Indian J Lepr 2024, 96 : 179-183

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Case Report

Central Serous Chorioretinopathy in a Patient with Hansen's Disease with Type 1 Lepra Reaction - A Case Report

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Received: 06.02.2024 Revised: 31.03.2024 Accepted: 31.03.2024

Central serous chorioretinopathy (CSCR), a disorder with complex etiopathogenesis, is a significant vision-threatening disease aggravated by corticosteroid therapy and it is also shown to be associated with inflammation. We report development of CSCR in a patient with Hansen's disease with type1 lepra reaction. 34- years- old male patient a known case of Hansen's disease, developed blurring of vision in his left eye following treatment with multidrug therapy for leprosy with best corrected visual acuity (BCVA) 6/36 in his left eye. He was diagnosed to have left eye acute CSCR based on clinical, fundus fluorescence angiography (FFA) and optical coherence tomography (OCT) findings. The patient's BCVA in left eye improved to 6/6 at 3months follow-up after lepra reaction subsided on continuing oral clofazimine. We can conclude that patients with Hansen's disease are risk of developing vision threatening complications not only from anterior segment involvement but also posterior segment involvement like CSCR**.** Therefore, patients with lepra reaction should be followed up carefully and managed with alternative nonsteroidal agents whenever possible.

Key words: Hansen's Disease, CSCR (Central Serous Chorioretinopathy), Lepra Reaction

Introduction

Hansen's disease is a chronic infectious disease caused by *Mycobacterium leprae*. Ocular involvement, mainly anterior segment, has been shown in 70-75% of people with leprosy (Pavezzi et al 2020). Posterior segment involvement is uncommon in leprosy and there are only a few case reports reported in literature of development of central serous chorioretinopathy (CSCR) in patients with lepra reactions (Lamba & Srinivasan 1983, Panda 2019, Goel et al 2022). Of three case reports reported till date, only one case report by Panda (2019) had a patient with type 1 lepra reaction with CSCR. We report yet another occurrence of CSCR in a patient with borderline lepromatous Hansen's disease with type 1 lepra reaction.

Case report

A 34-year- old gentleman, a known case of borderline lepromatous leprosy on multidrug therapy for 3 months, presented with blurring vision in his left eye for the past 3 weeks. The patient gave history of increasing redness and swelling in the lesions 2 months after starting MDT, for which he was prescribed prednisolone tablets 30 mg. On examination, the patient had multiple

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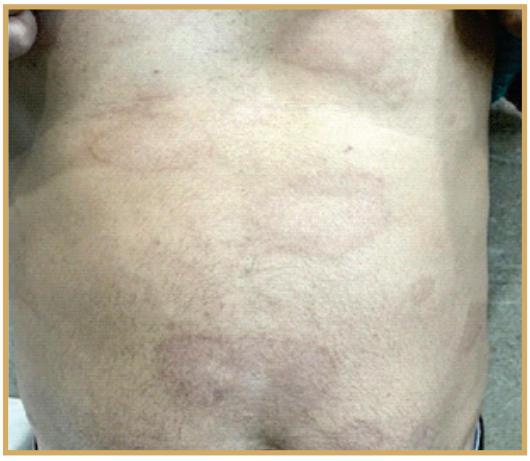

Fig. 1 : Photograph of patient's trunk showing erythematous patches after treatment with MDT and steroids.

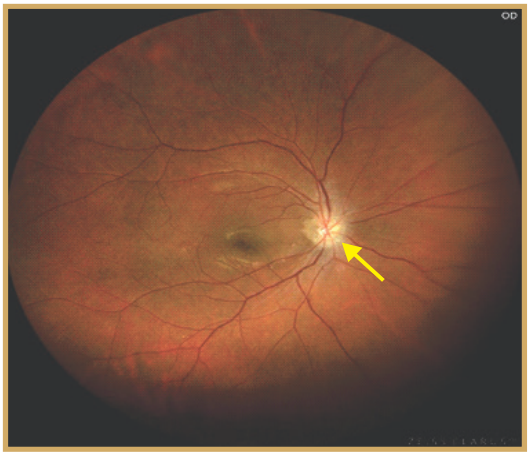

Fig. 2a : Fundus photo of right eye showing mild peripapillary retinal pigment epithelial (RPE) abnormality.

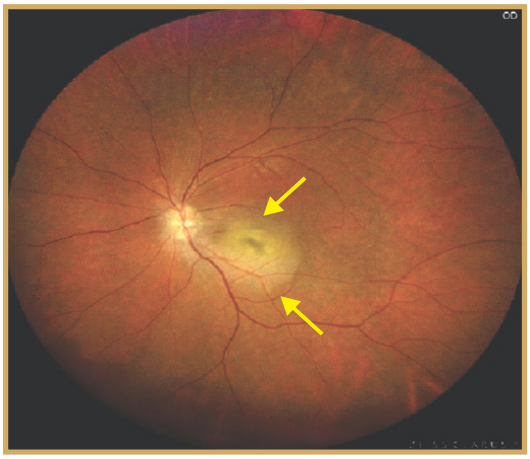

Fig. 2b : Findus photo left eye showing mild peripapillary RPE pigment abnormality and neurosensory detachment involving center of macula with pigment epithelial detachment and subretinal yellow fibrin deposits.

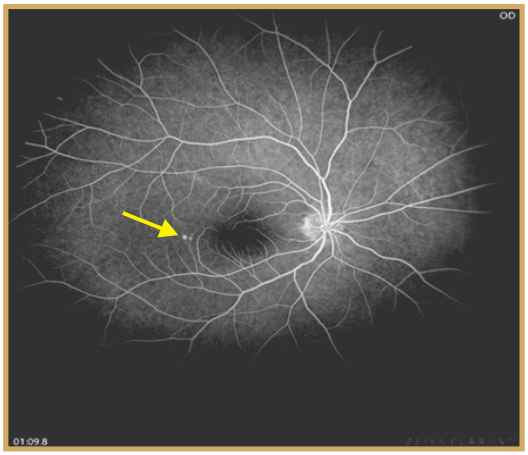

Fig. 2c : Fundus fluorescence angiography (FFA) photo right eye showing mild early-mid phase hyper fluorescence area suggestive of hyperfluorescent drusen.

erythematous edematous plaques over his torso (Fig. 1) and face suggestive of reversal reaction. Ocular examination revealed best corrected visual acuity (BCVA) 6/6 in right eye and 6/36 in his left eye with normal anterior segment in both the eyes. Posterior segment examination revealed irregular blurred disc margins in both the eyes with no disc edema along with mild peripapillary retinal pigment epithelial pigmentary changes in both the eyes and a neurosensory detachment

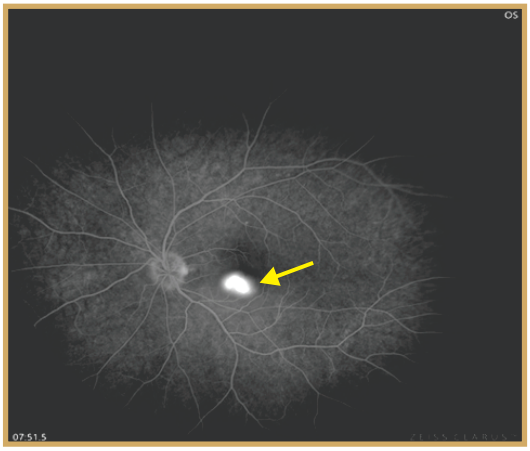

Fig. 2d : FFA left eye showing late phase mixed pattern of leakage area suggestive of CSCR.

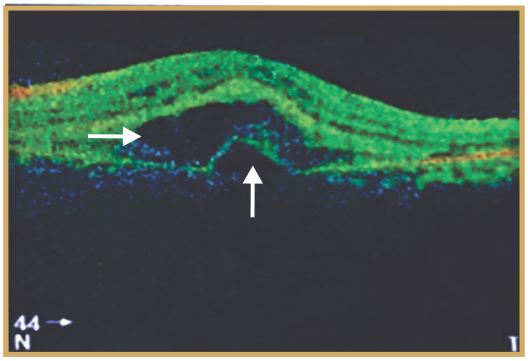

Fig. 3a : Optical coherence tomography (OCT) picture left eye at the time of diagnosis showing neurosensory detachment (NSD) with subretinal fibrin deposits invovling centre of macula along with a small subfoveal retinal pigment epithelial detachment (PED).

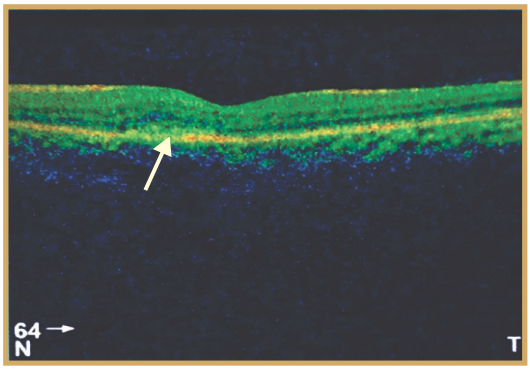

Fig. 3b : OCT picture left eye at 3 months interval showing complete regression of NSD and PED.

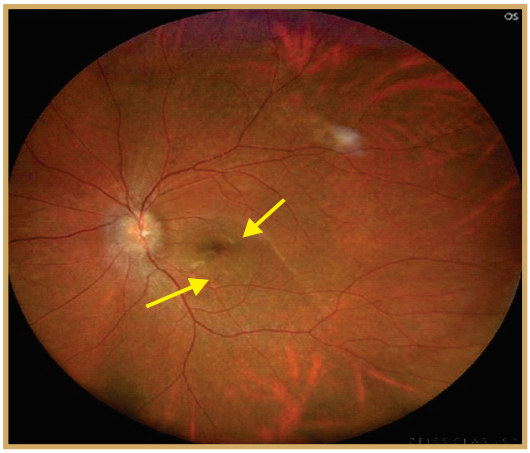

Fig. 4 : Fundus photo left eye at final follow up visit at 3 months showing complete regression of sub foveal fluid and pigment epithelial detachment.

involving macula with subretinal fibrin deposits in the left eye suggestive of CSCR (Figs. 2a & 2b). Both the optic nerve heads showed auto fluorescence seen on fundus autofluorescence (FAF) suggestive of optic nerve head drusen. Diagnosis of CSCR was confirmed with fundus fluorescence angiography (FFA) (Clarus widefield fundus camera – Zeiss), which showed early single pinpoint hyper fluorescence and late diffuse pattern leakage in left eye (Figs. 2c & 2d). Optical coherence tomography (OCT) of left eye showed sub-foveal neurosensory detachment along with fibrin deposits and small retinal pigment epithelial detachment (PED) (Fig. 3a).

As CSCR worsens with systemic corticosteroids, the patient was asked not to take oral steroid and was continued on MDT MBR and clofazimine 100 mg thrice a day. The patient showed full visual recovery in his left eye with best corrected visual acuity of 6/6 and regression of sub foveal fluid as shown in OCT and fundus photo (Fig. 3b & Fig. 4) at final follow up visit at 3 months interval.

Discussion

In the realm of systemic diseases, leprosy historically exhibited relatively elevated rates of ocular complications (50-80%) (Rathinam 2010). Ocular involvement in Hansen's disease is a well-known and it can cause blindness in up to 5% of patients (Pavezzi et al 2020). However, this trend has shifted over the last three decades following the introduction of multidrug therapy (MDT) (Bala Murugan et al 2020). Anterior segment involvement is the main anatomic site affected by Hansen's disease resulting in lagophthalmos, entropion, ectropion, trichiasis, corneal hypoesthesia/ulcer and uveitis. Posterior segment is rarely involved in Hansen's disease mainly affecting choroid and retinal pigment epithelial layer probably by direct spread from ciliary body (Adriono et al 2022). Uveal involvement by leprosy can lead to nonspecific manifestations such as retinal pigment epithelial (RPE) proliferations, uveitis with macular edema and optic neuritis (Adriono et al 2022).

Pathophysiology of CSCR is as complex as the dual role of corticosteroids in absorption of subretinal fluid in macular edema in inflammatory diseases involving posterior segment on one hand and in aggravation of subretinal fluid in CSCR on the other (Daurich et al 2015). On the other hand, CSCR also seems to have an association with systemic/ocular inflammation as reported by Dutta Majumder et al (2019) in their retrospective case series. Type 1 lepra reaction has been shown to be mediated by TH1 lymphocytes with the release of pro-inflammatory cytokines like IFN- and IL12 leading to an inflammatory state (Kahawita et al 2008). Previous reports of CSCR in leprosy by Panda (2019) had type 1 lepra reaction and Goel et al (2022) had type 2 lepra reaction along with bilateral anterior uveitis in their patient with leprosy.

It can be hypothesized that lepra reactions being inflammatory states can predispose these patients to CSCR which has been associated with both inflammation as well as corticosteroid intake.

Our patient had type 1 lepra reaction and the fundus showed peripapillary RPE pigmentary changes in both the eyes suggestive of past chorio-retinal inflammation. Uveal tract inflammation along with raised VEGF levels in vascular endothelium associated with type 1 lepra reaction can lead to some form of destabilization of outer blood retinal barrier and choroidal circulation which can contribute to the development of CSCR.

CSCR is managed conservatively as most cases resolve spontaneously in 3-6 months. Treatment with laser or photodynamic therapy is indicated only in non-resolving cases. Our patient's vision improved as his subretinal fluid associated with CSCR resolved on its own after 3 months.

It can be concluded that patients with Hansen's disease, especially with lepra reactions, are prone to develop sight- threatening complications not only involving the anterior segment but also posterior segment diseases of the eye including CSCR. Therefore, the patients with lepra reactions should be observed carefully and treated with non-steroidal drugs and other alternative agents, if possible, to avoid emergence of CSCR, although we need larger studies to reach at some definite conclusion.

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How to cite this article : Singh TP, Narang T and Yakang D (2024). Central Serous Chorioretinopathy in a Patient with Hansen's Disease with Type 1 Lepra Reaction - A case report. *Indian J Lepr.* **96**: 179-183.