



Case Report

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**Recurrence of Tuberculosis Uveitis in Latent Tuberculosis Treated with
Anti-Tuberculosis Therapy: Case Report and Literature Review**

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35years old male presented with reducing of vision and floaters, on examination showed multiple chorioretinitis lesions and investigations confirmed the diagnosis of tubercules (TB)uveitis. He received a course of anti-tuberculous treatment (ATT), and monotherapy for six months and regained his vision, but after less than a year, he had the recurrence of chorioretinitis. Latent TB isn't uncommon, and if it's extrapulmonary, the patients must receive the entire course of ATT and should be continued for at least nine months to reduce the recurrence of the disease.

Case Report

A 35-year-old male, working as a staff nurse, presented in May 2019 to the eye clinic with a history of decreased vision in the right eye for one week. He described it as a shadow around the central field. He gave a history of anosmia since birth, with no other past medical or ophthalmic history. On examination, his vision was 0.6 and 1.0 in the right eye (OD) and left eye (OS), respectively. The slit-lamp examination showed a normal anterior segment examination, and the fundus showed multiple deep grey-white lesions involving the macula in the right eye (figure 1). Fundus Fluoresceine angiography (FFA) showed numerous areas of hyper fluorescence and no evidence of vasculitis (figure 1).

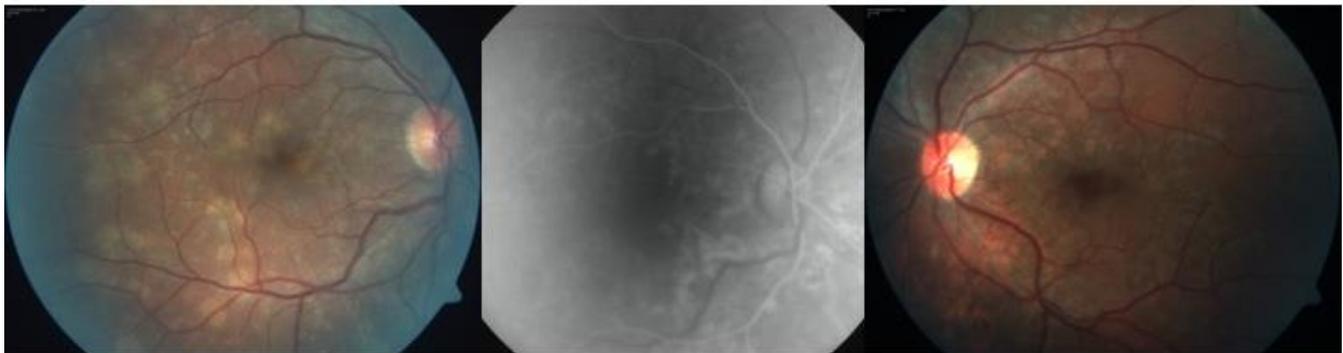


Figure 1: (Left photo) Right eye fundus showed multiple creamy-yellow deep lesions, and the macula is affected. (Middle photo) showed multiple hyperfluorescent areas in the early stage of FFA. (Right photo) fundus photo showed multiple creamy-yellow deep lesions sparing the macula.

Uveitic workup was done, including blood tests, sputum, and imaging. The Mantoux test and QuantiFERON tuberculosis (TB) Gold test were the only positive tests among all investigations, and the rest were negative. Chest X-ray showed no lymphadenopathy, and three samples of sputum were negative for acid-fast bacilli. A rheumatologist evaluated him, and workups (e.g., ANA, RF, ANCA, etc.) showed no evidence of systemic connective tissue diseases. The patient was labeled with latent TB. The physician started the patient on anti-Tuberculosis treatment (ATT), isoniazid and pyridoxine, for six months, as per the center of disease control and prevention (CDC) protocol of monotherapy for latent TB.

After three months from commencing the treatment, he has no new visual complaints and his visual acuity improved to 1.0 in the right eye. Moreover, the fundus showed regression of the lesions (figure 2).

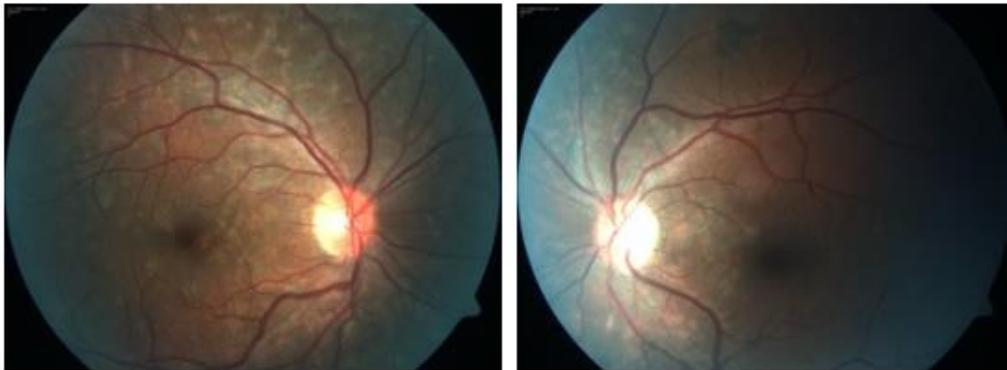
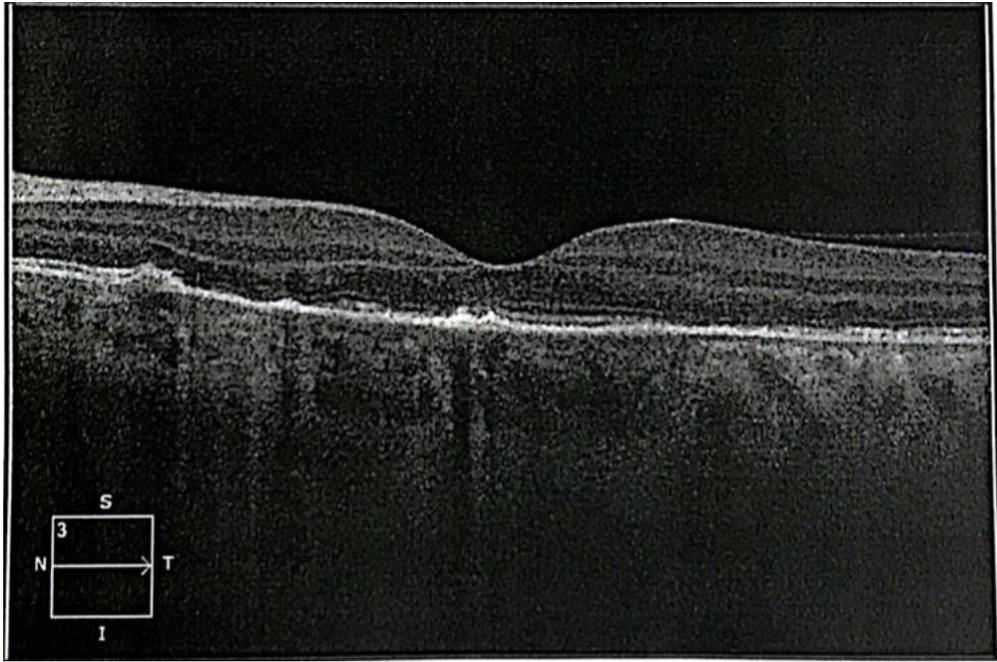


Figure 2: Both fundus photos of the right and left eye showed regression of the deep grey-white lesions.

Ten months after stopping the ATT, he presented with a history of five weeks of reduced vision and floaters of the left eye. Vision dropped from 1.0 to 0.32 in OS and remained 1.0 in OD. The anterior segment examination was within the normal limit, and the fundus showed multiple deep grey-white lesions that affect the macula in the left eye. Optical coherence tomography (OCT) in both eyes showed multiple areas of localized contact between choroid, retinal pigment epithelium (RPE), and overlying neurosensory retina. Also, there was an increased reflectivity of deep retinal layers with no subretinal fluid. The Fovea was affected in the left eye (figure 3). The lesions were labeled as bilateral recurrence of TB multifocal choroiditis, and the patient was started on steroids 1mg/kg/day that was tapered slowly. The physician didn't recommend restarting the ATT. He reported improvement in his symptoms and regained his vision 1.0 after two months from starting the therapy.



Figures 3: Left eye macular OCT shows multiple areas of localized contact between choroid, RPE, and overlying neurosensory retina. Hyperreflectivity of deep retinal layers with no subretinal fluid.

Discussion

Intraocular TB (IOTB) can mimic various uveitis entities. Clinically, it can happen due to direct infection or indirect immune-mediated hypersensitivity response to mycobacterial antigens when there is no defined active systemic lesion elsewhere or the lesion is thought to be inactive. The confirmatory test for diagnosing ocular TB isolates *Mycobacterium tuberculosis* from a microbiologic or histopathologic study from ocular fluid or tissue specimen. Still, due to morbidity associated with the above procedures, most of the diagnosis of ocular TB is presumptive. (1) In most literature, to diagnose tuberculous uveitis, the following points should be there:(1)

1. Ocular findings consistent with possible intraocular TB with no other cause of uveitis suggested by a history of symptoms or ancillary testing.
2. Strongly positive tuberculin skin test results (15 mm area of induration/necrosis).
3. Response to antituberculous therapy with an absence of recurrences.

Epidemiologic data for tuberculous uveitis are considered unreliable due to the lack of standardized diagnostic criteria for TB uveitis. In 1941, Guyton and Woods attributed 80% of granulomatous uveitis cases to TB; however, this number has declined to 20% by 1960. (2) Currently, tuberculous uveitis accounts for a relatively small number of cases in developed countries; however, the frequency has increased recently. For instance, Japan has reported that 6.9% of uveitis cases out of 189 referred uveitis cases were found to have TB uveitis. (3) One factor for such a high incidence might be the high index of suspicion of the diagnosis in patients with unexplained chronic uveitis. Posterior uveitis is the most common clinical presentation of IOTB. In India, About 42% of those diagnosed with presumed IOTB were found to have posterior uveitis, 36% were anterior uveitis, 11% panuveitis, and the remaining 11% were intermediate uveitis. (4)

The length of usage and how many drugs of ATT to be used in presumed ocular TB are not standardized. In current practice, the usual treatment of presumed ocular TB is a combination of corticosteroids and ATT. (5) The ATT is commencing in presumed ocular TB as it's reducing the likelihood of active TB infection by 80-90%. (6) The world health organization (WHO) recommended six months of ATT for extra-pulmonary TB. (7) The CDC and the national institute for health and care excellence (NICE) have recommended a regimen for latent TB, direct observational therapy (DOT), isoniazid and rifampicin, for three months in patients with no risk factors or noncompliant. (8) But most authors recommended the use of four drugs (isoniazid 5 mg/kg daily, rifampicin 450-600 mg daily, pyrazinamide 30 mg/kg daily, and ethambutol 15 mg/kg daily) for the two months, then continue for two drugs (isoniazid and rifampicin) for a period of another seven to ten months as it showed less recurrence of infection. (8)

The ocular TB may reoccur despite commencing ATT, and it can be attributed to multiple etiologies such as incompliance, short course, drug resistance, and incomplete therapy due to toxicities. In a case series in eastern India, 10% was the recurrence rate despite the complete period of six months of treatment with ATT, included two months of four-drug therapy and four months of two-drug therapy. (9) The recurrence of ocular TB infection can be in a different anatomical site at the time of presentation; in the study mentioned above, the anterior uveitis was the common presentation. (9) S Basu et al. reported a 24.5% recurrence of ocular TB even after completing six months of standard therapy of ATT, and the common presentation was intermediate uveitis. (10) In Singapore study, there was an eleven-fold reduction in the recurrence of ocular TB in patients treated with ATT for more than nine months. (6) In our case, the physician uses only isoniazid for six months (as per CDC guidelines), which may be attributed to the failure of treatment and the recurrence of ocular TB. As much evidence today suggests, the treatment for ocular TB should be more than six months as the recurrence will less than the six-month duration of ATT. (6) In conclusion, we should promote a longer duration of ATT in our center until more randomized control trails come in our hand.

Conclusion

Multidisciplinary care is crucial in management of Batten disease. The role of the ophthalmologist in early diagnosis and documentation of progression is crucial in the juvenile forms of neuronal ceroid lipofuscinoses.

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