

Venous Occlusion in a Case of Orbital Cellulitis

Dear Editor,

Orbital compartment syndrome (OCS) is one of the few emergencies in ophthalmology which if not handled urgently, can lead to catastrophic results. Multiple etiologies such as retro-bulbar hemorrhage, trauma, orbital mass and sometimes orbital cellulitis/abscess have been implicated. We report an uncommon association of subhyaloid hemorrhage secondary to retinal venous stasis in a commonly seen case of orbital abscess with active dacryocystitis.

A young man presented with gradually progressive swelling over the right eye after 2 days of throbbing pain and high grade fever. On examination, there was marked lid edema, ecchymosis with subdued extraocular muscle movements in all gazes and 8-mm abaxial proptosis of the right eye directed infra-temporally. A best-corrected visual acuity of 1 / 60 in the right eye and 6 / 6 in the left eye was recorded. Pupillary reaction of the right eye showed relative afferent pupillary defect. Conjunctival congestion with minimal chemosis in the right eye was also noted. Fundoscopy revealed disc edema with marked venous dilatation and tortuosity, a massive subhyaloid hemorrhage measuring four disc diameters, overlying the center of macula, along with multiple superficial hemorrhages all around the disc (Fig. 1A). Blood workup was suggestive of neutrophilia. A contrast enhanced computed tomography scan was obtained that demonstrated proptosis of the right globe

with subcutaneous edema overlying the right orbit and right infratemporal fossa and infective foci localized to the lacrimal sac area (Fig. 1B). The patient was empirically initiated on intravenous ceftriaxone and metronidazole along with supportive measures. Within 24 hours, there was a marked drop in fever; however the size of swelling increased and a pus point appeared on the lower lid (Fig. 1C). Visual acuity (VA) dropped to hand movements close to the face in the right eye and intraocular pressure appeared to be raised digitally. VA dramatically improved to counting fingers at 2 m after pus drainage. As the orbital pressure started normalizing, Nd: YAG (neodymium: yttrium aluminum garnet) hyaloidotomy of the subhyaloid hemorrhage was performed at the most dependent position. The patient was discharged when extraocular movements recovered in all gazes and pupillary reactions were normal, and was followed up regularly for resorption of the bleed. At 6 months, his VA recovered to 6 / 6 and he was discharged from follow-up.

OCS is characterized as a rise of intraorbital pressure that results in impaired vascular perfusion of the optic nerve and globe. Loss of vision in OCS is usually attributed to either compression of the optic nerve vasculature, central retinal artery occlusion or compressive optic neuropathy [1]. Another mechanism proposed by Dolman et al. [2] was ischemic optic neuropathy due to stretching of the nutrient vessels. The most commonly implicated etiology is traumatic retro bulbar hemorrhage. Orbital abscess or cellulitis, emphysematous orbit or rapidly growing neoplasm can cause OCS.

Orbital abscess is characterized by the collection of pus within the orbital tissues. In adults, ethmoid sinusitis is still the most common etiological factor. Patients aged 15

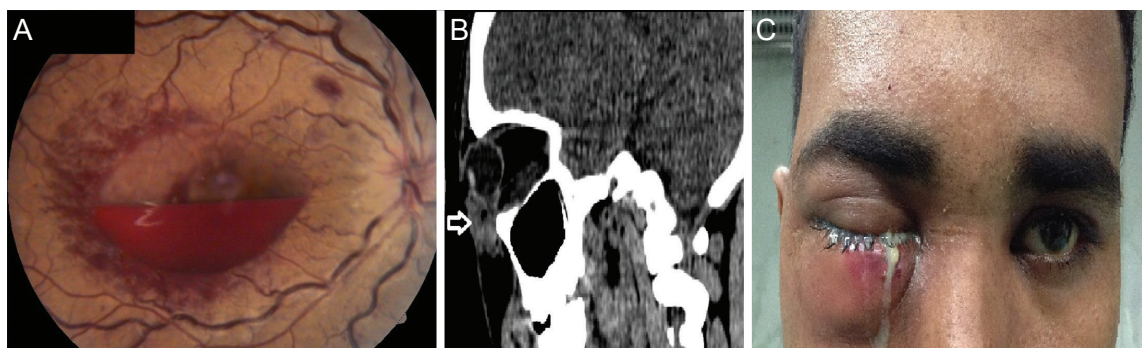


Fig. 1. (A) Fundus picture of right eye showing subhyaloid hemorrhage, (B) contrast enhanced computed tomography scan orbit suggestive of right orbital proptosis with infective foci (arrow), (C) pus point on the lower lid as seen at 24 hours of presentation.

years and older usually have polymicrobial infections. Anaerobic infections are common in cases of penetrating trauma and intraocular foreign bodies.

Males are more commonly affected and usually present with acute proptosis and conjunctival chemosis, lid swelling, ophthalmoplegia, visual defects, pupillary abnormalities, color vision deficits, and field defects.

Leukocytosis and blood cultures are erratic. However, computed tomography scan with thin coronal sections are useful. Ironically, computed tomography scans cannot predict whether the mass represents transudate or exudates [3]. Magnetic resonance imaging is frequently necessary for patients with intracranial infections. Ultrasound is a useful adjunct. Fine needle aspiration biopsy has been used to diagnose orbital metastases [4].

Aggressive parenteral antibiotics with judicious surgical intervention constitute the mainstay of treatment. Empirical treatment of proptosis with systemic steroids should be avoided. Surgery is warranted if there is worsening of clinical parameters, such as decreasing VA, visual field involvement, cranial nerve palsy or development of relative afferent pupillary defect [5].

Failure to drain may indicate the presence of a mass lesion, orbital pseudotumor or tumor, and suggests the need for an open biopsy, or may indicate that the cannula is not within the abscess and requires re-positioning. Microbiological examination of aspirates from the orbit is essential and may provide a clue to the diagnosis.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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