhage. The posterior hyaloid face is displaced by large subhyaloid hemorrhage. The retina is flat without tears or detachments visualized."

Patient Outcome

- The patient underwent right eye pars plana vitrectomy for intraocular pressure relief.
- Right eye vision has improved to 20/25 and intraocular pressure is within normal limits. However, the patient reports occasional "dots" in his visual field. Left eye vision is still poor.
- Outpatient follow up with ophthalmology is scheduled for later this month, where eye pars plana vitrectomy of his left eye will be scheduled.

Discussion

- This case sheds light on the importance of high clinical suspicion and early recognition of Terson syndrome as a complication of severe subarachnoid hemorrhage.
- Clinical severity manifested as tell-tale signs of elevated intracranial pressure and high Hunt and Hess and Fischer scale scores increase the likelihood of this reversible complication.⁵
- Careful review of the head CT for intraocular crescentic hyperdensity and early fundoscopic exam is recommended.
- Prompt diagnosis and vitrectomy minimizes disease progression, endangerment of the patient's vision, and ultimately enables a more effective rehabilitation.

References

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