

Case Report *Comprehensive Ophthalmology*

## Orbital tuberculosis presenting as proptosis: A case report

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### ABSTRACT

A 53-year-old male complained of gradual, painless dimness of vision with swelling of the right eye (R/E) for 15 days. Best-corrected visual acuity in R/E: Hand movement, left eye: 6/9, abaxial proptosis, restricted extraocular movements in all directions, conjunctival injection, and high intraocular pressure R/E were noted. Fundus showed pale optic disc R/E and macular exudates in both eyes. The patient was diabetic and on oral hypoglycemic agents with raised erythrocyte sedimentation rate and C-reactive protein; random blood sugar: 152 mg/dL. Magnetic resonance imaging (MRI) showed right-sided orbital abscess involving extraconal compartment extending into the right orbital apex with compression of the right optic nerve. Mantoux test was positive and computed tomography thorax was normal. Histopathology of biopsy from middle turbinate showed granulomatous inflammatory cellular lesion. The patient was started on anti-tubercular therapy. He got relieved of symptoms. Repeat MRI showed reduction in disease process.

**Keywords:** Orbital tuberculosis, Extrapulmonary tuberculosis, Proptosis, Case report

### INTRODUCTION

Orbital tuberculosis (TB) is relatively uncommon form of extrapulmonary TB. The orbital bones, lacrimal gland, or soft tissues may be involved.<sup>[1]</sup> Hematogenous spread from the lungs causes clinical signs in the uveal tissue. Ocular TB can masquerade as other ocular pathologies making the diagnosis tricky.<sup>[2]</sup> Although ocular TB incidences are on the rise, the lid and orbit are usually not involved. These mostly result from presence of TB elsewhere in the body, mostly pulmonary TB.<sup>[3]</sup>

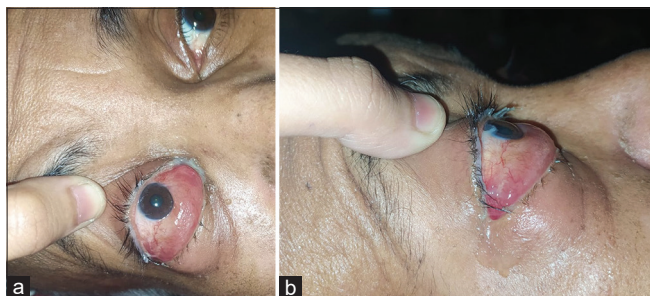
Proptosis is defined as the forward displacement of the eyeball beyond the line joining the superior and inferior orbital margins. It can be unilateral or bilateral, acute or intermittent or of pulsating type. Clinical examination and history aided by orbital imaging help in diagnosing cases of extrapulmonary TB.<sup>[4]</sup>

### CASE REPORT

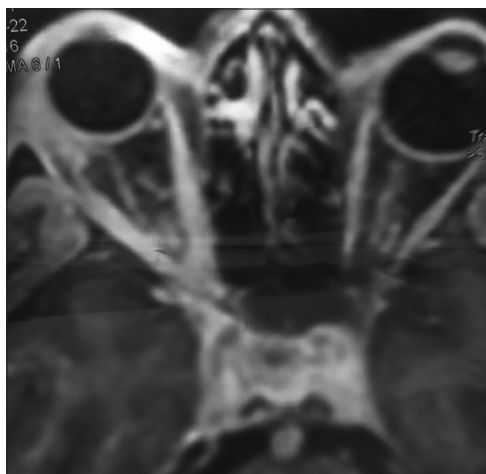
A 53-year-old male presented with swelling of the right lower eyelid and dimness of vision in the right eye (R/E) for 15 days, along with restriction of movements in all directions in R/E. It was gradual in onset and progressive in nature. There was associated bulging of R/E ball forward, upward, and medially associated with headache and nasal blockage. The patient was diabetic

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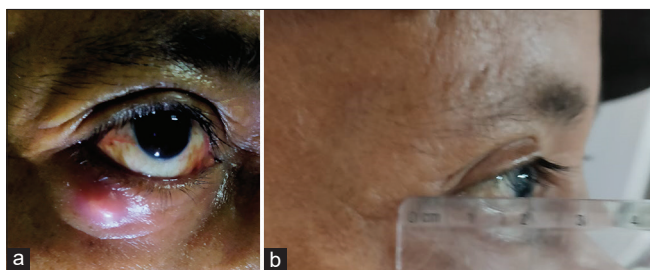
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**Figure 1:** (a) Patient at the time of presentation and (b) side view of the patient at the time of presentation.



**Figure 2:** Contrast-enhanced magnetic resonance imaging.



**Figure 3:** (a) Two months after starting anti-tubercular therapy and (b) 3 months of follow-up (lateral view showing reduction in proptosis).

and on oral medication irregularly. The patient gave no history of cough, fever, or weakness. There was no associated hypertension or thyroid disorder. There was no history of ocular surgery or ocular trauma in the past.

Chest X-ray and high-resolution computed tomography (CT) thorax were within normal limits. Mantoux test was positive. On examination, as shown in [Figure 1] the patient had best corrected visual acuity of hand movement in R/E and 6/9 in the left eye. There was conjunctival injection and high intraocular pressure in R/E. Fundus showed pale optic

disc R/E and macular exudates in both eyes. Random blood sugar: 152 mg/dL raised erythrocyte sedimentation rate and C-reactive protein.

CT nose and paranasal sinuses showed thickening of soft tissue involving extraconal compartment of the right orbit with extension to orbital apex, right cavernous sinus, sphenoid sinus, and right maxillary sinus with bony erosions; suggestive of inflammatory etiology.

Contrast-enhanced magnetic resonance imaging (MRI) as shown in [Figure 2] demonstrated extensive enhancing mucosal thickening and inflammation involving the right maxillary sinus with dehiscence of the posterior wall of maxillary sinus and resultant extension of the inflammatory process into the retro-maxillary region (pterygopalatine fossa, sphenopalatine foramen, and masticator space). Similar mucosal thickening and inflammation in the right posterior ethmoid air cells with the extension of the inflammatory process into the right orbital apex and optic foramen (through the dehiscence of the right posterior lamina papyracea) were noted. There was resultant compression of the right optic nerve. An orbital abscess was present, involving the inferior aspect of extraconal compartment of the right orbit causing bowing and thickening of the right inferior rectus muscle. These features were suggestive of aggressive right sino-orbital infective etiology.

CT mastoid shows an ill-defined soft-tissue density lesion in the extraconal compartment of the right orbit with involvement of the lateral and inferior recti muscles. There was erosion of the lateral wall and floor of the orbit.

Histopathology from middle turbinate showed mostly fibrous/fibroconnective tissue with areas showing features suggestive of variable mixed inflammatory cellular infiltrates mostly consisting of lymphoid/lymphoplasmacytoid/histiocytoid/neutrophilic/eosinophilic cells and few epithelioid-histiocytoid like cells and multinucleated giant cells (mostly of foreign body type giant cells, and fibroblastic spindle cells; features of fibrosis, degeneration (with degenerated debris), and small size vascular channels were seen. No definite malignant tumor cellular infiltrates were made out. Granulomatous inflammatory cellular lesion was suggestive of tuberculous origin.

A diagnosis of proptosis was made which occurred due to orbital TB. As per pulmonologists and neurosurgeon's opinion, the patient was put on anti-tubercular therapy (ATT) and no surgical intervention was done. The patient responded well to the treatment as shown in [Figure 3] and the swelling subsided with visual acuity of hand movement in R/E due to resultant optic atrophy. MRI was repeated and reduction in disease process was noted.

## DISCUSSION

A similar case was reported by Kaur and Agrawal in June, 2005 in a 17-year male, in which the patient presented with

an intraorbital lesion suspected of orbital pseudotumor and was put on corticosteroid therapy. It was followed by a formation of mass lesion in the left orbit, which later resulted in discharging sinus and cervical lymphadenitis. Then, TB was confirmed and the patient responded to four drugs ATT.<sup>[5]</sup>

This case highlights the need for keeping a high index of suspicion for TB, as seen in our case.

Another case was reported by Yoon *et al.* in August, 2019 in an 18-year-old female, where the patient reported with an oval nodule on the right lower lid. Incision and drainage were done earlier, but the mass worsened as patient presented with erythema, swelling, and cervical lymphadenopathy. Excision biopsy was done and histopathology revealed granuloma so diagnosis of orbital TB was made. The patient responded to ATT.<sup>[1]</sup>

Similarly, in our case, the patient was not responding to earlier treatments with deterioration of the eyelid swelling and bulging of eyeball of R/E. After the diagnosis of orbital TB, when the patient was put on ATT, the response was good as the patient was free of symptoms. Visual acuity did not improve due to optic atrophy.

## CONCLUSION

While managing a case of proptosis, the possibility of extrapulmonary TB should be kept in mind. This will enable timely treatment; salvage the eye and patient's life.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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