Case Report

Successful Management of Diffuse Unilateral Subacute Neuroretinitis with Anthelmintics, and Intravitreal Triamcinolone followed by Laser Photocoagulation

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Abstract

Purpose: Diffuse unilateral subacute neuroretinitis (DUSN), a form of posterior uveitis, is secondary to the presence of a highly motile nematode in the intraretinal or subretinal space. Herein, we report a case of DUSN that was successfully managed by an intravitreal injection of triamcinolone and laser therapy.
Case Report: A middle-aged man with complaint of decreased vision and marked unilateral vitritis and neuroretinitis. Fluorescein angiography revealed disc leakage, vessel wall staining, and diffuse track-like transmission defects of the RPE. Optical coherence tomography confirmed the subretinal location of the worm. The patient received oral thiabendazole and an intravitreal injection of triamcinolone acetonide. After 10 days, media haziness decreased, and a live motile subretinal worm was identified. Direct laser photocoagulation was performed to destroy the worm. After two months, a localized chorioretinal scar developed and no further active inflammation and subretinal worms were detected.
Conclusion: Intravitreal steroids can be used safely in cases with DUSN and may help detect the causative worm for applying laser photocoagulation.

Keywords: Diffuse Unilateral Subacute Neuroretinitis; Intravitreal Triamcinolone; Laser Photocoagulation; Thiabendazole

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INTRODUCTION

Diffuse unilateral subacute neuroretinitis (DUSN), first described in 1960s, is a well-documented entity with early and late manifestations.[1,2] In the early (subacute) stage, it presents with optic disc edema, vitritis, extensive retinal pigment epithelial (RPE) changes, and deep yellow-white retinal lesions.[1] The late stage is characterized by optic atrophy, vascular attenuation, arterial sheathing, and RPE mottling and atrophy.[2] The first evidence of involvement of a mobile subretinal worm in the presence of the manifestations was provided by Gass et al in 1987. They mentioned "successive crops of evanescent lesions" in deep retinal layers, which

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faded over several days, leaving color changes in the underlying RPE.[1] Further investigation supported that a motile subretinal nematode is responsible for severe optic nerve and retinal inflammation in such cases.[3] It is established that DUSN can be caused by two different sized nematodes, a smaller type measuring 500 µm and a larger one measuring between 1500 and 2000 µm, with the same clinical signs and symptoms.[3,4]

In recent years, optical coherence tomography (OCT) has been applied to demonstrate the exact location of the worm. Presence of the worm in different layers of the retina and the subretinal space suggest that it may move freely through different layers of the retina.[5]

Direct laser photocoagulation of the nematode has been employed effectively for the treatment of subretinal worms, and is considered to be the treatment of choice for DUSN. Multiple sessions may be needed to eradicate the worm. Both oral anthelmintics and steroids have been shown to reduce inflammation and may be considered if no worm is found after careful examination.[6]

Herein, we report a case of DUSN managed initially by oral thiabendazole and intravitreal triamcinolone acetonide, followed by successful direct laser photocoagulation of the worm.

CASE REPORT

A 46-year-old man, living in north of Iran, presented with decreased vision accompanied by ocular pain in his right eye since 1 week before. On examination, best-corrected visual acuity was 20/200 and 20/20 in the right and left eyes, respectively. There was an afferent pupillary defect in the right eye. Intraocular pressures (IOPs) were normal. Slit lamp examination revealed normal anterior segments in both eyes and the presence of 2+ vitreous cells in the right eye. On fundus examination, there was moderate vitritis with hazy media, disc edema, vascular sheathing and linear yellowish subretinal lesions and RPE mottling in the right eye, while the left eye was normal.

A presumptive diagnosis of unilateral subacute neuroretinitis was made, and a limited systemic work-up was performed. The results were negative for VDRL, PPD, HLA-B5 and B8, but HLA-B27 was positive. Fluorescein angiography (FA) revealed hypofluorescence due to blockage by vitreous opacities, disc leakage, vessel wall staining, and track-like transmission RPE defects all over the fundus [Figure 1].

With a suspicion of DUSN, the patient received oral thiabendazole (22 mg/kg twice daily for 4 days) and an intravitreal injection of 2 mg/0.05 ml of triamcinolone acetonide (IVT). On re-evaluation after 10 days, he reported improvement of vision in the right eye. On examination, visual acuity of the right eye had not changed significantly, IOP was increased to 30 mmHg, and there was a notable decrease in vitritis and disc

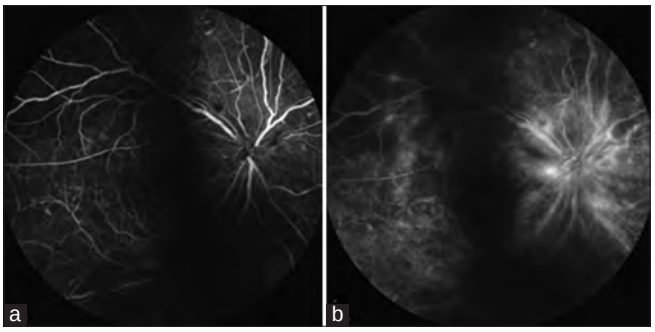

Figure 1. Early (a) and late (b) phases of fluorescein angiography of the right eye demonstrated hypofluorescence because of media opacity, hyperfluorescence at the disk, vessel wall staining, and track-like transmission defects of RPE.

edema. At this visit, we were able to find a subretinal worm about 4 disc diameters superior to the disc in the right eye. The next day, the worm had moved to the inferonasal quadrant of the retina [Figure 2] and later changed its location from time to time [Figure 3]. A linear OCT scan along the nematode showed subretinal hyper-reflectivity which confirmed the subretinal location of the worm [Figure 4].

The patient was scheduled for direct laser photocoagulation (spot size, 200 microns; duration, 200 ms; power, 220 mW; number, 22) of the worm [Figure 5]. Two months after laser photocoagulation, a localized chorioretinal scar developed at the site of photocoagulation, and no further active inflammation and subretinal worms were detected.

DISCUSSION

Diagnosis and treatment of DUSN may be challenging in some cases. Presence of severe vitritis causing media haziness may obscure retinal details and make detection of the subretinal worm difficult. Initial treatment with systemic anthelmintics and corticosteroids may help decrease media haziness and aid visualization of the worm.[5]

In the present case, after ruling out some common infectious causes for inflammation, IVT was injected in order to reduce inflammation and increase visibility of the retina. Since there is no report of the use of IVT in patients with DUSN, our case demonstrates the potential for its use in these patients.

Since nematodes are highly mobile, their position may change from the time of detection to the time of laser treatment and hence, localization of the worm at the time of laser therapy may sometimes necessitate a vigorous search. Therefore, it is very important to perform laser photocoagulation immediately after localization of the nematode, since migration of the worm and worsening of the condition can make relocalization of the worm impossible.[7]

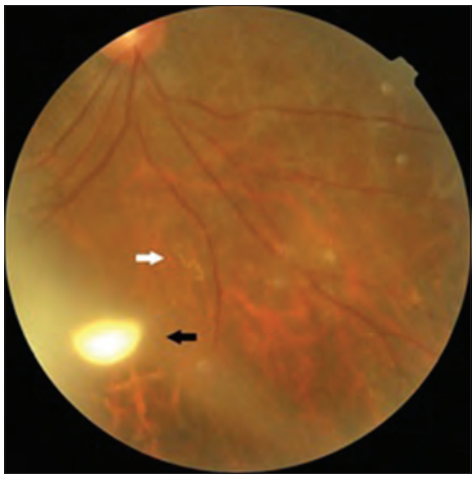

Figure 2. Fundus photograph after initial treatment. Note the decreased vitritis, media haziness, and disk edema. A white linear subretinal lesion (nematode) is present in the inferonasal quadrant (white arrow) as well as a white intravitreal substance corresponding to the triamcinolone acetonide particles (black arrow).

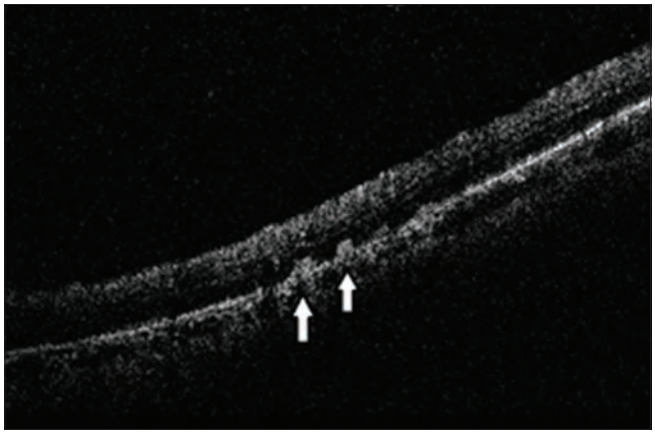

Figure 4. Optical coherence tomography demonstrates the subretinal location of the worm presenting as two hyper-reflective particles over the retinal pigment epithelium (white arrows).

Both Nd: YAG and argon lasers have been previously applied to eradicate nematodes.[5,8] Fortunately, destruction of the nematode by direct laser photocoagulation results in chorioretinal scar formation and does not elicit an inflammatory reaction. Repeated examinations have been suggested to ensure eradication and immobilization of the worm.[5]

Oral albendazole, thiabendazole, and diethylcarbamazine have been used with variable success.[5,8,9] Gass and Braunstein did not find thiabendazole and diethylcarbamazine to have any effect for treatment of DUSN.[10] However, oral anthelmintics in conjunction with laser therapy have been employed in most reported cases either as a single dose or with treatment courses up to 3 weeks.[5,8] We

Figure 3. Fundus photograph after worm mobilization.

Figure 5. Fundus photograph immediately after application of laser photocoagulation to the nematode.

administered oral thiabendazole before proceeding to laser photocoagulation for 4 days.

Although the presence of a subretinal or intraretinal nematode is confirmatory for the diagnosis of DUSN, in many cases it may be difficult to find and localize the causative worm because of the associated vitritis and migration of the worm. In such cases, systemic anthelminthics and intravitreal injection of steroids might be helpful in decreasing media haziness caused by vitritis and probably diminishing nematode motility. Therefore, such an initial management may increase the chance of localization of the worm and hence successful treatment with laser photocoagulation.

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Nil.

Conflicts of Interest

There are no conflicts of interest.

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