Case Report

Clofazimine-induced premaculopathy in a vitiliginous patient

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ABSTRACT

A 26-year-old male vitiliginous patient presented with decreased visual acuity because of a central scotoma in the left eye with no significant retinal changes on fundus examination. In this case report, a diagnosis of possible drug-induced premaculopathy was made, and the drugs were withdrawn. On the follow-up, after 3 months, the visual acuity in the left eye gradually improved. Early suspicion of drug-induced maculopathy and withdrawal of the drug may prevent the progression of maculopathy.

Key words: Central scotoma, clofazimine drug toxicity, maculopathy

INTRODUCTION

Clofazimine is a drug used to treat leprosy and mycobacterium avium infections. It is well tolerated when the dose does not exceed 100mg/day. Clofazimine is known to cause conjunctival and corneal pigmentation but drug induced retinopathy is rare. It is to be used with caution in immunocompromised individuals and patients taking other drugs due to its toxic effects on the eye.

CASE REPORT

A 26-year-old nonimmunocompromised male presented with a history of blurring of vision in the left eye for 8 months. He was diagnosed with vitiligo and under oral therapy with clofazimine 100 mg/week and methoxsalen 10 mg/day along with some herbal products for 1 year. Ocular examination revealed a drop in the best-corrected Snellen visual acuity by 5 lines in the left eye with prolonged photostress recovery time indicating a maculopathy. Visual examination was normal in the right eye. Fundus examination in the left eye was within normal limits [Figure 1a and b].Fluorescein angiography did not reveal any abnormalities in the retina.[Figure 1c and d].Color vision discrimination was low in both eyes. Visual field analysis of the macula was normal in the right eye and showed a central scotoma in the left eye [Figure 2]. A diagnosis of possible drug-induced premaculopathy was made using the WHO causality assessment and scoring of 3 using the Naranjo's scale. The patient was referred to his treating dermatologist for withdrawal of the drugs. Other causes of central scotoma such as multiple sclerosis, optic nerve glioma, toxic, nutritional, and hereditary optic neuropathies were ruled out with detailed history and investigations. On follow-up after 3 months with

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discontinuation of clofazimine, methoxsalen, and the herbal products, the visual acuity in the left eye improved. Photostress recovery time decreased with improvement in the color vision discrimination scores. Visual field analysis was normal in the right eye and showed reduction in the size and density of the central scotoma in the left eye [Figure 3].

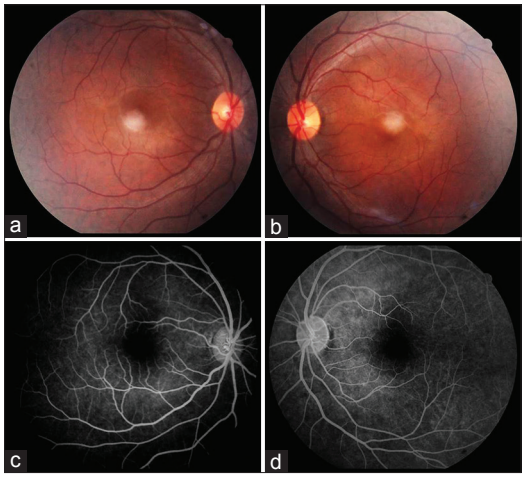

Figure 1: (a and b) Fundus photograph of the right and left eyes showing normal macula (c and d) Fundus fluorescein angiography in both eyes

DISCUSSION

Clofazimine is an iminophenazine drug with antimycobacterial and anti-inflammatory activities and it is used for the treatment of lepromatous leprosy, dapsone-resistant leprosy, and *Mycobacterium avium* complex infections in patients with acquired immunodeficiency syndrome (AIDS).[1]

It causes an increase in both the number of strata of pigment-bearing cells and the density of the pigment in stratum germinativum of the skin. Later, melanocytes rupture, with the release of their melanin content into the papillary layer of the dermis.[2] This property of clofazimine to stimulate melanogenesis prompted the use of this drug in patients with established vitiligo, pyoderma gangrenosum, and discoid lupus in an attempt to restore pigment to the affected skin.

After several months of treatment, clofazimine crystals may accumulate in the ocular tissues and cause side effects such as cornea verticillata, brownish discoloration of the conjunctiva and tears, crystals in the iris and sclera, and toxic retinopathy.[3] Clofazimine-induced retinopathy have been reported in two patients with AIDS following a higher dose of 200 mg/day.[4,5] Unlike the two previously mentioned cases, in

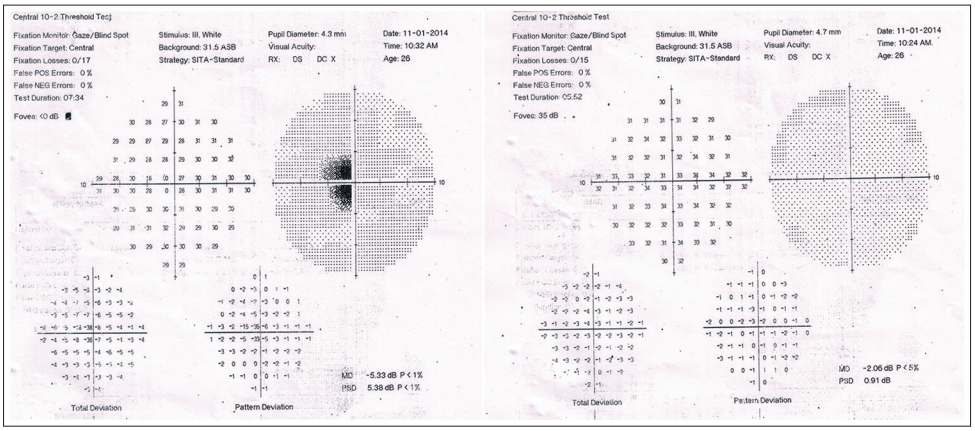

Figure 2: Visual field macula analysis showing central scotoma in the left eye

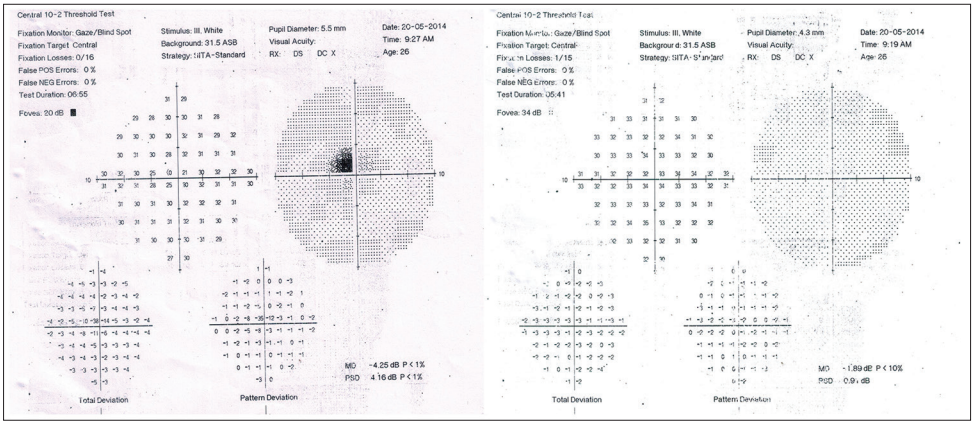

Figure 3: Visual field macula analysis showing reduction in the size and density of central scotoma in the left eye

the present case study, the patient received a lower dose, was not immunocompromised, and had a unilateral presentation. Methoxsalen is a psoralen drug used to treat psoriasis, eczema, vitiligo, and some cutaneous lymphomas in conjunction with exposing the skin to ultraviolet A light from lamps or sunlight. Photosensitization in ducklings has shown vacuolization of retinal ganglion cells, pigmentary retinopathy, and congestion of choroidal vessels.[6] It is plausible that in our patient, methoxsalen being a photosensitizing drug may interact with clofazimine, making the macula more sensitive to light-induced damage as the drug is reported to be very safe in the usual doses in nonimmunocompromised adults.[7] The appearance of central scotoma before visible changes in the fundus suggests that the initial site of damage is in the outer segment of the photoreceptors, which is then followed by degeneration of the retinal pigment epithelium (RPE) and choriocapillaris. Fundus autofluorescence imaging and multifocal electroretinogram although not available in our setup have been used to detect early retinal changes in drug-induced retinopathy.[8]

CONCLUSION

Accumulation of clofazimine in RPE in the outer retina with phototoxic damage and reduction of photoreceptors leads to maculopathy. Ophthalmologists should be aware of this entity in spite of its unilateral presentation. Early suspicion and withdrawal of the drug may result in reversibility of the retinal side effects and prevents the progression of maculopathy.

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Conflicts of interest

There are no conflicts of interest.

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