

Vision loss secondary to sinusitis-related subperiosteal orbital hemorrhage



We report a case of subperiosteal orbital hemorrhage secondary to sinusitis resulting in visual loss. A 74-year-old male presented to a rural emergency department with a less than 12-hour history of right-sided peri-orbital swelling and subsequent loss of vision in the eye. He had been generally unwell for 2 days before presentation with neck pain and frontal headache. Medical history included Parkinson's disease and his medications included Aspirin.

On examination, visual acuities (VA) were hand motions in the right eye and 6/12 in the left eye. There was right upper lid swelling and restricted eye movements in all directions. There was right-sided proptosis (Fig. 1). He was febrile, and serological testing revealed an elevated white cell count and C-reactive protein.

The patient underwent an urgent canthotomy and cantholysis. Urgent computed tomography (CT) demonstrated a subperiosteal mass in the right superior orbit and opacification of the right sphenoid and ethmoid sinuses. Magnetic resonance imaging (MRI) demonstrated a well-defined orbital lesion that was bi-convex and showed T1-weighted hypointensity and T2-weighted hyperintensity (Fig. 2).

He received antibiotics and was transferred to a tertiary centre by air transport. On arrival, the right VA was perception of light; there was 8 mm of right proptosis, near total ophthalmoplegia, and a right relative afferent pupillary defect. A right temporal disc hemorrhage was present, and the orbit was tight. The initial cantholysis was assessed as incomplete and was immediately released before transfer to theatre where drainage of the orbital collection was performed. The superior orbit was approached via a sub-brow incision, where dark blood was released. A limited functional endoscopic sinus surgery was performed with pus drained from his posterior ethmoid and sphenoid sinuses.

After 24 hours, the right VA was hand motions in the right eye and progressed to counting fingers after 48 hours. After 5 days, the VA was 6/60, only in the inferior hemifield. He received IV antibiotics for a total of 5 days and was discharged on a further 10-day course of antibiotics. No growth was cultured from swabs from the orbit or sinuses. At 3 months visual loss from presumed inferior anterior ischemic optic neuropathy was sustained.

Reports of nontraumatic subperiosteal hematoma are uncommon and are typically associated with sudden events of raised cranial venous pressure.¹ Harris et al postulated that

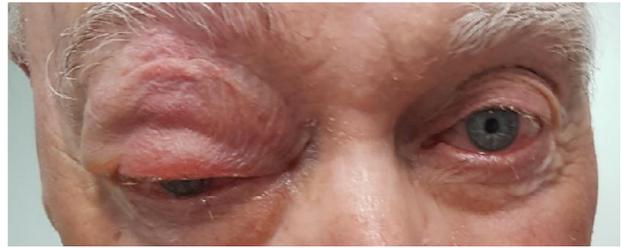


Fig. 1—Clinical photograph showing right-sided lid swelling and proptosis.

orbital hemorrhage secondary to sinusitis may be caused by the transmission of phlebitis from the sinus mucosa to periorbital veins, resulting in subsequent rupture of the vessels due to vessel erosion or congestion.²

It is not common for spontaneous subperiosteal orbital hemorrhage to result in permanent loss of vision¹; several mechanisms have been proposed. Direct nerve compression may occur as the superior mass exerts pressure and moves the eye downward.³ Loss of vision may also occur due to inferior optic nerve ischemia as a result of stretching or compression.³ This may explain the superior visual field defect seen in our patient. Optic nerve compromise and degree of stretch due to proptosis do not correlate with visual loss; however, acute stretching may result in permanent deficits.³

The differential diagnosis included a subperiosteal abscess. The coronal CT appearance of acute subperiosteal orbital hemorrhage is described as, “A well-defined, biconvex, non-enhancing extraconal mass with a homogeneous, high-density and a broad base abutting the bony orbit displacing peripheral fat toward the centre of the orbit.” MRI features are described as “a well-defined mass of varied signal intensity depending on the age of the haematoma.”⁴ Hyper-acute hemorrhages (less than 1 day) will show hypo-intensity on T1-weighted images and hyper-intensity on T2. Acute hemorrhages (1–7 days) show a low signal on both T1- and T2-weighted images.⁴

In contrast, subperiosteal abscesses are described as a “biconvex, well-defined mass of relatively homogenous density lower than extraocular muscle and higher than aqueous humour with a small amount of high density cotton like shadow with walls of moderate density” on coronal CT.⁵ CT images usually reveal association with an opacified sinus.⁴ MRI features were described as a “biconvex, well-defined, lesion showing T1 weighted hypo-intensity and T2 weighted hyper-intensity with arch shaped hypo-intensity on T1 and T2 weighted images displayed at the abscess wall.”⁵

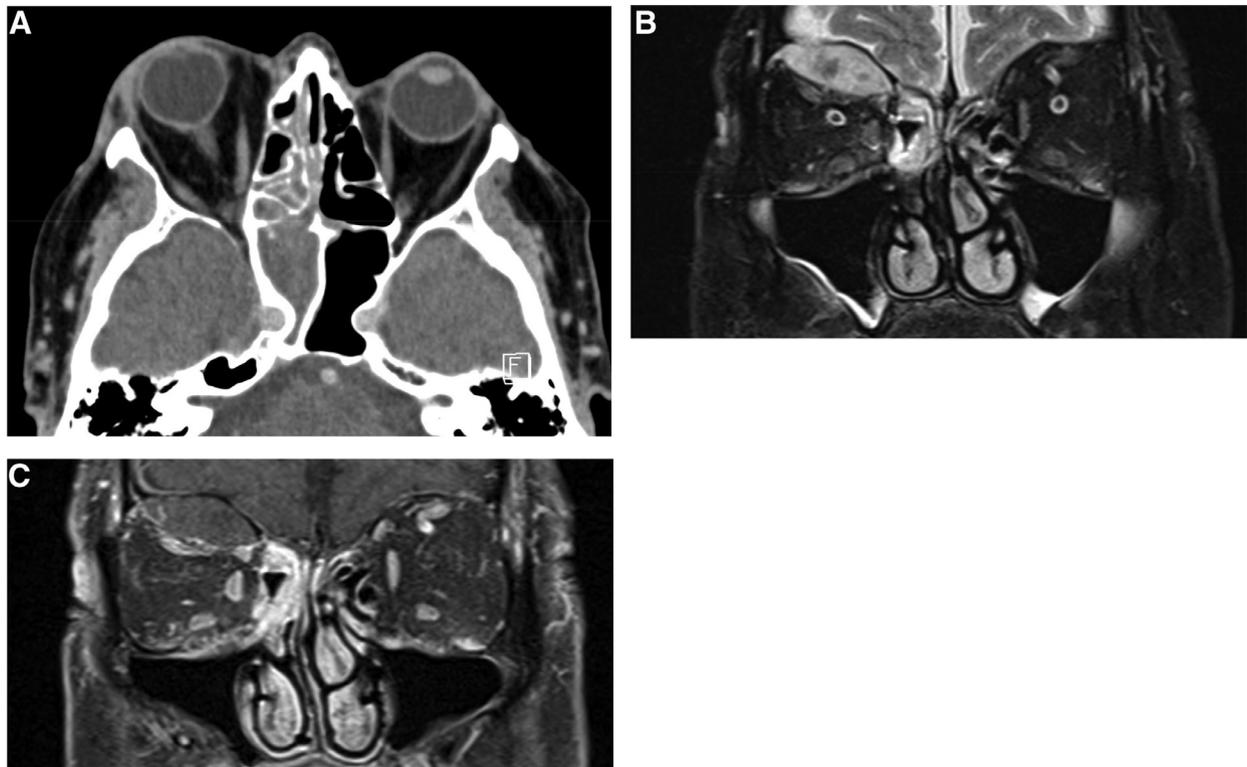


Fig. 2—(A) Coronal computed tomography demonstrating opacification of the right sphenoid and ethmoid sinuses. (B) T2-weighted fat-suppressed coronal magnetic resonance imaging (MRI) showing a hyperintense superior orbital lesion with central areas of hypointensity. (C) T1-weighted fat-suppressed coronal MRI showing a nonenhancing superior orbital mass.

Although conservative management may be an option in some patients, surgical drainage of subperiosteal orbital hemorrhage and subperiosteal abscesses are both indicated by optic nerve compromise.^{1,4} Prompt drainage may result in early decompression and prevent sustained visual deficits.⁴ We report a case of subperiosteal hemorrhage secondary to sinusitis resulting in visual loss.

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Ophthalmia nodosa secondary to caterpillar-hair-induced conjunctivitis in a child



Ophthalmia nodosa is an inflammatory reaction in and around the eyes to certain types of insect and plant hairs possessing unique characteristics, including mechanical and toxic attributes.^{1,2} We recommend that ophthalmologists and

paediatricians be informed of the potential complications from direct contact with these insects.

A 6-year-old boy who had a black-and-orange-striped caterpillar thrown into his right eye by his older brother presented with conjunctival redness, swelling, pain, and decreased vision (Fig. 1A). The visual acuity was 20/80 in the right eye and 20/20 in the left eye. Numerous caterpillar hairs were embedded in the periocular skin, eyelids, and the palpebral and bulbar conjunctiva of the right eye.