

Dual lesion margins on fundus autofluorescence associated with paradoxical worsening following treatment for tubercular serpiginous-like choroiditis

Sai Bhakti Mishra, Ketan Saoji, Avinash Pathengay

A 31-year-old male presented with decreased vision in the right eye associated with an active plaque-like serpiginoid choroiditis. The lesion showed a unique feature of dual margins of hyperautofluorescence of the lesion on fundus autofluorescence (FAF) imaging. Systemic investigations suggested a tubercular etiology. He was started on antitubercular treatment and a conventional dose of oral corticosteroids (1mg/kg body weight). However, the lesions showed paradoxical worsening and required increased immunosuppression in the form of local steroids and oral immunomodulators. The presence of dual margins of hyperautofluorescence could suggest increased inflammatory activity leading to paradoxical worsening on treatment requiring increased immunosuppression.

Key words: Antitubercular treatment, dual margins, multifocal serpiginoid choroiditis, paradoxical worsening, tubercular serpiginoid choroiditis

Tubercular uveitis is a very common cause of uveitis in tuberculosis (TB)-endemic countries,^[1] displaying protean clinical manifestations of which serpiginous-like choroiditis (SLC) is a distinct form. Treatment of tubercular SLC with antitubercular treatment (ATT) along with corticosteroids aids in the resolution of these lesions. However, paradoxical worsening or continued progression of the lesions has been reported in various case series in up to 14% of the cases.^[2-4] We describe a case of tubercular SLC with a unique feature of "dual lesion margins" of hyperautofluorescence which showed paradoxical worsening and needed increased immunosuppression.

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Case Report

A 31-year-old male presented with chief complaints of gradual decrease in vision in his right eye since 2 weeks. His best corrected visual acuity was 20/160, N36 in the right eye and 20/20, N6 in the left eye. Anterior segment examination and intraocular pressure were normal in both eyes.

Left eye fundus was unremarkable, but his right eye showed an active large plaque-like choroiditis lesion of 3 disc diameter size, located temporal to fovea with a central grayish pigmentation, a prominent orange ring and outer fuzzy active margins [Fig. 1a]. Fundus autofluorescence (FAF) showed two hyperautofluorescent rings around the margins of the lesion separated by a zone of hypoautofluorescence [Fig. 1b]. Optical coherence tomography (OCT) through the lesion showed loss of photoreceptors at the center with a folding of the retinal pigment epithelium (RPE) corresponding to the prominent orange line seen clinically or the inner bright hyperautofluorescent margin seen on FAF [Fig. 1c]. FAF being an easy, noninvasive and more sensitive tool was repeated at regular intervals rather than performing a fundus fluorescein angiography in our case.

Laboratory investigations revealed normal hemogram, a positive Mantoux test (>10 mm induration at 48 h) and negative serological tests for syphilis and human immunodeficiency virus. He was started on anti-TB therapy (ATT, 4-drug regimen) along with oral corticosteroids (1 mg/kg body weight). At 1 week follow-up, increased size of the choroiditis lesion with centrifugal movement of the orange ring suggestive of progression of the lesion was noted and confirmed on FAF [Fig. 2a and b]. A transseptal injection of 40 mg triamcinolone was added to the treatment regimen.

After 2 weeks, the lesion showed further increase in size [Fig. 3a and b], while he also developed corticosteroid-induced central serous chorioretinopathy in the left (fellow) eye. Hence, the oral steroids were rapidly tapered and he received an intravitreal dexamethasone implant (Ozurdex) in the right eye. On follow-up persistent activity was noted. He was started on mycophenolate mofetil 500 mg twice daily along with ATT. On the last follow-up, 6 weeks later, the lesion showed hypoautofluorescence suggestive of resolution of the lesion [Fig. 4a and b]. Visual acuity improved minimally and stabilized at 20/80 as the lesion involved the macula and had extended toward the fovea before resolution.

Discussion

Tubercular SLC has been described in two distinct patterns, first pattern is the multifocal choroiditis which is discrete and noncontiguous at first and later progresses to a diffuse,

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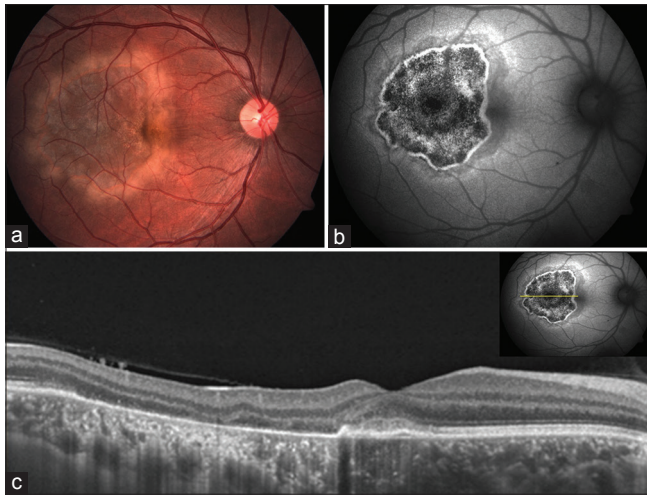


Figure 1: (a) Color fundus photograph of the right eye showing a plaque-like choroiditis lesion at the temporal macula with active fuzzy outer margins and a prominent inner orange ring all around the lesion. (b) FAF image of the right eye showing “dual lesion margins” of hyperautofluorescence separated by a zone of hypoautofluorescence. (c) OCT through the lesion showed loss of photoreceptors at the center with a folding of the RPE corresponding to the prominent orange line seen clinically

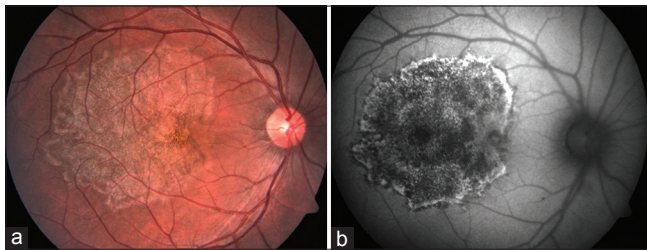


Figure 3: (a) Color fundus photograph after two weeks showing minimal increase in size of the choroiditis lesion threatening the center of the fovea. (b) FAF image showing hyperautofluorescence suggestive of persisting activity of the lesion

contiguous variety with active edges and the second is the diffuse plaque-like choroiditis that shows an amoeboid spread.^[2] We report a plaque-like SLC lesion that had a unique feature of dual hyperautofluorescent margins around the active serpiginoid choroiditis lesion.

The etiology of SLC in our patient was presumed to be tubercular in view of the characteristic lesion morphology, positive Mantoux test and exclusion of other common causes of infectious uveitis. Quantiferon TB Gold test (QFT) was not done as several large studies have found that QFT is only slightly more beneficial than the Mantoux test in the diagnosis of tubercular uveitis.^[5,6] Despite conventional treatment with ATT and oral corticosteroids the lesion progressed in size which entailed a need for increased immunosuppression, both local and systemic, in the form of periocular and intraocular steroids and immunomodulator therapy.

Paradoxical worsening was considered as the likely diagnosis of worsening as the lesions worsened within 2 weeks of starting ATT, compliance to drugs was checked, other diagnosis was excluded, and there was no history of recent contact with multidrug resistant (MDR) TB patient, although

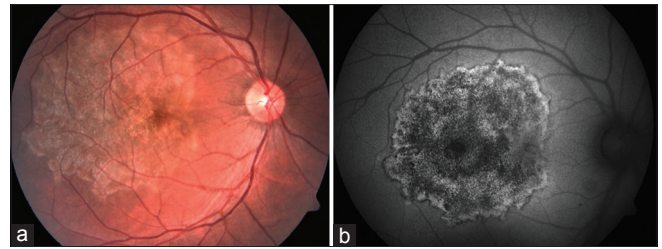


Figure 2: (a) Color fundus photograph at 1 week follow-up showing increased size of the choroiditis lesion with centrifugal movement of the orange ring suggestive of progression of the lesion. (b) FAF image showing hyperautofluorescence suggestive of active lesion

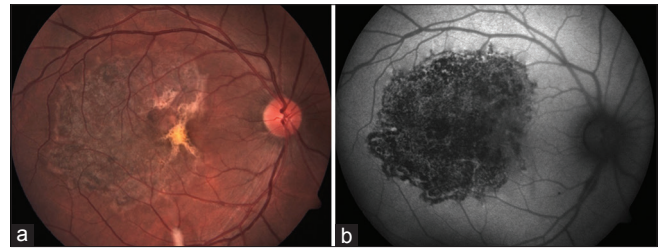


Figure 4: (a) Color fundus photograph at last follow-up showing increased pigmentation and appearance of scarring within the choroiditis lesion suggestive of resolution. (b) FAF image showing increased hypoautofluorescence of the lesion confirming resolution and suggesting a good response to treatment

a possibility of drug interactions of ATT (Rifampicin) with corticosteroids could be a possible basis for poor bioavailability in the initial treatment regimen.^[7]

Although paradoxical worsening or continued progression of tubercular ocular lesions has been described in the past,^[2-4] the exact mechanism for this is not clearly understood. Different mechanisms proposed include higher bacillary load, increased peripheral monocyte counts at baseline,^[8] presence of inherent toxic cell-wall substances and endotoxins^[9] and activated RPE^[10] that incite an exaggerated inflammatory response upon death of the mycobacterium when treated with ATT.

In our case, the prominent inner ring with another active fuzzy outer ring, which were both hyperautofluorescent on FAF that we refer to as “dual lesion margins” could suggest an increased inflammatory activity in tubercular SLC. We also suggest that the hyperautofluorescence could be due to folding of the RPE due to localized edema or attributed to increased RPE metabolism at the margins of such lesion. This enhanced inflammation could lead to paradoxical worsening of the lesions despite conventional treatment demanding an increase in immunosuppressive therapy.

Our case demonstrates that the presence of “dual lesion margins” could indicate a high risk for paradoxical worsening in tubercular SLC demanding increased immunosuppression to prevent rapid spread causing sight threatening complications. Further observations would help establish an association of this peculiar finding.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other

clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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