

Purpose

To report a case of persistent bilateral macular edema secondary to syphilis.

Methods

Review of the patient's medical record.

Case Report

A 26-year-old man reports worsening visual acuity in both eyes that started one year ago. He underwent evaluation in another service, where was diagnosed stress-related macular edema. The patient denies comorbidities or ophthalmological pathologies.

On ophthalmologic examination, the visual acuity was of 20/70 in the right eye (OR) and 20/100 in the left eye (OS). Biomicroscopy without significant changes. The fundus examination showed macular edema, corroborated by OCT (**Images 1,2**).

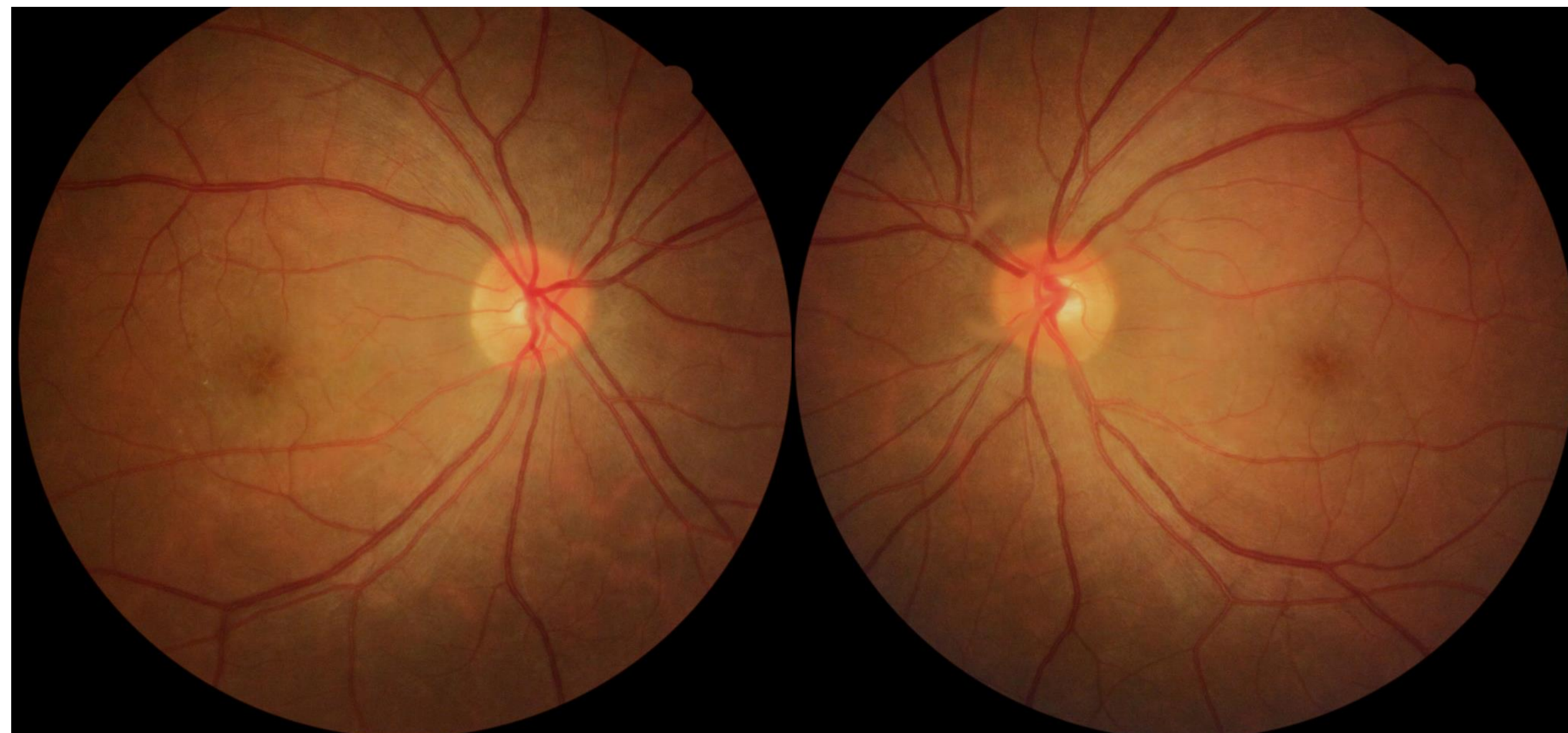


Image 1: Conventional color retinography of both eyes showing macular cysts and edema.

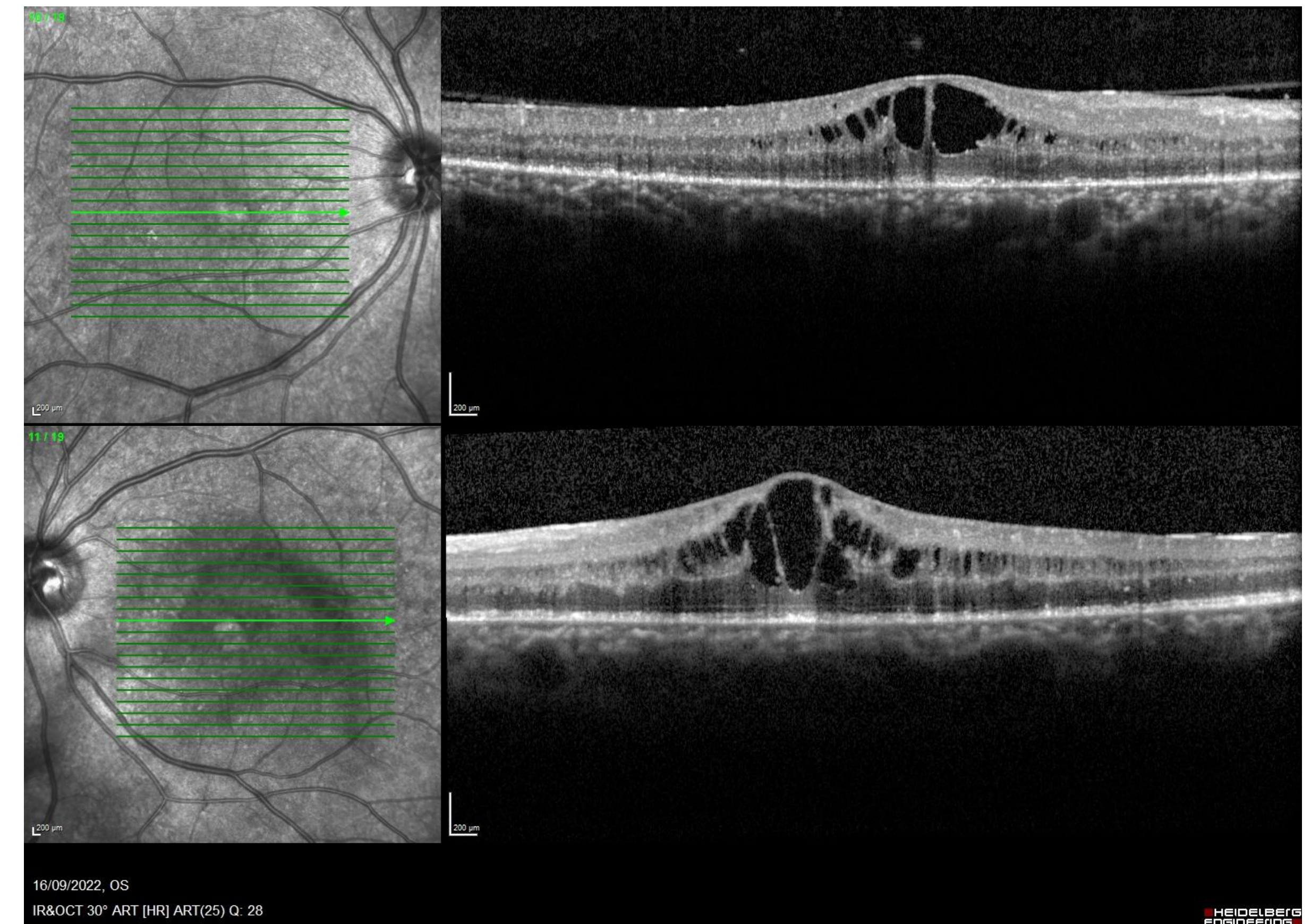


Image 2: OCT demonstrating cystoid macular edema, irregular areas of RPE thickening, small hyperreflective fine dots and disruption areas along the ellipsoid zone¹.

Fluorescein angiography revealed macular edema and intraretinal leakage (Image 3).

In face of chronic bilateral macular edema, the request for additional serological tests was mandatory. Of these, the VDRL test was reactive in a titer of 1/16 and a positive treponemal test confirmed the diagnose. Screening tests for diabetes and inflammatory diseases were negative. Thus, the patient was admitted to hospital and treated with intravenous aqueous crystalline penicillin at a dose of 4 million IU every 4 hours for 14 days.

OCT performed 15 days after the end of treatment with intravenous crystalline penicillin showed stability of macular edema in the right eye and improvement of edema in the left eye (Image 4). Therefore, sub-tenon injection of triamcinolone (40mg in 1mL) in the right eye was proposed.

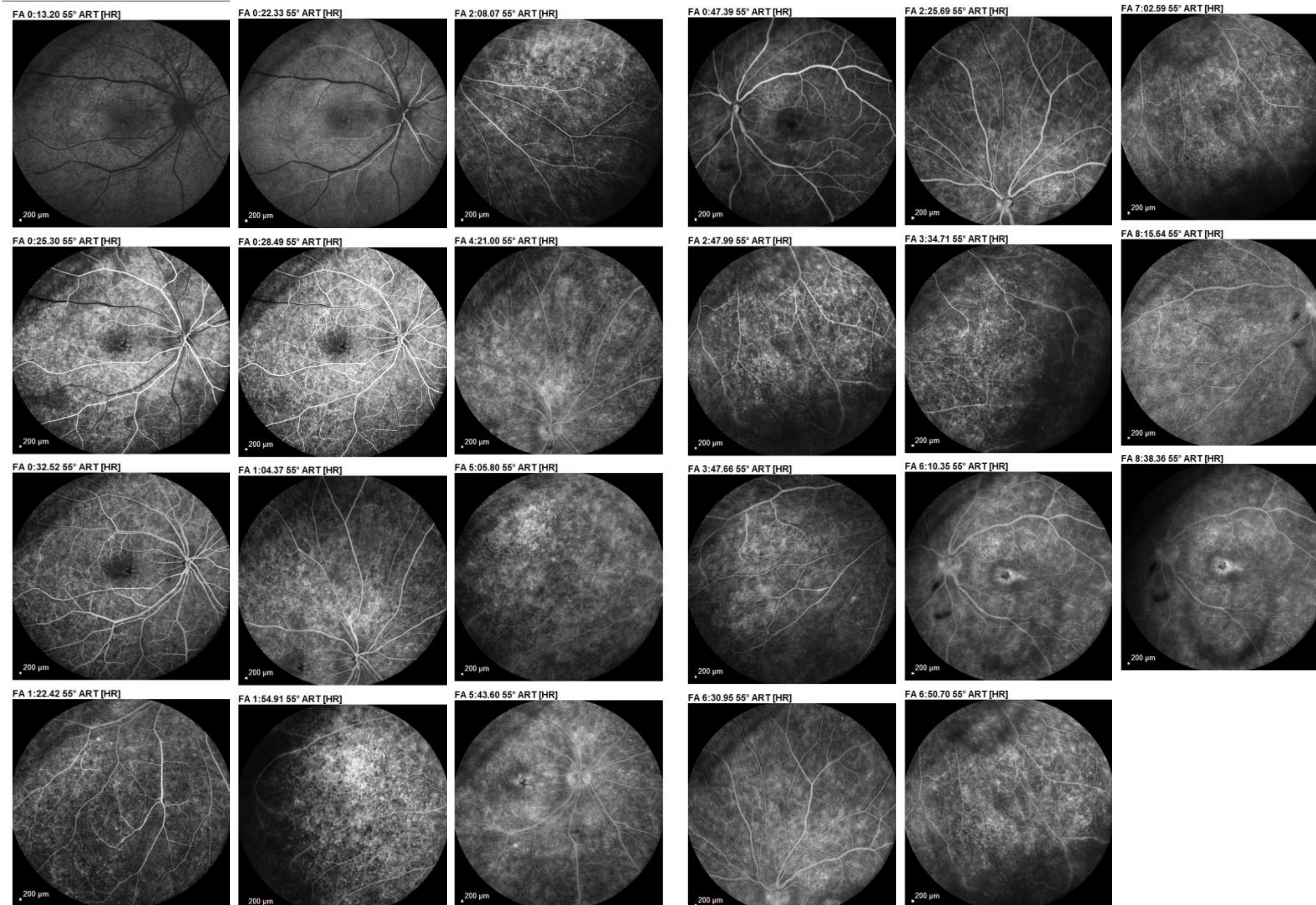


Image 3: Fluorescein angiography of OU.

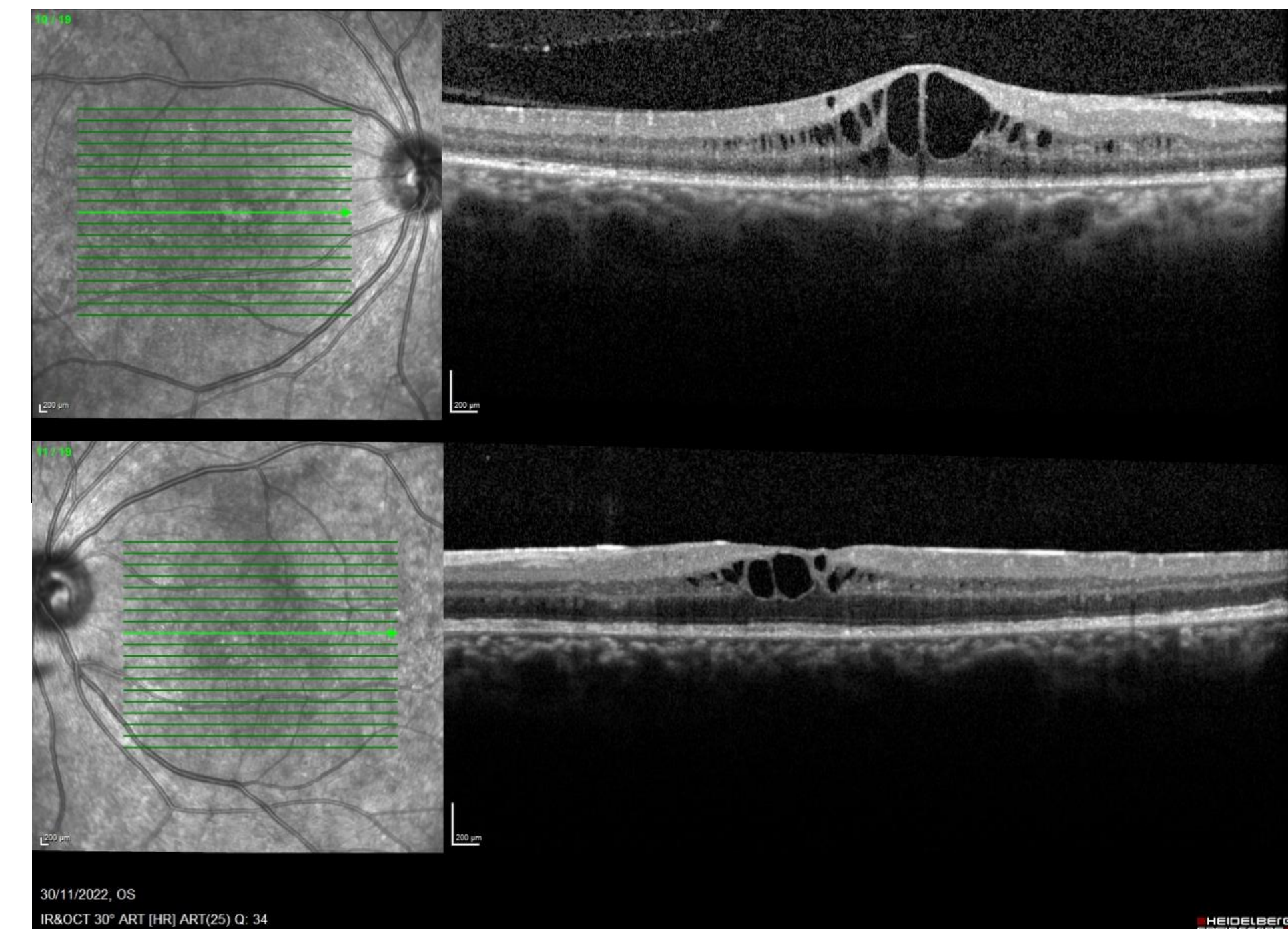


Image 4: OCT 15 days after treatment.

28 days after triamcinolone injection, the patient presented visual acuity of 20/40 OR and 20/25 OS. OCT demonstrated persistence of macular edema in the OR and total improvement of macular edema in the OS (**Image 5**). Finally, the chronic macular edema of OR was considered refractory due to damage to the inner blood-retinal barrier, as evidenced by Archer DB⁴.

Discussion

Ocular involvement in syphilis occurs in 0.17 to 3% of cases^{1,2}. Several ocular manifestations can be found, including vitreitis, macular edema and involvement of the inner and outer retina, with hyperreflective spots on the RPE and rupture of the ellipsoid zone³. The recommended treatment is with intravenous aqueous crystalline penicillin at a dose of 4 million IU every 4 hours for 14 days or ceftriaxone 2g a day for 14 days. After treatment, there may be a decrease and resolution of macular edema, however, some cases may maintain edema, which can be explained by the injury to the retinal capillaries, leading to depletion of endothelial cells, whose renewal rate is around 3 years⁴. Nevertheless, drug therapy in this case is recent and the literature suggests that similar cases may respond satisfactorily to new doses of corticosteroids, especially to implant of dexamethasone (Orzudex[®])⁵.

Causes of low visual acuity in young patients are quite challenging. In cases of retinal involvement, extensive screening for inflammatory and infectious diseases should be carried out in order to define the diagnosis and institute the correct treatment.

References

1. Mathew RG, Goh BT, Westcott MC. British ocular syphilis study(BOSS): 2-year national surveillance study of intraocular inflammation secondary to ocular syphilis. *Invest Ophthalmol Vis Sci.* 2014;55(8):5394–5400. doi:10.1167/iovs.14-14559.
2. Oliver SE, Aubin M, Atwell L, et al. Ocular syphilis - eight jurisdictions, United States, 2014-2015. *MMWR Morb Mortal Wkly Rep.* 2016;65(43):1185–1188. doi:10.15585/mmwr.mm6543a2.
3. Vaze A, De Angelis RE, Simões M, Arantes TE, Moreto R, Oliver GF, Smith JR, Furtado JM. Optical Coherence Tomography Findings in Ocular Syphilis Involving the Posterior Segment of the Eye. *Ocul Immunol Inflamm.* 2022 Aug;30(6):1464-1470. doi: 10.1080/09273948.2021.1892152. Epub 2021 Apr 15. PMID: 33856284.
4. Archer DB. Doyne Lecture. Responses of retinal and choroidal vessels to ionising radiation. *Eye (Lond).* 1993;7 (Pt 1):1-13. doi: 10.1038/eye.1993.3. PMID: 8325396.
5. Majumder PD, Mayilvakanam L, Palker AH, Sridharan S and Biswas J. Intravitreal sustained-release dexamethasone implant for the treatment of persistent cystoid macular edema in ocular syphilis. *Indian J Ophthalmol.* 2019 Sep; 67(9): 1487–1490. doi: 10.4103/ijo.IJO_1795_18.

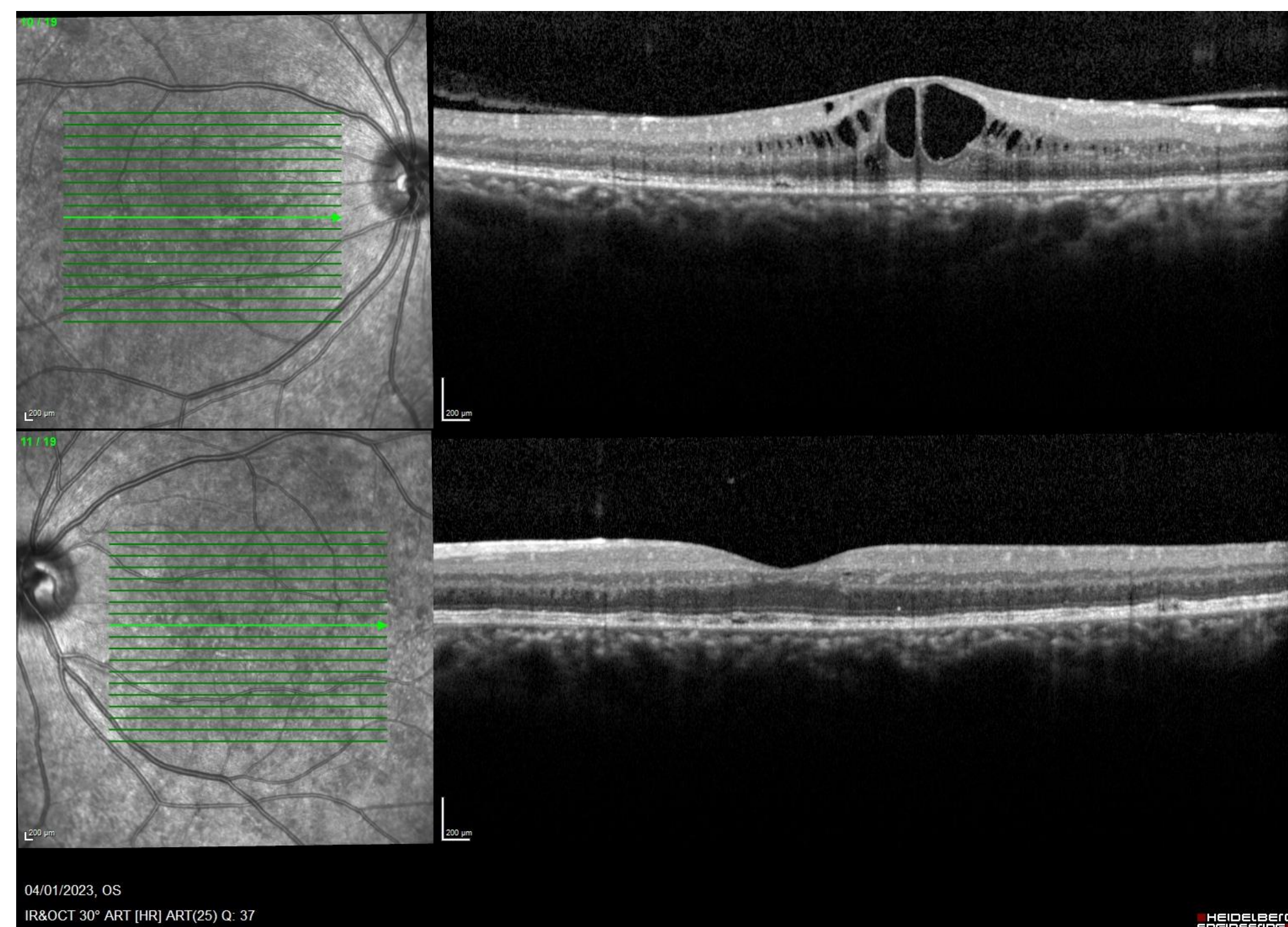


Image 5: OCT 28 days after tramcinolone injection.