

# Acute Treatment of Pulmonary Tuberculosis Associated with Optic Nerve Demyelination

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## Abstract

With increasing prevalence of tuberculosis in central and East Asia, antitubercular (ATT) drugs administered are frequently associated with ocular side effects. Out of the ATTs, Ethambutol is commonly implicated as a drug responsible. Although, It is generally well tolerated, but known to cause optic neuritis causing blurred vision which further results into decreased visual acuity with/out central scotomas, and loss of red-green colour vision. With unknown pathogenesis behind the toxicity, optic neuritis due to ethambutol is generally considered as reversible upon prompt discontinuation of the drug. We present one such clinical case of a 57-year-old male patient with recently diagnosed pulmonary tuberculosis (TB) following initiation of ATTs the patient complains of blurred vision with changes in colour. Moreover, with careful discontinuation of Ethambutol and adding a brief steroid therapy drastically improves the vision and with right colour adaptation. Therefore, educating the patients for early detection of the ocular manifestations following ATTs and regular follow-ups are very essential.

**Keywords:** Tuberculosis, demyelination, optic nerve, inflammation

Tuberculosis (TB) is caused by *Mycobacterium* is one of the most common systemic infections around the world. The diversity of the disease comprises pulmonary, neuro, renal and gestational pathologies. ATTs are frequently used once the patient is diagnosed and ethambutol is a first-line medication that is used. ATTs are commonly associated with various side effects and the span of the treatment predisposes the patient. However, with time the ATTs tend to produce reversible side effects such as hepatic insufficiency, allergies, drug-induced neuropathy and ethambutol-induced optic neuropathy (EON). EON is a known treatment complication with the use of ethambutol. Disease flare solely depends upon the dosage and time duration. With known good reversible outcome, the discontinuation of the therapy usually gives favourable results. However, there have been several reports of permanent damage to the visual function.<sup>[4,5]</sup> The mechanism behind this adverse effect is not clearly understood but has been speculated to be related to chelation of copper in retinal cells. Such optic neuropathy develops with hazy painless vision and with/out scotomas. Interestingly, we present similar clinical case of a 57-year-old male patient recently diagnosed with active pulmonary TB at the primary centre. Following the initiation of ATTs, the patient developed vision problems such as hazy vision which is painless in nature and slowly losing his eyesight.

The patient was thoroughly examined where no enlarged lymph nodes were evident, there were bilateral chest crackles with no additional heart sounds. He was alert and oriented to the place and time with no other systemic involvement. He was then referred to our tertiary centre and after careful through eye check-up, he was advised for magnetic resonance study of the brain and eyes.

Following the results as evident by the MRI, swelling of the optic disc with fuzzy optic nerve margins (L>R) Fig 1. Furthermore, no optic nerve compression pathology was observed with normal size and shape of the eyeballs. Anterior chamber was seen to be formed normally bilaterally and lens were correctly placed. Clearly understood the basic reason for patient's vision deuteriation was drug induced. We rapidly began methylprednisolone 1 gram IV for 5 days in tapering manner with discontinuation of ATTs. We also initiated vitamin B6 and B12 to cover the flare of neuropathy. After three successful dosage and discontinuation of the drug led to a favourable outcome in the patient. After two weeks of ATTs cessation, we again initiated the medications as planned but without ethambutol.

## Conclusion

To conclude, a neurologist needs to be vigilant and have a broad approach to the patients who come with complain of hazy vision. A complete drug history with careful assessment of the side effects associated. Moreover, regular outpatient follow up with six monthly eye check-ups are essential.

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