· Case report ·

Ocular tuberculosis- a blinding eye infection

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Abstract

• A 64-year-old man who was recently diagnosed with pulmonary tuberculosis, for which anti-tuberculous regimens was initiated, presented with painful and progressive reduced vision of the left eye. Ocular examination showed a painful blind left eye, which was severely inflamed, with radio imaging evidence of posterior wall thickening and optic neuropathy. There was a choroidal tuberculoma located at mid-periphery fundus of the right eye. Left eye enucleation was advised, but declined. Diagnosis of presumed ocular tuberculosis was made. Although the left eye was phthisical and blind, the choroidal tuberculoma resolved gradually with anti-tuberculous regimens. This case showed an aggressive presentation of ocular tuberculosis which resulted in rapid loss of vision. The diagnosis was challenging especially in the context of a severely inflamed eye.

• KEYWORDS: ocular tuberculosis; scleritis; eye infection; *Mycobacterium* tuberculosis
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INTRODUCTION

Tuberculosis (TB) occurs as the result of *Mycobacterium* tuberculosis infection. Despite the medical advances, TB remains a major cause of morbidity and mortality. *M.* tuberculosis could infect any tissue or organ in the body. Ocular TB occurs as a result of direct infection of *M.* tuberculosis through hematogenous dissemination or via a hypersensitivity reaction to the bacteria[1,2]. Diagnosis of definitive ocular TB is difficult while delay in treatment results in severe inflammation and destruction of eye tissues leading to loss of sight. Uveitis is the most common presentation although any eye structure can be affected [3].

CASE REPORT

A 64-year-old man presented to eye clinic for painful left eye and reduced vision. He had recently been diagnosed with pulmonary TB based on sputum smear positive for acid fast bacilli, apical fibrosis of the lungs on chest X-ray (Figure 1) and a positive mantoux test. Respiratory physician had initiated treatment for the pulmonary TB with rifampicin, ethambutol, isoniazid and pyrazinamide .

On presentation he reported that there was rapid deterioration of his left eye vision for 4 weeks after diagnosis of pulmonary TB. It was associated with pain, redness and protrusion of the globe. The condition did not respond to topical antibiotic. At presentation, the best-corrected visual acuity was 6/9 in the right eye and no perception to light in the left eye. Ocular examination demonstrated a yellowish subretinal mass in the right eye, resembling a choroidal tuberculoma, located inferior to inferior temporal retinal vessels measuring about 3 disc diameters. The ultrasonography of the right eye was done to confirm the finding. It showed a choroidal mass, with no evidence of retinal detachment, choroidal excavation or acoustic hallowing to suggest choroidal melanoma. Left eye anterior segment was deformed characterised by inflamed conjunctiva, multiple scleral nodules, severe exposure keratopathy with corneal scarring and a shallow anterior chamber with iridocorneal touch (Figure 2). Fundus examination was not possible due to anterior segment deformity. There was relative afferent pupillary defect in the left eye. CT scan of the orbit showed enlargement of the left distal optic nerve with thickening of the posterior wall of the globe (Figure 3).

He was diagnosed as presumptive ocular TB with sclerokeratitis and optic neuropathy. In view of painful blind phthisical eye, left eye enucleation was advised but the patient declined. He was therefore treated symptomatically and advised to adhere to anti-tuberculous treatment and medical follow-up. During follow-up for 4 weeks, we noticed the choroidal tuberculoma in the right eye significantly reduced in size with the best vision maintained at 6/9. Although his left eye was scarred, phthisical and blind, it was otherwise pain free. However, complication of pulmonary TB developed and his lung function continued to deteriorate. He was admitted to the respiratory ward for intensive medical care. In spite of maximal therapy, he succumbed to respiratory failure.

DISCUSSION

TB is an important cause of ocular infection in regions endemic. Pulmonary TB is a common presentation but extra-pulmonary form of the disease, even though not as common, is estimated to be 20% of all TB infection[2,4]. Incidence of ocular TB is variable and depends on the population studied[1]. It is reported to range from 1.4%-5.7% with a higher incidence estimated in HIV patients[3].

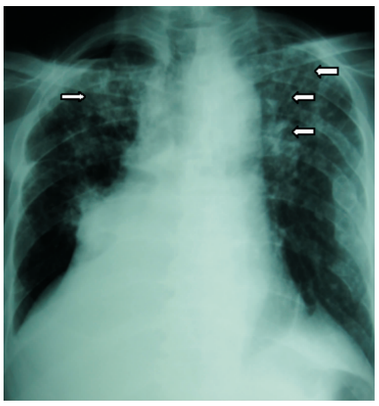

Figure 1　Chest X-ray showed apical fibrosis of the lungs (arrow) of the 64-year-old patient.

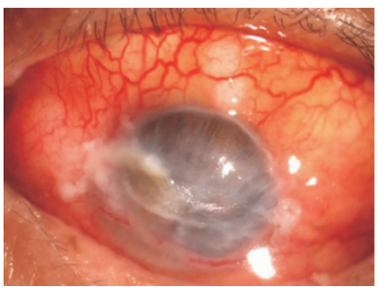

Figure 2　Deformed and inflamed anterior segment with scleritis, corneal scarring and iridocorneal touch in the left eye of the 64-year-old patient.

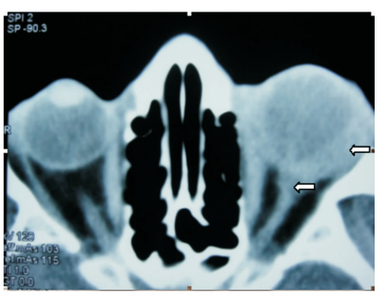

Figure 3　Coronary CT scan of the orbit showed enlargement of left optic nerve and thickening of the posterior wall of the globe (arrow).

Ocular TB has a diverse and non-specific presentation and may occur in the absence of chest finding[2]. Any ocular tissue, including the orbit, could be infected[5]. Scleritis is a rare presentation of ocular TB[6]. Scleral involvement is usually anterior and presents as focal necrotising scleritis, nodular scleritis or sclerokeratitis[4]. In this case tuberculous scleritis is evidenced as multiple focal elevated nodules of the anterior sclera. This presentation is difficult to treat especially when it occurs secondary to drug-resistant atypical *Mycobacterium*[7]. Concomitant with anterior and posterior segment involvement and optic neuropathy, as seen on the CT scan as thickened posterior wall and enlarged optic nerve, the disease resulted in blindness rapidly.

Diagnosis of ocular tuberculosis is problematic. It requires demonstration of acid fast bacilli in ocular tissue or intraocular fluid in order to make the diagnosis of definite ocular TB[8]. This requirement is not always possible to meet because ocular sampling is difficult and associated with higher risk of complication in eyes with severe inflammation. Refusal for enucleation of the painful blind eye also made the definite diagnosis impossible in this case. As timely treatment is needed to prevent loss of vision in both eyes, we had diagnosed the patient as presumed ocular TB based on the striking ocular features and history of active pulmonary TB. In fact, published articles address that the diagnosis of ocular TB is frequently presumptive[5] and empirical treatment can be started based on high index of clinical suspicion and positive mantoux test[9]. In our patient, response to anti-tuberculous treatment as evidenced by gradual resolving of choroidal tuberculoma in the right eye justified the diagnosis and treatment.

Tuberculosis remains a formidable challenge to the health care provider. The infection is insidious at the onset but may progress to disseminated disease with fatal outcome even in previously healthy subject. Ocular involvement in TB is a serious condition and any delay in diagnosis and treatment will result in blindness.

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眼部结核感染致盲 1 例

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摘要

患者,男,64 岁,近期确诊为肺结核,最初给予抗结核药物治疗,出现左眼疼痛,视力减退。眼部检查显示左眼疼痛并盲,严重感染,核素成像显示眼球后壁增厚和视神经疾病。右眼眼底中周边出现脉络膜细胞瘤。建议左眼球剜除但患者未同意。疑似眼部结核确诊。虽然患者左眼有肺结核感染并盲,但通过抗结核药物脉络膜结核瘤逐渐缓解。该病例表明眼部结核侵入性发展可以导致视力迅速减退。眼部结核是很难确诊的,特别是对于严重感染的病例。

关键词:眼部结核;巩膜炎;眼部感染;结核分枝杆菌