Bacillary layer detachment in tubercular choroidal granuloma: A new optical coherence tomography finding

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A 32-year-old Asian Indian male presented with sudden-onset and painless decrease in vision in the right eye (OD) for the past 1 day. On examination, his best-corrected visual acuity was 6/24 in OD and 6/6 in the left eye (OS). Anterior segment was quiescent in both eyes. Fundus examination showed ill-defined yellowish subretinal lesions inferior to fovea with surrounding fluid reaching the inferior arcade in OD. A cystic lesion with well-defined borders was seen in the foveal center. Fluorescein angiography (FA) showed early hypofluorescence and late hyperfluorescence indicating active choroidal inflammation. Pooling of dye was appreciated in the late phase due to subretinal fluid accumulation. Indocyanine green angiography (ICGA) showed early and late hypofluorescence, suggestive of choroidal granuloma [Fig. 1].[1] Spectral-domain optical coherence

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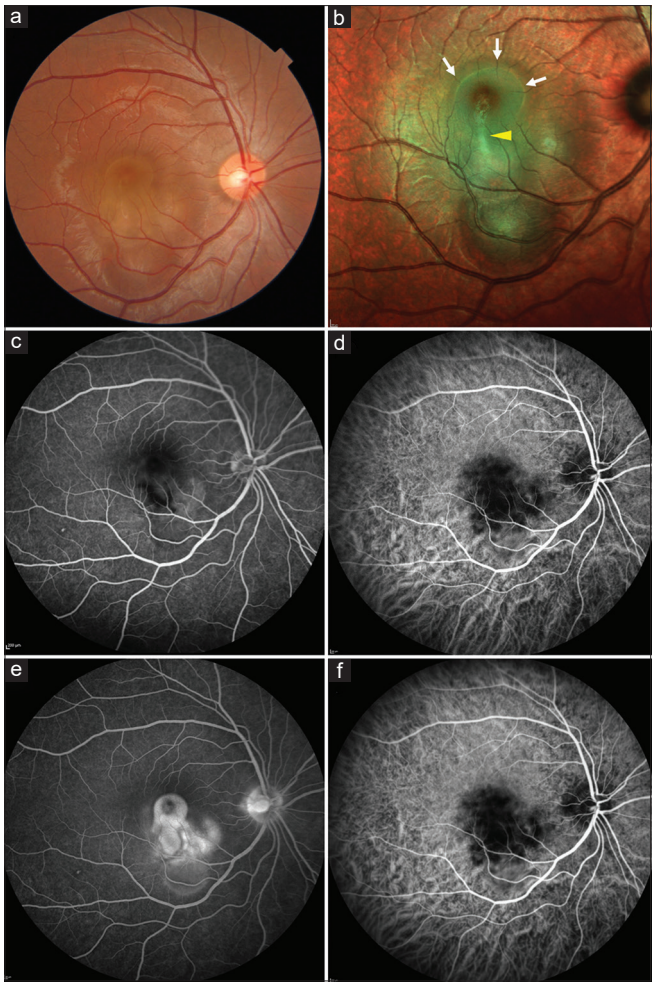

Figure 1: Fundus photograph of the right eye (a) shows presence of multiple deep yellow choroidal lesions in the macular area suggestive of choroidal granulomas. There is surrounding subretinal fluid which is extending till the inferior arcades. The multicolor fundus image shows a well-demarcated intraretinal cystic structure (white arrows), and a whitish subretinal linear lesion (yellow arrowhead) more clearly compared to the fundus photograph (b). The combined fluorescein angiography (FA) and indocyanine green angiography (ICGA) in the early phase (c and d) shows early hypofluorescence of the macular choroidal granulomas. In the late phase, the lesions are hyperfluorescent on FA with pooling of dye (e), and hypofluorescent on ICGA (f)

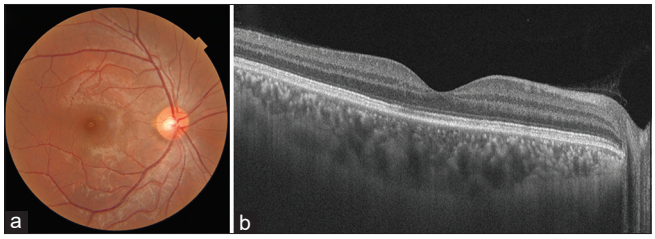

Figure 3: Fundus photograph at follow-up (3 months after initiation of treatment) shows healed lesion without any residual scarring or pigmentation (a). The spectral-domain optical coherence tomography (SD-OCT) scan passing through the fovea does not show any residual pathology (b)

tomography (SD-OCT) scans encompassing the fovea revealed presence of intraretinal fluid forming a cystic structure (CS).

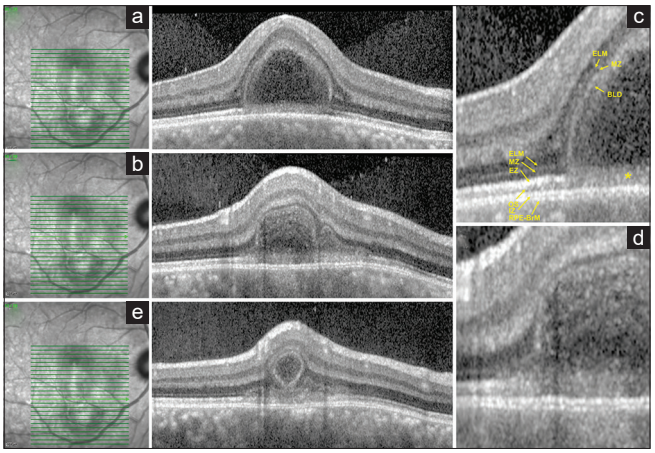

Figure 2: Spectral-domain optical coherence tomography (SD-OCT) scans passing through the lesions are shown. In the scan just below the fovea (a), there is presence of an intraretinal cystoid space (CS) at the involving the center of the macula. The CS consists of fluid of heterogenous reflectivity. A scan below this area shows accumulation of intraretinal fluid with membranous/amorphous hyper-reflective material (b). Magnified image of panel A is depicted in panel c, and magnified image of b is shown in d. The external limiting membrane (ELM) is seen coursing anterior to the CS. The hypo-reflective myoid zone (MZ) has split, forming a bacillary layer detachment (BLD). The ellipsoid zone (EZ) shows irregularity, and the floor of the cystoid space contains the remnant photoreceptor segments (d; asterisk). The outer segments (OS), interdigitation zone (IZ) remain adherent to the retinal pigment epithelium-Bruch's membrane (RPE-BrM). The choroidal granuloma appears as a homogenous lobulated area of hyporeflectivity in the stroma (CG). The OCT B-scan passing further inferiorly (e) shows the inferior limit of the CS (white arrowhead)

The external limiting membrane coursed anterior to CS, and a split of inner photoreceptor layer at level of myoid zone (MZ) was observed. The floor of the CS was formed by distorted and irregular ellipsoid zone (EZ), and inter-digitation zone. The CS extended in a tubular manner inferiorly (seen on en face infrared imaging), and cross-sectional OCT B-scan showed the CS with hyper-reflective borders. SD-OCT also revealed hypo-reflective choroidal granulomas and focal thickening of the choroid [Fig. 2]. Based on positive Mantoux test and interferon gamma release assay, the patient was diagnosed with tubercular choroidal granuloma.[2] Following treatment with anti-tubercular therapy and corticosteroids, the lesions healed completely at 6-weeks follow-up [Fig. 3].

Discussion

Presence of BLD has been described in both infectious and non-infectious conditions such as toxoplasmosis, Vogt-Koyanagi-Harada disease, and posterior scleritis, among others.[3,4] Intense chorioretinal inflammation, choroidal thickening, and accumulation of fluid may lead to splitting detachment occurring at the level of MZ, resulting in BLD.[3] Akin to other inflammatory pathologies, BLD is a novel OCT finding in tubercular choroidal granuloma.

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.

References

1. Gupta V, Gupta A, Rao NA. Intraocular tuberculosis-an update. Surv Ophthalmol 2007;52:561-87.
2. Agrawal R, Gunasekeran DV, Agarwal A, Carreño E, Aggarwal K, Gupta B, *et al*. The Collaborative ocular tuberculosis study (COTS)-1: A multinational description of the spectrum of choroidal involvement in 245 patients with tubercular uveitis. Ocul Immunol Inflamm 2018;1-11. doi: 10.1080/09273948.2018.1489061. Online ahead of print.
3. Mehta N, Chong J, Tsui E, Duncan J, Curcio C, Freund K, *et al*. Presumed foveal bacillary layer detachment in a patient with toxoplasmosis chorioretinitis and pachychoroid disease. Retin Cases Brief Rep 2018. doi: 10.1097/ICB.0000000000000817. Online ahead of print.
4. Cicinelli MV, Giuffré C, Marchese A, Jampol LM, Introini U, Miserocchi E, *et al*. The bacillary detachment in posterior segment ocular diseases. Ophthalmol Retina 2020;4:454-6.