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CASE REPORT

CASE REPORT OF LARVA MIGRANS IN A QUILOMBOLA COMMUNITY FROM GOIÁS

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ABSTRACT

Diffuse unilateral subacute neuroretinitis (DUSN) is a posterior unilateral uveitis characterized for the presence of a nematode in the subretinal space. It affects young and healthy individuals and it is divided into early and late according to the clinical manifestations. The main treatment is the laser photocoagulation if the worm is identified or drug treatment with specific anthelmintics in the cases with no worm identified or even identified, but with the nematode near the macula. The aim of this article is to report the case of a male patient from a vulnerable region with progressive unilateral visual loss in whom was detected the presence of a nematode in the perifoveal subretinal space associated with retinal degenerative and inflammatory changes compatible with the hypothesis of diffuse unilateral subacute neuroretinitis. Drug treatment with Albendazole was chosen for a period of thirty days due to localization of the worm in the macular area. After treatment, the patient improved the visual acuity in a significant way, beyond the migration and death of the worm in the retinal temporal periphery.

KEYWORDS: DIFFUSE SUBACUTE UNILATERAL NEURORETINITIS, UVEITIS, OCULAR INFLAMMATION, RETINITIS, ALBENDAZOLE, LASER PHOTOCOAGULATION, EARLY TREATMENT

INTRODUCTION

Diffuse unilateral subacute neuroretinitis (DUSN) was first described in 1978 by Gass.[1] It is a form of posterior uveitis caused by the presence of a mobile larva in the subretinal space, responsible for producing a copious inflammatory process associated with retinal degeneration.[2,3]

Several species of nematodes have been responsible for the etiology of this infectious condition, depending on socioeconomic, geographic and cultural conditions.[1,4]

This infectious condition usually affects younger age groups, without previous comorbidities, and disease manifestations vary according to the identified clinical stage.[5,6]

The diagnosis can be made by identifying the larva in the subretinal space (only possible in about 40% of cases) or presumably from the clinical picture, in cases where it was not possible to identify the nematode.[5]

Once the nematode is identified in places far from the macular region, it is possible to perform laser photocoagulation to destroy the larva. If the worm is not visualized, pharmacological treatment has become a great therapeutic option.[2]

Thus, DUSN is configured as a challenging ophthalmological condition, as well as a significant public health problem that requires a high degree of clinical suspicion for early diagnosis and treatment, aiming to prevent visual impairment and blindness in economically active young patients. [4,5]

CASE REPORT

GFG, male, 27 years old, healthy, from a Kalunga Quilombola community in Cavalcante, Goiás, came for ophthalmologic evaluation in June 2021 complaining of unilateral progressive visual loss in the right eye, associated with mild headache and ipsilateral scotomas . The patient did not report any personal and family pathological history. As for the lifestyle habits, its origins in a place with poor basic sanitation (Figure 1) and its role as a kindergarten teacher in the community are highlighted.

On physical examination, the patient had a corrected visual acuity of 0.2 in the right eye and 1.0 in the left eye. Anterior segment without changes on biomicroscopy. Preserved pupillary reflexes and extrinsic ocular motility, in addition to bilateral intraocular pressure within the normal range.

Retinal mapping showed a foveomacular pallor in the right eye and a retina with no alterations till the ora serrata

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in the left eye. Therefore, additional tests were requested for better diagnostic elucidation.

In simple retinography, an increase in pallor of the temporal retina and optic disc was noted (Figure 2). Fluorescein angiography showed a vascular attenuation with thinning of the retinal pigment epithelium (RPE) (Figure 3). Finally, on Optical Coherence Tomography (OCT) a thinning of the neurosensory retina (NSR) was visualized (Figure 4). All these changes were seen only in the right eye.

In the period between the exams and the patient's follow-up, an increase in macular pallor in the temporal region of the right eye was noticed, as well as a worsening of visual acuity in one line of sight. Therefore, a new OCT was requested and a new retinal mapping was performed in order to better elucidate the condition.

With a more accurate analysis of the new exams and association with the patient's clinical history, a thinning of the NSR with foveolar involvement was noticed, in progression, when compared to the previous OCT of the right eye, better seen through pachymetry maps (Figures 5 and 6). A U-shaped larva was also identified in the perifoveal region of the right eye, thus establishing the diagnosis of DUSN.

Due to the location of the nematode in the macular area, it was decided to start treatment with albendazole orally at a dose of 400 mg per day, for 30 days, instead of laser photocoagulation and guided follow-up during this period.

After the period established for the treatment, the patient presented improvement of 4 lines of visual acuity in the right eye and new complementary exams were carried out, which showed migration of the larva to the subretinal temporal periphery and its subsequent death. Thus, the patient remains under clinical follow-up under expectant management.

The team responsible for the diagnosis and follow-up of the patient carried out a visit to the community for an active search with an evaluation of the residents close to the index case, and no other similar cases were found (Figure 7). Contact was also made with the City Council in order to develop partnerships and new social actions for prevention and early diagnosis.

DISCUSSION

The aforementioned report describes a case of DUSN in which the late identification of the larva in the perifoveal subretinal region was possible in a patient with a clinical picture compatible with neuroretinitis. The literature mentions the difficult identification of the nematode in the vast majority of cases, which culminates in diagnostic delay and potential loss of visual acuity.[5] Therefore, the case presented becomes relevant within the scientific community and highlights the need for a high degree of clinical suspicion in the first contact with a healthy patient, but coming from a highly vulnerable location and who presents with a complaint of progressive unilateral visual loss.

DUSN is an inflammatory and infectious condition that can be etiologically related to several species of nematodes, such as Toxocara canis, Baylisascaris procyonis and Ancylostoma caninum. Among them, Ancylostoma caninum is a common cause of parasitic infection in dogs in South America, highlighting a possible vector in communities with poor hygiene conditions and intimate contact with such animals (Figure 6). Due to the lack of serological tests, the vast majority of cases remain without the precise identification of the etiological agent and the great help for definition comes from the socioeconomic and demographic conditions of the patient.[1,5] In the case described, the importance of questioning about the region where the index case resides, as well as the basic sanitation conditions that can allow the spread of parasitic infections, an important cause of uveitis in Brazil.

The nematode occupies the subretinal space and generates an extensive inflammatory and degenerative process resulting from the association of larval migration with the release of its toxic residues, in addition to an immune process triggered by the individual[5], involving partial loss of ganglion cells and toxic aggression to the cells retinal bipolars.[1]

The clinical manifestations are variable and make it possible to divide the disease into two stages: early and late. The early stage is defined by the presence of a central or paracentral scotoma, associated with visual loss in cases with mild to moderate vitritis, optic disc edema and whitish multifocal lesions in the external retina and choroid. The late phase is characterized by degeneration of the RPE, atrophy of the optic nerve and narrowing of the retinal vessels.[6,2]

The case reported here describes clinical manifestations compatible with the literature, as the patient presents an association of a central scotoma with unilateral visual loss, in addition to findings related to retinal involvement. Intense inflammatory and degenerative changes were not noted at the level of the external retina and choroid, but subretinal nematode migration was carefully observed, generating sensorineural retinal thinning and vascular attenuation.

Diagnosis is essential for eradicating the agent and preventing irreversible visual loss. The identification of the subretinal larva is pathognomonic for DUSN, however, due to the low index of visualization, the diagnosis can be clinical and presumably based on the symptoms reported by the patient, in addition to complementary tests that may be requested to aid in the diagnosis and follow-up on the evolution of the condition. [1]

Serologies are also part of the suggested propaedeutic arsenal, but with limited diagnostic value, being used more for the differential diagnosis.[6]

In this case, it was possible, even if late, to identify the nematode and its migration based on funduscopic findings associated with imaging exams. Thus, the report reinforces the importance of a high degree of suspicion and the proper use of diagnostic means in favor of elucidation and early treatment.

The treatment of choice is based on the destruction of the larva through photocoagulation with an argon laser at 500 µm and duration of 0.5 seconds. However, in cases where the

larva is not identified or it is close to the macular region, the laser could be responsible for an additional injury to a prime retinal site. Therefore, pharmacological treatment becomes a viable option and one that has been gaining space.[3,1]

Several drug treatments with anthelmintics have been proposed and used, but Albendazol has become a safe alternative, in addition to being effective and with greater capacity to penetrate the blood-retinal barrier. Regarding the doses and duration of treatment, several regimens are suggested in the literature, however this report used the daily use of 400 mg of Albendazol for a period of 30 days, similar to that used in cases of neurocysticercosis, due to the pathogenic and clinical similarity of both conditions.[1]

At the end of the report, the evident migration to the temporal periphery and death of the subretinal nematode with the instituted treatment is observed, strengthening the relevance of drug therapy in cases of diffuse unilateral subacute neuroretinitis with the larva located in the retinal macular region.

Figure 1: Image showing the precarious conditions of the place and the presence of not dewormed dogs in the community

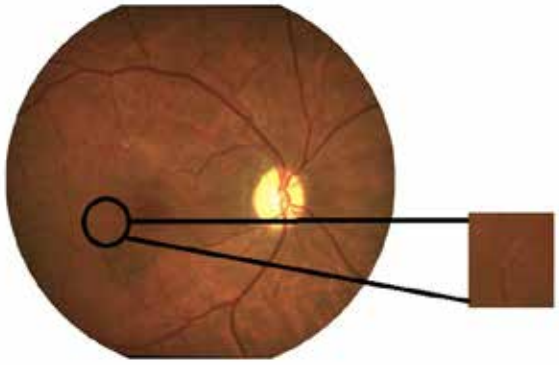

Figure 2: Simple photograph of the right eye showing pale temporal retina and optic disc. Enlarged image demonstrates retinal larva migrans.

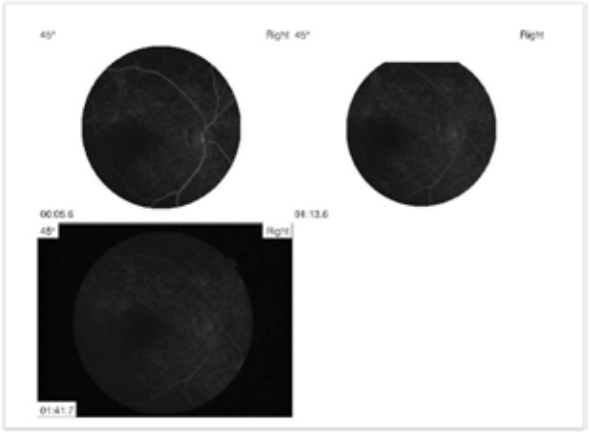

Figure 3: Right eye fluorescein angiography showing RPE thinning and vascular attenuation.

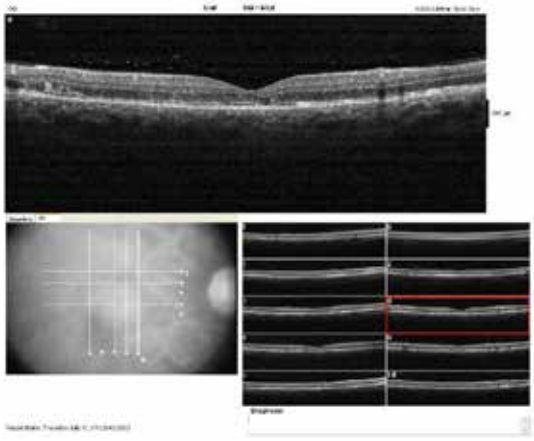

Figure 4: OCT of the right eye with thinning of the sensorineural retina and presence of subretinal larva migrans. Detail shows the specific location of the nematode (red circle).

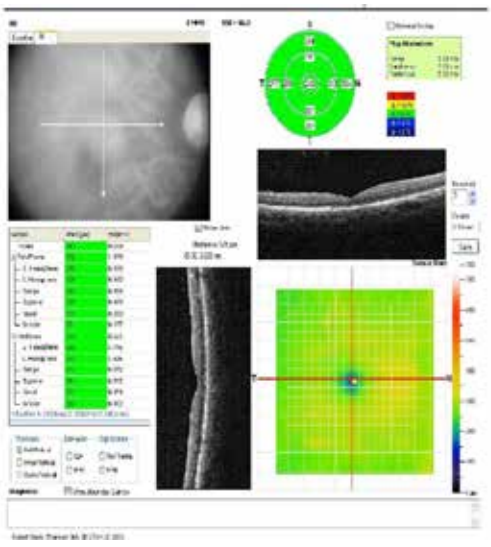

Figure 5: OCT pachymetric map of the right eye showing initial thinning of the sensorineural retina.

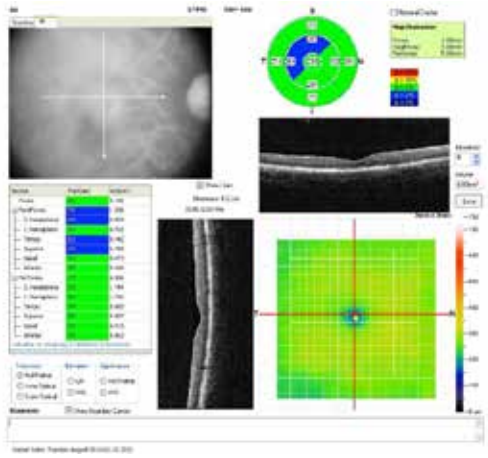

Figure 6: OCT pachymetry map of the right eye showing thinning of the sensorineural retina with progressive foveolar involvement.

Image 7: Team performing ophthalmological screening in community residents.

CONCLUSION

DUSN is the main cause of infective posterior uveitis after toxoplasmosis and, therefore, the aforementioned report reiterates the importance of early diagnosis and treatment, which considerably increase the chances of improving visual acuity.

Given this and the complexity of the diagnosis, it is imperative to have a high degree of clinical suspicion in those healthy individuals in whom the larva has not been identified, but present insidious unilateral loss of visual acuity associated with retinal involvement such as vitritis and papillitis or late findings such as optic atrophy and arteriolar narrowing.

It is worth emphasizing the importance of adequate basic sanitation and hygiene measures, as well as deworming host animals at risk of transmission, to prevent DUSN among other parasitic diseases.

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