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Case Report

Opthalmology Section

Tubercular Nodular Episcleritis: A Case Report

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ABSTRACT

Tuberculosis (TB) is an infectious disease caused by the acid-fast bacillus *Mycobacterium tuberculosis* and is an important cause of death worldwide. Tuberculosis most commonly affects the lungs, but has many extrapulmonary manifestations as well, including intraocular involvement. Tubercular nodular episcleritis is a very rare presentation and no such case in an adult male has been reported in the literature. Herein, we present the very first case of tubercular nodular episcleritis in a 30-year-old Indian male.

Keywords: Anti-tubercular treatment, Intraocular, Tuberculosis

CASE REPORT

A 30-year-old Indian male presented to our OPD with mild uniocular pain, redness, and blurring of vision, excessive lacrimation and photophobia of his right eye since one month. He also had associated right sided headache with lethargy and mild cough with sputum. It was his first episode and was no history of any trauma or any ocular surgery. He neither complained of any problem in his opposite eye nor gives history of any joint pain, dryness of mouth, fever or any other systemic illness. There was no history of use of any systemic or topical drugs prior to the illness. He does not give a history of tuberculosis in the family, however, he gave a history of tuberculosis in the neighbourhood, and details were not available. Also, there was no history of any other major medical or surgical intervention in the past. He was previously evaluated by an Ophthalmologist, but was finally referred to our hospital for further evaluation and management, as there were no signs of improvement. He was on the prednisolone (1%) eye drops four times a day, atropine (1%) eye drops two times a day and ofloxacin eye drops (0.3%) four times a day for three weeks.

On examination, he had mild pain in right eye, however, he was conscious, co-operative and well oriented to time, place and person. He was thinly built and his body weight was 42 kg and his height was 158 cm. His vital parameters were within normal limits, including temperature of 98.4^{0}F. Systemic examination, including respiratory and musculoskeletal system was reported normal by medical internist on consultation. Besides, there were no palpable lymph nodes in the body. His visual acuities in both eyes have always been 6/6. Lids and adnexa were normal. However, a pinkish nodule of about 3mm noted in the right eye, near the medial canthus from 3 'o'clock to 5 'o'clock position. This nodule was situated 3-4 mm from the limbus and was freely movable with the conjunctiva and episcleral tissue [Table/Fig-1]. Also, a pinkish nodule of about 4 mm was noted in the right eye near the lateral canthus from 7 'o'clock to 10 'o'clock position [Table/Fig-2]. This nodule was situated 1-2 mm from the limbus and was freely movable with the conjunctiva and episcleral tissue. The episcleral vessels on the same side were engorged and red. Intraocular pressure on Goldman Tonometer was normal in both eyes. There was no abnormality noted in cornea, iris, anterior and posterior chambers. He never saw any visual halos. Dilated fundus examination was normal. Slit lamp examination was suggestive of episcleral involvement. There was no involvement of sclera, uvea or cornea. Cotton swabs were taken and sent to a lab for bacterial culture and Acid Fast Bacilli (AFB) but were found to be negative. The biopsy was not attempted, to avoid possible damage the sclera. The patient gave a history of mild cough with sputum production; hence sputum microscopy was done which was negative for AFB.

On routine investigations his haemoglobin was 11g/dl, Erythrocyte sedimentation rate was 70 mm/hr, Total Leukocyte Count was 7000 per cu. mm with Neutrophils 73%, Leukocytes 23%, Basophils 2%, Eosinophils 2%; HIV test and Rheumatoid arthritis factor was negative. Rest all other blood investigations were within normal limits. Chest radiograph was normal [Table/Fig-3] and there was no evidence of pulmonary tuberculosis. Mantoux test was strongly positive with 15 mm X 12 mm induration after 72 hours as mentioned in his earlier reports obtained from the ophthalmologist. USG whole abdomen and pelvis was within normal limits. In view of the findings on Slit lamp examination, very high Mantoux test reading,

[Table/Fig-1]: Showing a nodular lesion near the medial canthus
[Table/Fig-2]: Showing a nodular lesion near the lateral canthus

[Table/Fig-3]: Normal chest radiograph PA view

lesion in right eye not responding to topical steroids and other medications, history of tuberculosis in the neighbourhood and high endemicity of tuberculosis in India, a diagnosis of tubercular nodular episcleritis of the right eye was made. The patient was started on Anti-tuberculosis treatment (ATT) of Revised National Tuberculosis Control Programme's (RNTCP), Directly Observed Treatment Short course under Category-I. He was advised to use topical lubricants and regular follow-up in Ophthalmology OPD. A written informed consent was obtained for using the clinical images and the details of the case. Presently, patient is on ATT and is doing pretty well, the redness has decreased and pain, headache has also reduced. There is no evidence of flaring-up of disease. The patient insisted on going back to his native place during the treatment and thus was transferred-out to his village in Uttar Pradesh.

DISCUSSION

Tuberculosis (TB) is an infectious disease caused by airborne transmission by the acid fast bacillus *Mycobacterium tuberculosis* and is an important cause of death worldwide [1,2]. In 2011, the World Health Organization (WHO) reported 8.7 million new cases globally, accounting for 1.4 million deaths (WHO 2012) [3]. TB remains the world's leading infectious cause of death and causes a variety of diseases throughout the body and the eye. The demographics of infection vary widely, with developing countries bearing the heaviest burden of disease. Tuberculosis most commonly affects the lungs, but has many extrapulmonary manifestations as well, including intraocular involvement in approximately 1% to 2% of patients [4]. Ocular tuberculosis may involve the lids, conjunctiva, cornea, sclera, uveal tract, optic nerve, or the orbit [5]. Tubercular involvement of ocular tissues is rare and its incidence has varied widely across time, patient populations and geography [6]. Episcleritis is a benign and bilateral, irritation and inflammation of the episclera that strikes without any accompanying infection. However, an underlying systemic cause may be present [7]. Episcleritis involves the inflammation of the episclera that lies superficial to the sclera and deep to the tenon capsule [8,9]. This is the result of an exogenous inflammatory stimulus which is mainly immunological however isolated associations with tuberculosis and herpes are also reported [10-15]. Episcleritis is of two types the simple episcleritis and nodular episcleritis. Simple episcleritis is the more common type and it typically resolves in two to three weeks and usually involves bouts of moderate to severe inflammation that can recur periodically. Cases of nodular episcleritis are usually more painful than those associated with the simple type and are often associated with a systemic illness such as tuberculosis [13].

A similar case was reported by Bathula et al., in a child, however the present case differs from it in the presence of nodules and engorgement of veins on both the lateral and medial sides of the limbus and also, the present case is of an adult male [15]. Also, one more case in a young female with anterior nodular non-necrotizing scleritis is reported from Nepal but our case differs from it in the presenting complaints of the patient and the location of the lesions, along with this the present case is of a male [16].

There is no definitive way to diagnose this condition and the diagnosis in such rare presentations is mostly dependent on a detailed history and a slit lamp examination findings. A positive Mantoux test can be suggestive but not conclusive of this rare presentation. In the past researchers have, established definite diagnosis using the polymerase chain reaction method using a sequence for the coding of MPB 64 protein that is specific for *Mycobacterium tuberculosis* [15]. The diagnostic tests like heamagglutination, flocculation and agar gel methods to detect TB have been disappointing [15].

The condition can be cured by the anti-tubercular treatment (ATT) with dose calculated as per weight and involving a six-month course of daily Isoniazid and Rifampicin, in addition to Pyrazinamide and Ethambutol for the first two months followed by the use of two drugs Isoniazid and Rifampicin for the next four months [16]. As mentioned by Bathula et al., the use of topical vasoconstricting agents should not be used to avoid the rebound phenomenon and the topical corticosteroids should be avoided because of a risk of steroid glaucoma and cataract [15].

The ophthalmologists should suspect TB routinely as the cause of nodular episcleritis and should perform systemic screening for tuberculosis and analysis of ocular fluids if necessary. Early diagnosis and treatment is essential to prevent an effect on the visual acuity as delay in treatment may lead to cataract, macular changes and/or optic disc changes [15]. There is a need for more sensitive and rapid diagnostic techniques as it is difficult to start empirical ATT when the systemic involvement is not present [4].

CONCLUSION

Infectious diseases can be devastating to ocular tissue. In conclusion, we encountered a case of tuberculous nodular episcleritis diagnosed by the slit lamp examination, positive Mantoux test, lesion in right eye not responding to topical steroids and other medications, history of tuberculosis in the neighbourhood and high endemicity of tuberculosis in India.

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