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Case report

Spectral optical coherence tomography findings in an elderly patient with syphilitic bilateral chronic panuveitis

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ABSTRACT

Purpose: To report the spectral domain optical coherence tomography (SD-OCT) features of a focal retinitis in an elderly male patient with bilateral syphilitic panuveitis.
Observations: In the left eye (LE), spectral domain SD-OCT images during the active period revealed hyperreflectivity extending through the full thickness of the retina with no individualization of the layers, except for the retinal pigment epithelium. Once the lesion healed, SD-OCT imaging revealed an inner retinal atrophy and a mild disruption of the retinal pigment epithelium.
Conclusions and importance: In our patient, treponemal infection seemed to produce full-thickness retinal damage with partial involvement of the retinal pigment epithelium. The severe retinal damage, in this case, led to a poorer visual outcome than in other forms of syphilitic retinal involvement.

1. Introduction

Syphilis is a sexually transmitted systemic disease caused by the spirochete *Treponema pallidum*.[1] It remains a relevant cause of uveitis.[2] Since the year 2000, there has been an increase in the incidence of the disease, likely related to unprotected sexual intercourse in the era of highly active antiretroviral therapy for human immunodeficiency virus (HIV).[3]

Posterior segment manifestations of ocular syphilis are diverse and include, among others, superficial retinal precipitates, exudative retinal detachment, acute syphilitic placoid posterior chorioretinopathy, papillitis, vasculitis, neuroretinitis, chorioretinitis, and retinitis.[4,5]

In this case, we describe the features from spectral domain optical coherence tomography (SD-OCT) of a case of focal macular retinitis in a patient with bilateral syphilitic panuveitis.

2. Case report

An 80-year-old male patient was admitted to our service with a diagnosis of a one-year duration chronic bilateral panuveitis. He had a history of bladder carcinoma diagnosed 3 years prior—treated with Bacillus Calmette Guerin immunotherapy—decreased hearing for the past 2 years, and seborrheic dermatitis. He denied having oral or genital ulcers. He complained of asthenia, arthralgia, and matinal stiffness of the hands and feet. He had lost 24 kg of weight over the previous year. He carried laboratory tests conducted in another service, with normal results for complete blood count, liver function test (LFT), and blood urea nitrogen (BUN) test. Negative results include IgG and IgM for toxoplasma, Venereal Disease Research Laboratory (VDRL), antinuclear antibodies, and rheumatoid factor. He had a positive C reactive protein (CRP), an erythrocyte sedimentation rate (ESR) of 54 mm/h and a positive PPD. His chest radiography was normal. He was operated on for cataracts in both eyes two years ago. He underwent a diagnostic vitrectomy in the left eye (LE) two months ago, with a diagnosis of reactive inflammatory cytopathology. Brain MRI did not reveal any noteworthy signs.

At examination, best corrected visual acuity (BCVA) was light projection and hand movement in the right eye (RE) and the LE, respectively. At slit lamp examination, fine keratic precipitates were observed in both eyes, while 4+ and 2+ anterior chamber inflammatory cells were present in the RE and the LE, respectively. Intraocular pressure was 25 mmHg in the RE and 23 mmHg in the LE. At fundus examination, 4+ vitreous haze precluding the observation of the fundus details was observed in the RE, while 1+ vitreous haze and a whitish macular retinal lesion were noted in the LE (Fig. 1).

During the initial visit to our service, an SD-OCT (Spectralis, Heidelberg) was performed on the LE. At the level of the whitish lesion, the SD-OCT revealed hyperreflectivity extending through the full thickness of the retina with no individualization of the layers, with the exception of the retinal pigment epithelium (RPE) layer. A significant

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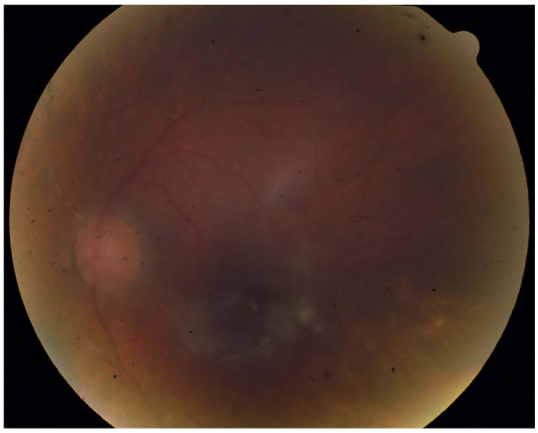

Fig. 1. LE color fundus photograph. A whitish lesion involving part of the fovea can be seen. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

loss of the ellipsoid zone was also observed (Fig. 2). At the level of the fovea, a serous neuroepithelial detachment was observed, with a hyperreflectivity of the nasal inner perifoveal layers and a temporal full-thickness perifoveal hyperreflectivity with no individualization of the retinal layers, with some degree of atrophy, and with relative preservation of the retinal pigment epithelium. A significant loss of the ellipsoid zone was also noted (Fig. 3). At both locations, an epiretinal membrane was observed.

Lab tests, including HIV, VDRL, Fluorescent Treponemal Antibody Absorption test (FTA ABS), ESR, CRP, complete blood count, BUN, and LFT were ordered. Serologic results yielded a positive VDRL with very low titers, a positive FTA ABS, and a positive HIV test. The patient underwent a lumbar puncture with a negative VDRL in the cerebrospinal fluid. He was treated with 4 million units of intravenous penicillin G every 4 hours for 2 weeks. He did not receive any corticosteroid as part of his treatment regime.

Posttreatment BCVA improved to 20/50 in the RE while the LE persisted on HM. At slit lamp examination, 0.5+ anterior chamber inflammatory cells were present in both eyes. Intraocular pressure was 15 mmHg in the RE and 13 mmHg in the LE. At fundus examination, vitreous haze improved significantly in both eyes (Figs. 4 and 5). In the RE, SD-OCT revealed a cystoid macular edema (Fig. 6). In the LE, a retinal atrophy with mild disruption of the RPE in the temporal hemimacula was observed (Fig. 7). At the level of the focal retinitis, an atrophy of the retinal layers with mild disruption of the RPE was observed (Fig. 8). A lack of recovery of the ellipsoid zone was found at both locations.

The patient was lost to follow-up for 8 months. When he came back to our consultation, the macular edema in the RE had persisted (Fig. 9). His BCVA was 20/60 and HM in the RE and the LE, respectively. A posterior sub-Tenon injection of 40 mg triamcinolone acetonide was administered to the RE. BCVA in the RE at 1 month improved to 20/30, with a significant reduction of macular edema at OCT (Fig. 10).

3. Discussion

Uveitis is the most common manifestation of syphilis in the eye.[1] Ocular involvement may depend on the stage of the disease. The incidence of ocular syphilis seems to be 100 times less frequent than the incidence of early syphilis,[3] while a published series of syphilitic patients ill enough to be hospitalized recorded that 11 out of 36 cases (30.6%) had uveitis.[3] Currently, syphilis is a rare cause of uveitis, accounting for 0.7–4.5% of cases.[3] The predominant type of syphilitic uveitis varies in different case series. In a series of 24 patients, Barile and Flynn reported that granulomatous iridocyclitis was present in 46% of cases.[6] Amaratunge et al. reported in their series of 143 patients that 55.2% of the cases were of posterior uveitis and 25.2% were of panuveitis.[7] Our case consisted of chronic bilateral panuveitis, with retinal involvement.

There are several published articles describing the features of acute syphilitic posterior placoid chorioretinitis (ASPPC) from SD-OCT.[8–10] In ASPPC, choroidal infiltration and transient loss of signal of the inner/outer segment junction and external limiting membrane layers were shown,[2] which were almost completely reverted with treatment.[9] However, there are only two brief reports showing information about features of syphilitic retinitis in SD-OCT.[5,11] Curi et al.[5] were the first to show the intraretinal location of syphilitic multifocal retinitis in two

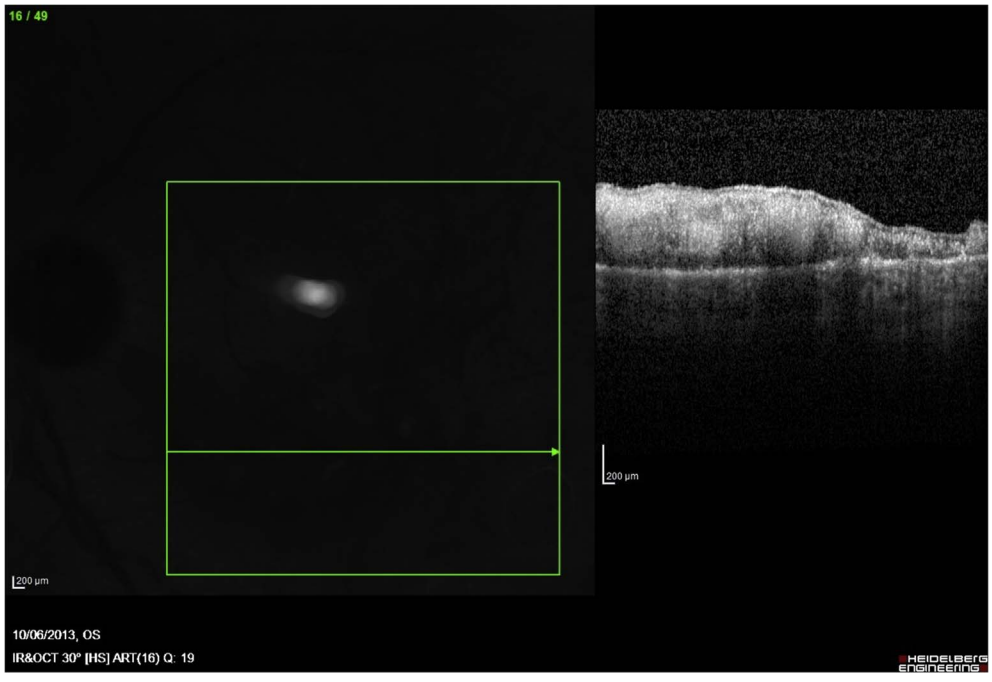

Fig. 2. SD-OCT of the lesion. Note the full-thickness hyperreflectivity of the retina without individualization of the layers, except for the RPE layer. There is a significant loss of the ellipsoid zone. An epiretinal membrane can be observed.

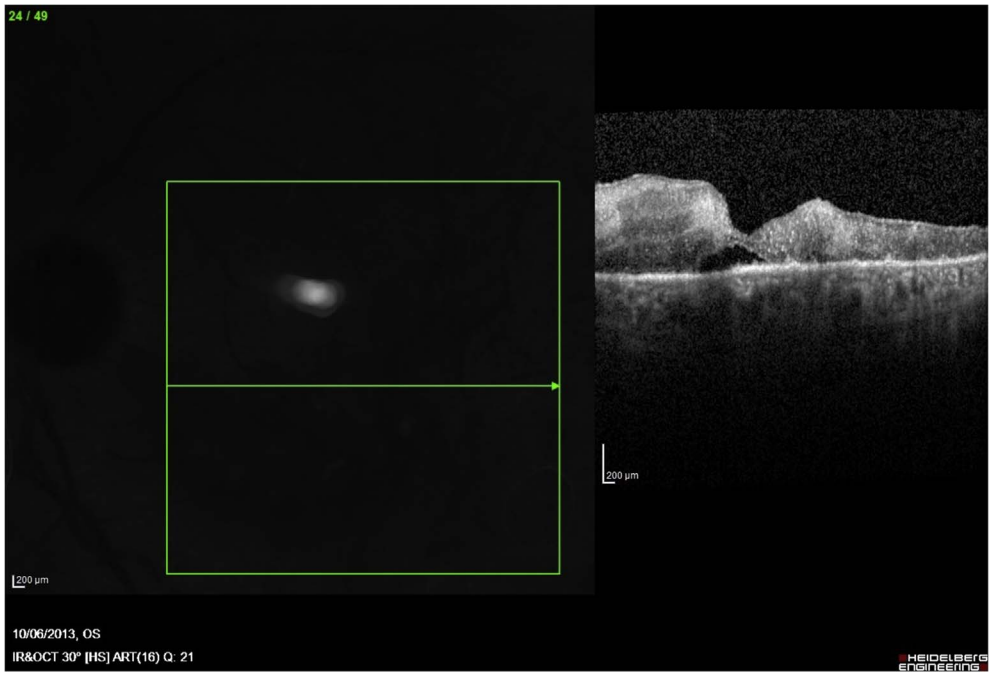

Fig. 3. SD-OCT of the fovea. Note the serous neuroepithelial detachment, the hyperreflectivity of the nasal inner perifoveal layers, and the temporal full-thickness perifoveal hyperreflectivity without individualization of the retinal layers, with some degree of atrophy, and with relative preservation of the retinal pigment epithelium. There is a significant loss of the ellipsoid zone. An epiretinal membrane can be seen.

patients, distinguishing them from superficial retinal precipitates.[5] However, there is no documented follow-up of those lesions by OCT. Benson et al.[11] described the features from SD-OCT of a peripheral focal syphilitic retinitis in a patient with bilateral panuveitis. The lesion showed that individual layers could not be distinguished due to infiltration with multiple hyperreflective dots. Diffuse thickening of the retinal fiber layer was also observed. In addition, a partial PVD with traction of the irregular vitreoretinal interface, along with moderate hyperreflective dots in the vitreous, was described.[11] Notwithstanding, the follow-up of the OCT signs was not described in the report.

The inflammatory retinal lesion described in our case was located inferior to the fovea, involving it. The predominantly inner involvement at the nasal side of the fovea may indicate that initial damage of the retina begins at the inner layers.

At the level of the focal retinitis, similar to the report of Benson et al.,[11] retinal layers could not be individualized due to infiltration with multiple hyperreflective dots. Retinal pigment epithelium was preserved at this level. In addition, the temporal part of the lesion showed retinal atrophy with mild disruption of the RPE. These findings are consistent with the previously reported minimal involvement of this layer.[3]

Vitreoretinal changes described previously in the Benson et al.[11] report were not observed in this case due to the fact that our patient underwent vitrectomy.

Interestingly, the visual outcome in the LE of our patient with a full-thickness retinitis involving the fovea was poor. This fact contrasts with the favorable response observed in most of the reported cases of ASPPC[8–10] and superficial punctate precipitates.[4] Curi et al. reported that one of their patients with multifocal retinitis with macular involvement in one eye had limited posttreatment BCVA improvement, likely due to the intraretinal location of the lesion.[5] According to these facts, the full thickness involvement of the retina by the lesion type described in our patient may portend a worse prognosis than the other forms described above.

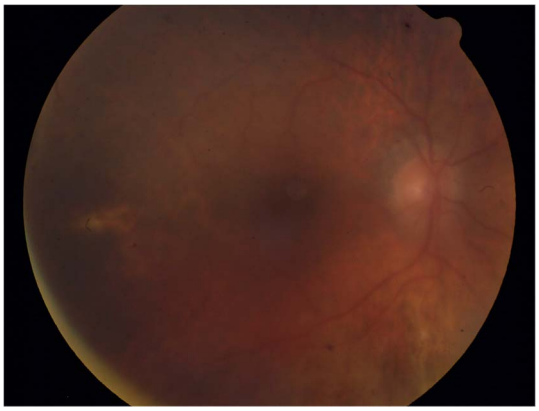

Fig. 4. RE color fundus photograph, taken 3 months after antibiotic treatment. Focal retinal pigment epithelium atrophy temporal to the posterior pole, and 2+ vitreous haze can be appreciated. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

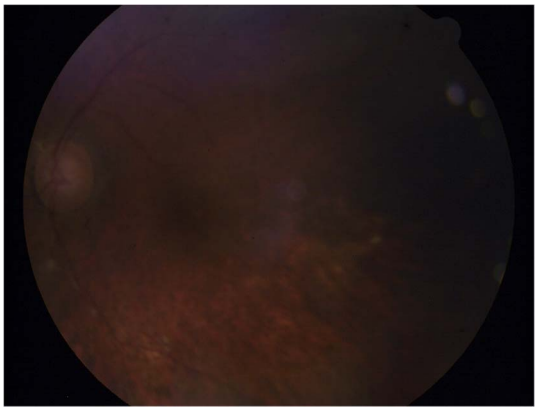

Fig. 5. LE color fundus photograph, taken 3 months after antibiotic treatment. The whitish retinal lesion disappeared, and an extensive retinal atrophy at the inferior half of the posterior pole can be seen. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

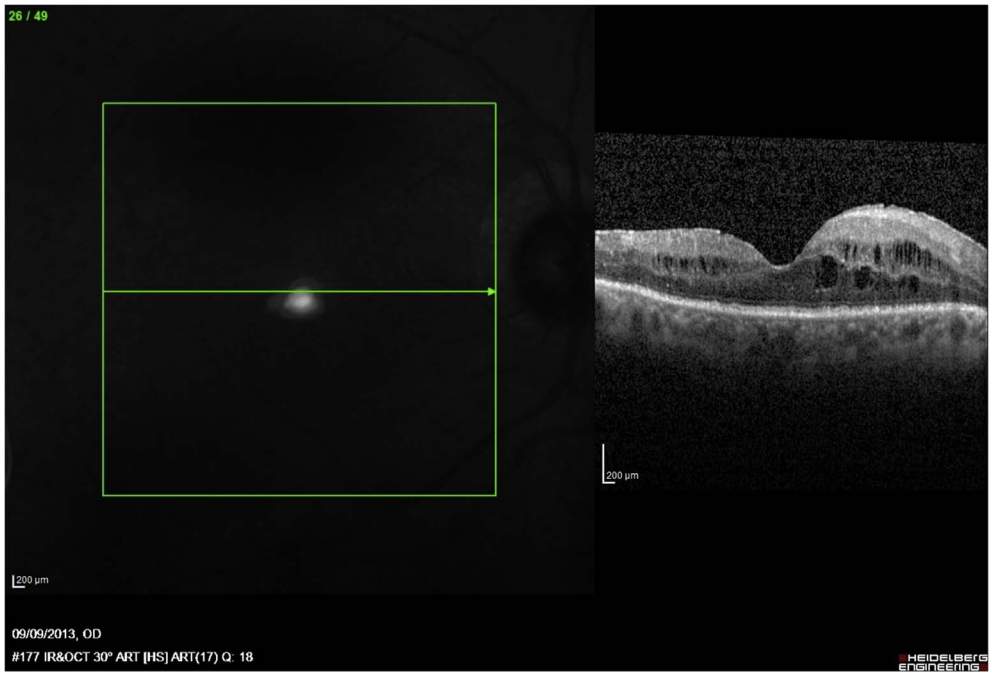

Fig. 6. SD-OCT of the RE, taken 3 months after antibiotic treatment. Cystoid macular edema can be observed.

After antibiotic treatment, OCT showed atrophic changes with partial disruption of the RPE layer. The ellipsoid zone did not recover with treatment, which likely explains the poor visual outcome in the LE. These findings demonstrate that syphilitic retinal involvement leads to damage in all the layers, except for partial engagement of the RPE.

In spite of the fact that syphilis diagnosis is supported most of the time by serologic testing (nontreponemal and treponemal tests), in 30% of patients with late latent or tertiary stages of infection nontreponemal tests may be undetectable,[12] and 7% of treponemal tests in asymptomatic HIV patients may be unreactive.[13] The initial negative VDRL, along with the advanced age of our patient, may have led to the previous misdiagnosis. Notwithstanding, a specific treponemal test was not done initially. In most cases, FTA ABS is positive in latent syphilis. If the latter test had been carried out earlier, the disease would have been discovered timeously and led to a better visual outcome. Because of the late diagnosis, we observed this rare type of manifestation.

Late diagnosis of ocular syphilis can lead to long-standing cystoid macular edema,[14] as we observed in our patient. Steroid periocular

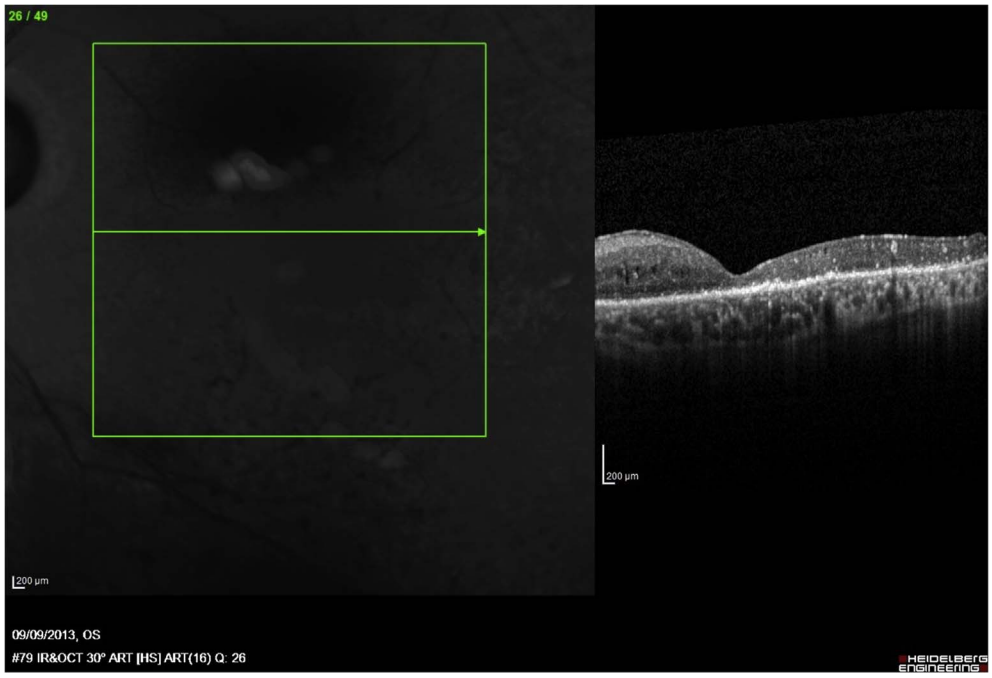

Fig. 7. SD-OCT of the fovea in the LE, taken 3 months after antibiotic treatment. A retinal atrophy with mild disruption of the RPE in the temporal hemimacula and a lack of recovery of the ellipsoid zone can be noted.

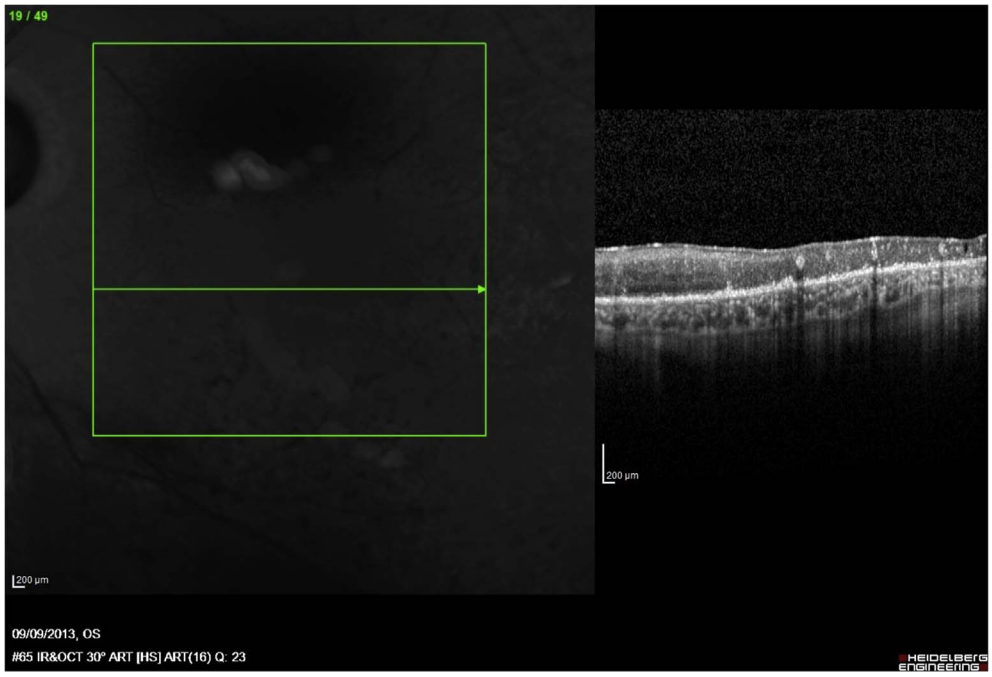

Fig. 8. SD-OCT of the lesion in the LE, taken 3 months after antibiotic treatment. Atrophy of the retinal layers with mild disruption of the RPE and a lack of recovery of the ellipsoid zone can be observed.

injections are rarely used in ocular syphilis but can be indicated in the case of macular edema.[3] Our patient showed a favorable response for this complication to posterior sub-Tenon injection of triamcinolone acetonide.

4. Conclusions

In our patient, treponemal infection seemed to produce a full thickness damage of the retina with partial involvement of the retinal pigment epithelium, as was shown by SD-OCT imaging. The severe retinal damage, in this case, led to a poorer visual outcome than in other forms of syphilitic retinal involvement.

Conflict of interest

None of the authors has any conflict of interest with the submission.

Financial support

No financial support was received for this submission.

Patient consent

The patient provided written consent for publication of the data contained in this report.

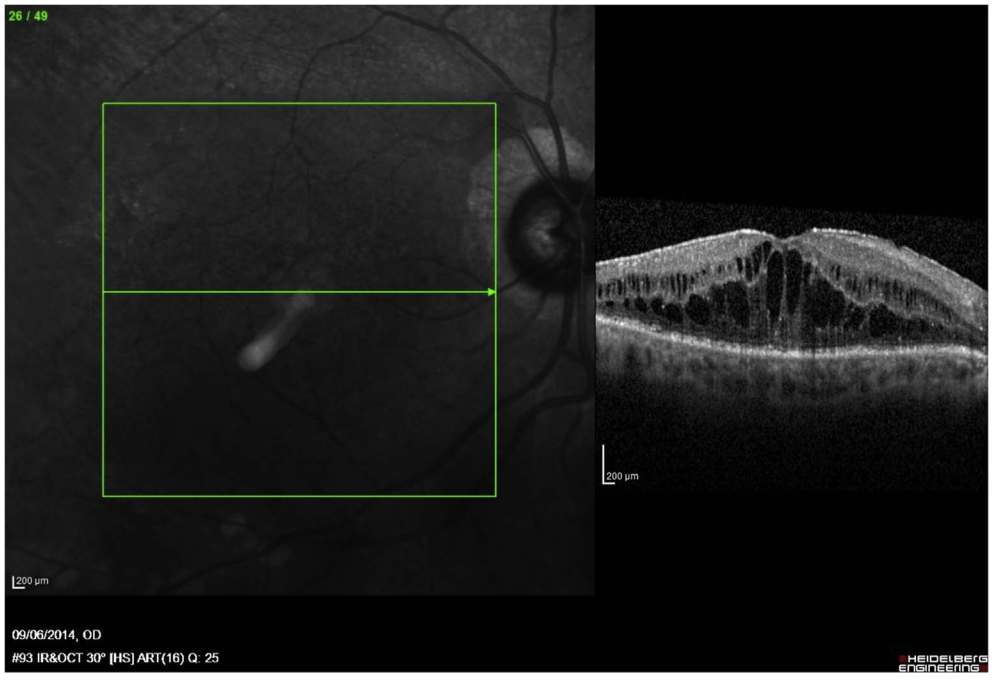

Fig. 9. SD-OCT of the RE at the fovea, taken 11 months after antibiotic treatment. Cystoid macular edema can still be noted.

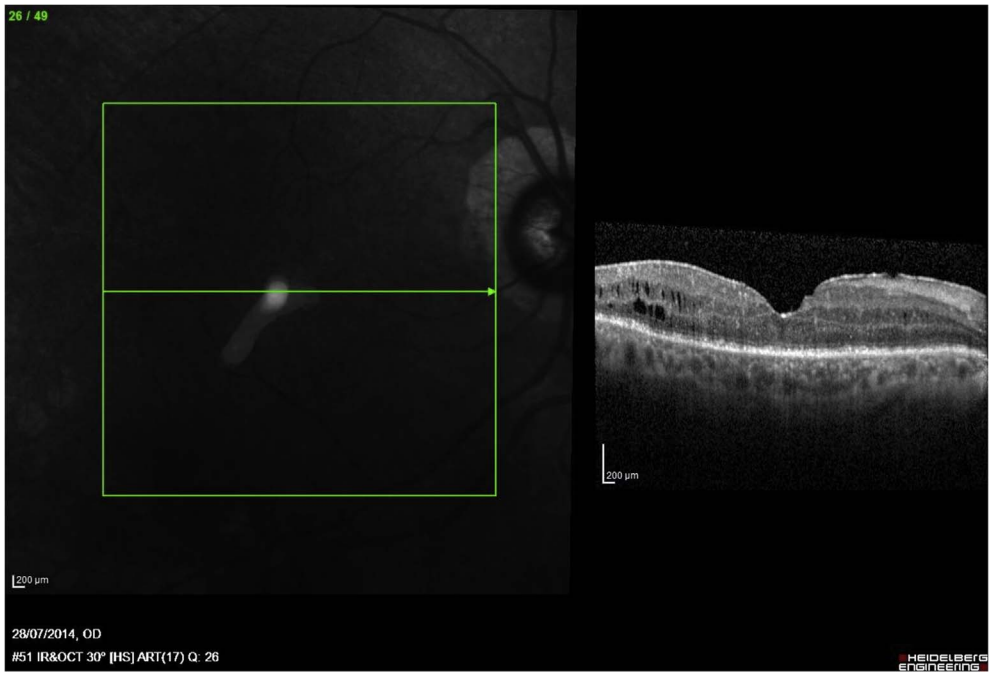

Fig. 10. SD-OCT of the RE at the fovea, taken 1 month after posterior sub-Tenon injection of 40 mg triamcinolone acetonide. Cystoid macular edema was significantly reduced.

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