

Multifocal Choroiditis: Ocular TB or Side-Effects of Anti-TB Therapy?

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Summary

A patient with end-stage renal failure secondary to polycystic kidney disease was seen in the Eye Clinic for a corneal abrasion. Incidental fundal examination revealed bilateral multiple, small, raised, pale yellow sub-retinal nodules. Past medical history of inadequately treated pulmonary tuberculosis was obtained. Following initiation of anti-tuberculous therapy, the choroidal lesions resolved.

Key Words: Multiple choroiditis, Ocular tuberculosis, Inadequate tuberculosis therapy

Introduction

Tuberculosis (TB) once a significant disease with dwindling incidence, is now again on the increase. Possible causative factors include a growing immunocompromised population, the emergence of drug-resistant strains, mass migration from endemic regions and the cessation of immunization programmes in some areas. Anti-TB drugs such as ethambutol and rifampicin occasionally cause visual deficit, thus an ophthalmological referral is helpful. In addition, TB may directly involve ocular structures. The uveal tract with its rich blood supply, is particularly susceptible to both metastatic infection and diseases with a predominantly immunological basis.

Case Report

A 51 year old Malay gentleman with end-stage renal failure secondary to polycystic kidney disease was referred to the Eye Clinic at Hospital Universiti Kebangsaan Malaysia for a corneal abrasion.

On examination, his left visual acuity was reduced to counting fingers at three feet due to a corneal abrasion

from inadvertent trauma. His right visual acuity was 6/12, uncorrected with pinhole, and near vision was N8. There was no evidence of anterior chamber inflammation. On routine fundal examination, there were bilateral multifocal pale yellow sub-retinal nodules, less than one quarter disc diameter in the mid-periphery, with the occasional blot haemorrhage, and cotton-wool spot (Figure 1). There was no gross evidence of retinal vasculitis.

In the past he had been diagnosed with pulmonary TB and had an incomplete course of anti-TB medication. On further questioning he admitted to a recent increase in dyspnoea with fever and night sweats. A chest X ray showed generalised reticular opacities in both lung fields with ring opacities in the left upper lobe and a cavity with well defined margins in the right lower lobe.

He was leucopenic (white cell count – $3.2 \times 10^9/L$) and severely anaemic (haemoglobin – $5.7 \times 10^{12}g/L$). His Mantoux however, was non-reactive. He was Human Immunodeficiency Virus (HIV) negative.

He was placed on anti-TB medication (ethambutol, isoniazid and rifampicin). The corneal abrasion

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responded to topical antibiotics and lubricants. On review less than two weeks after treatment, regression of the choroidal tubercles could be seen, with further resolution one month later (Figure 2).

Discussion

The most common ocular manifestation of tuberculous infection is choroiditis¹. Bouza et al, in Madrid, Spain reported that up to 17% of their patients with proven TB infection had signs of choroiditis, most of whom were asymptomatic². This concurs with the observation by Biswas et al in Madras, India that in a series of 1005 patients with proven systemic TB, only 1.4% developed ocular morbidity. Multifocal choroiditis was again the most common finding³.

The ocular manifestation of TB is varied. Whilst asymptomatic choroiditis is common, morbid disease may manifest as a granulomatous uveitis with mutton fat keratic precipitates and iris nodules in the classic form. Rarer manifestations include scleritis, dacryoadenitis and papillitis³. Also uncommon are ischaemic retinophlebitis and conjunctival phlyctenulosis which were classically associated with TB. The numerous ways in which TB can present highlights the importance of screening all patients with ocular inflammation for TB before commencing systemic steroids.

In this case, multiple, discrete choroidal lesions were incidentally noted in a patient with a history of inadequately treated pulmonary TB. The natural

history of these lesions suggests their presence alone does not mandate steroid treatment as they rarely cause symptoms. However, they may represent evidence that TB infection has become systemic or metastatic.

TB patients need to be warned that ocular symptoms may occur either from morbid forms of the disease or from side-effects of anti-TB medications. If symptoms occur, prompt referral to an ophthalmologist is necessary. In this case, it is likely that the choroidal lesions have responded to anti-TB medications which is highly supportive of this diagnosis. The effect of the immunocompromised state on the Mantoux is speculative. A false negative Mantoux for TB occurs in up to 15% of cases and this figure appears higher in cases of renal failure⁴.

Multifocal choroiditis is a feature of many ocular diseases. The sole presence of multifocal choroiditis is usually suggestive of TB or sarcoidosis. TB choroiditis may involve any or all quadrants of the fundus while sarcoid choroiditis tends to involve its inferior aspect. As seen in this patient, TB choroiditis may be innocuous. In contrast sarcoid involvement is usually accompanied by significant intraocular inflammation. The typical radiological features of sarcoidosis include widespread pulmonary changes. Sarcoidosis however, is rare without hilar involvement and the X ray in this case is more suggestive of TB.

This case illustrates the difficulty faced by ophthalmologists because ocular samples are not readily available for confirmatory laboratory tests. Even

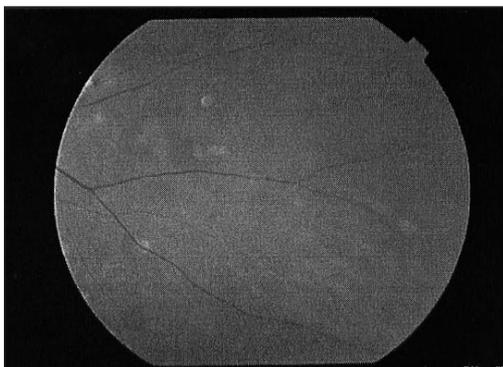


Fig. 1: Close-up view of the nasal aspect of the right fundus at presentation showed multiple, raised, pale yellow sub-retinal nodules in the mid-periphery.

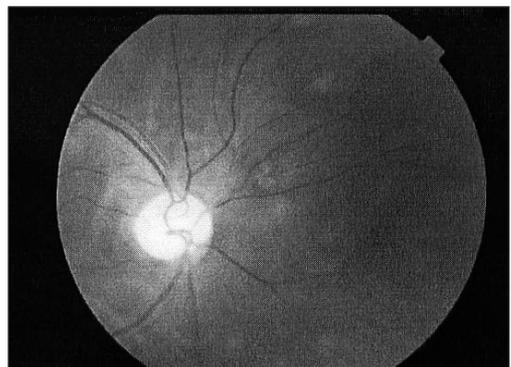


Fig. 2: Nasal aspect of the fundus of the right eye one month later showing resolution of the lesions.

CASE REPORT

if tissue could safely be obtained, yield is often poor and availability of polymerase chain reaction is limited. In this case, treatment is started on the basis of clinical findings and respiratory symptoms.

This is an interesting case because regression of choroiditis follows commencement of anti-TB medication. In addition, the lack of intraocular inflammation suggests that the choroiditis is probably infective rather than immunogenic in origin. The route to infection is presumed to be haematogenous from the lung. The temporal sequence from the initial pulmonary involvement by TB to the choroiditis is probably due to the initial under-treatment of his pulmonary TB and his increased immunocompromised state. As the natural history of TB choroiditis is one in which visual morbidity may not occur, anti-TB

medication is initiated when systemic steroid is required to control significant intraocular inflammation or when there is a significant possibility that the patient has miliary or recurrence of systemic TB.

The lessons to learn from this case are:

- TB involvement of the eye is common but often asymptomatic.
- TB patients must be warned to report onset of visual symptoms which may arise from ocular manifestations of TB or side effects of anti-TB medication.
- TB patients should only be given systemic steroids in combination with anti-TB medication.
- All cases of ocular inflammation must be investigated for TB before commencement of systemic steroids.

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