

An Unusual Unilateral Tubercular Panuveitis Presenting as Endophthalmitis: A Case Study at a Tertiary Hospital in India

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Abstract: Ocular tuberculosis is a rare manifestation of *Mycobacterium tuberculosis* infection. This case study describes a 51-year-old male with suspected unilateral tubercular panuveitis presenting as endophthalmitis. Despite initial response to treatment, the patient's condition rapidly deteriorated, posing diagnostic challenges due to overlapping symptoms with infective endophthalmitis. This article discusses the diagnostic dilemmas, treatment strategies, and the importance of considering differential diagnoses in similar cases.

Keywords: Tubercular Panuveitis, Mycobacterium Tuberculosis, ANA positivity, Endophthalmitis

1. Introduction

Tuberculous uveitis is a rare condition caused by *Mycobacterium tuberculosis*. In India, the incidence of tuberculous uveitis ranged from 0.6% to 10%^(1,2). Despite advances in diagnostic techniques and treatment regimens, tuberculosis (TB) continues to present significant challenges.

Pulmonary involvement accounts for most cases of tuberculous disease. However, as the diagnostic tests have improved, TB has become increasingly implicated in extrapulmonary manifestations, including skin, cardiovascular system, gastrointestinal tract, and eye involvement. TB was thought to involve the eye by hematogenous spread from loci of infection elsewhere, but more recently it has been suggested that ocular complications can result from an immunologic response to MTB elsewhere in the body⁽³⁾.

High prevalence of systemic autoreactivity (ANA) positivity was noted in TB patients, with an incidence of 28%⁽³⁾ supporting immunologic responses. This condition requires immunosuppressive therapy like steroids and antimicrobial therapy. However, the rapid deterioration of the condition on steroid therapy posed a diagnostic and treatment dilemma. This case study highlights the diagnostic and treatment challenges encountered in managing a rare case of unilateral tubercular panuveitis presenting as endophthalmitis.

2. Materials and Methods

A 51-year-old male presented with diminution of vision, redness, and pain in left eye since a month, insidious in onset and progressive. On examination left eye had circumciliary congestion, mutton fat keratic precipitates, anterior chamber reaction with vision limited to hand movements close to the face with accurate projection rays. He had past history of recurrent episodes of granulomatous uveitis for which he has taken topical steroid drops. He had history of pulmonary TB 10 years ago with incomplete adherence to treatment. Patient underwent investigations like CBC, RBS, S. electrolytes, RFT, viral markers, HLA 27, Chest Xray, Montoux test, ESRCRP, Treponema pallidum hemagglutination test,

rheumatoid factor, antinuclear antibody, cyclic citrulline peptide, HIV, HLAB27, toxoplasmosis antibody, Quantiferon Gold, angiotensin converting enzyme level, etc. Lab tests were negative except Montoux test positivity with 16*16 mm, chest xray showing opacity in the right upper lobe, ANA positivity.



Figure 1: Left eye showing fixed hypopyon 2mm, circumciliary congestion



Figure 2: Left eye B scan showing Multiple hyperechoic mobile echos s/o Vitritis

Patient was diagnosed as left eye tubercular panuveitis with ANA positivity and was started on systemic steroids under Anti Tubercular Treatment (ATT), locally on topical steroids and cycloplegics. After 1 week of treatment, the symptoms and signs worsened and a vitreous tap of the left eye was planned to rule out endophthalmitis. The lack of conclusive evidence of infective etiology on AC and vitreous tap, Vitrectomy was done with intravitreal antibiotic injection. Post operatively patient was started on topical steroids. After

3 weeks vision improved to 6/12 with improvement in symptoms and signs.



Figure 3: Post-operative picture of Left eye

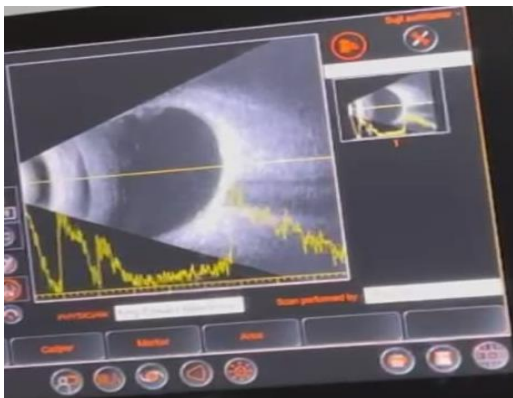


Figure 4: Post operative B scan of Left eye- WNL

3. Discussion

Ocular tuberculosis often presents with symptoms similar to other causes of uveitis, making a clinical diagnosis difficult⁽⁵⁾. Gupta A et al⁽⁶⁾ identified certain clinical features with high specificity and poor sensitivity. This highlights the difficulty in diagnosing ocular TB solely based on clinical presentation. A positive culture from ocular tissue is the gold standard, but it is rarely obtained due to the small size of samples that can be safely collected and the low yield of bacilli in ocular tissues.

The patient may have ophthalmological features consistent with ocular TB, confirmed TB exposure (positive TST or IGRA), or evidence of a tubercular lesion on a chest x-ray or CT scan. If one of these features is present, the diagnosis of “presumed ocular TB” should be made, and treatment should be offered. A negative result for any of these tests does not rule out the disease⁽⁷⁾.

Differentiating between TB infection of the eye and inflammation due to systemic TB also remains challenging.

In this patient, lab investigations were supportive of tuberculosis origin of uveitis, symptoms were acute; and rapidly deteriorated after intensive topical and systemic steroid therapy, giving rise to suspicions of infective endophthalmitis. Surgical intervention was required in this case since with response to conservative management was not significant.

4. Conclusions

This case study underscores the complexities involved in diagnosing and managing rare ocular tuberculosis cases presenting as endophthalmitis. The successful treatment with surgical intervention and careful steroid management highlights the need for precise diagnosis and tailored therapeutic strategies in similar cases.

5. Further Scope

The diagnosis of ocular TB needs to distinguish between a TB infection of the eye and inflammation associated with a remote or systemic TB infection. Guidelines need to be established for the treatment regimen and duration of therapy for ocular tuberculosis. Despite advances in diagnostic and therapeutic techniques, ocular inflammation associated with tuberculosis remains a challenging disorder.

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