

## Ocular Tuberculosis: A Case Report Of Tuberculoma And Serpiginous Like Choroiditis In A Single Presentation

Greesharaveendran, Geetha G, M Prabhu Shankar, MadhuriUpadhyaya

### Summary

A 38-year-old female who presented with a diminution of vision in the right eye and a positive Mantoux test was found to have tuberculoma in that eye and serpiginous like choroiditis in the other eye. She was treated with anti-tuberculous therapy and systemic corticosteroids. This case is unique as both tuberculoma and serpiginous like choroiditis, which are different prominent presentations of ocular tuberculosis, presented in both eyes of a single patient.

**Key words:** Ocular tuberculosis, Tuberculoma, Choroidal granuloma, Serpiginous like choroiditis, Multifocal choroiditis

Date of Submission: 05-12-2023

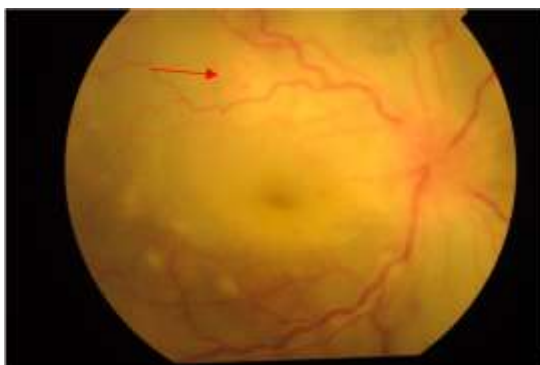
Date of Acceptance: 15-12-2023

### I. Case Report

A 38-year-old female with nil systemic illness presented with complaints of redness and pain in the right eye for one week and diminution of vision in the right eye for one day.

The visual acuity was hand movements close to the face in the right eye and 6/6 in the left eye. The intraocular pressures (IOP) were normal. The anterior segment examination of the right eye revealed grade 4 RAPD, circumciliary congestion, and 1+ cells in the anterior chamber (AC), and the left eye showed normal findings.

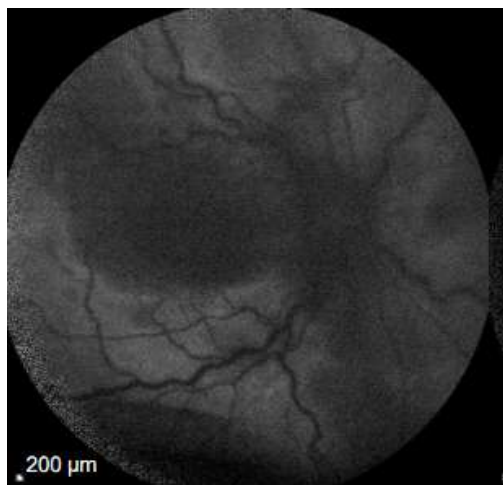
The fundus examination revealed grade 1 vitritis, choroidal granuloma, exudative retinal detachment involving the macula in the right eye (Figure 1a), and multiple choroiditis patches in the left eye (Figure 1b).



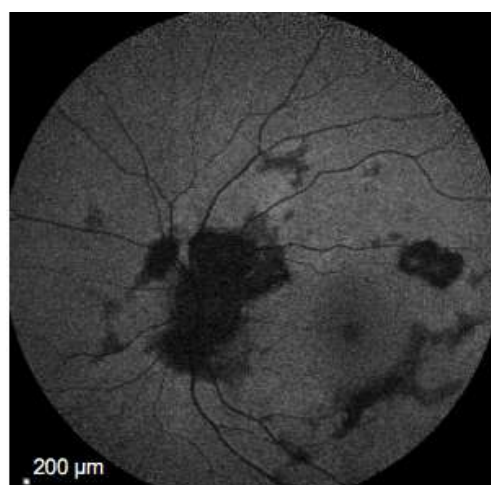
**Figure 1a.** Right eye fundus showing a yellowish lesion with indistinct margins around the optic disc suggestive of an optic disc granuloma; a similar lesion is seen along the superior arcade with hemorrhage (arrow) and subretinal fluid over it suggestive of a choroidal granuloma with exudative retinal detachment.



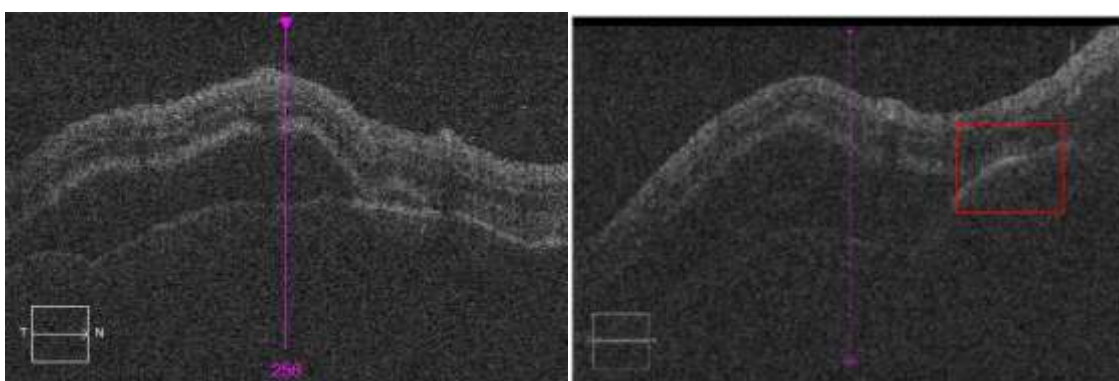
**Figure 1b.** Left eye fundus showing greyish-yellow amoeboid lesions with pigment clumping at the center, around the optic disc and the subvascular area suggestive of serpiginous-like choroiditis lesions.



**Figure 1c.** The fundus autofluorescence of the right eye shows a hypofluorescent area around the disc and the vessels suggestive of optic disc granuloma with lobulation.



**Figure 1d.** The fundus autofluorescence of the left eye shows a varying degree of hypoautofluorescent serpiginoid lesions with well-defined and ill-defined borders suggestive of healing choroiditis lesions.



**Figures 1e and 1f.** OCT-B scan of the right eye macula shows a few hyperreflective dots in vitreous tissue suggestive of vitreous cells, neurosensory detachment, subretinal fluid, and a huge choroidal elevation suggestive of choroidal granuloma. In figure 1f, the mount is extending nasally towards the optic disc, suggesting the presence of an optic disc granuloma. There is hyperreflective material over the RPE coming in contact with the outer retina, suggesting a 'contact sign' (rectangle).

Blood investigations revealed elevated ESR, Lymphocytosis in differential leucocyte count, negative TPHA, negative HIV tests and normal blood sugars. Mantoux test was positive with 16mm x 20mm induration. Chest X ray was normal.

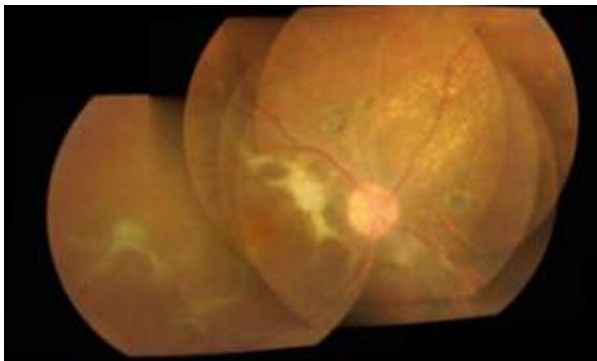
The patient was started on topical prednisolone acetate drops 4 times per day and cycloplegics 2 times per day and was sent for physician opinion in view of a diagnosis of presumed ocular tuberculosis to start on Antituberculosis therapy (ATT) and for clearance for oral steroids.

The patient was lost to follow up then, and she presented to us two months later. She was 40 days into ATT with Rifampicin, INH, Ethambutol, and Pyrazinamide then. She had the same visual acuity as the previous examination in both eyes. Her right eye showed a pharmacologically mid-dilated pupil with iris pigments on the lens. The AC was quiet. The left eye anterior segment revealed a normal examination.

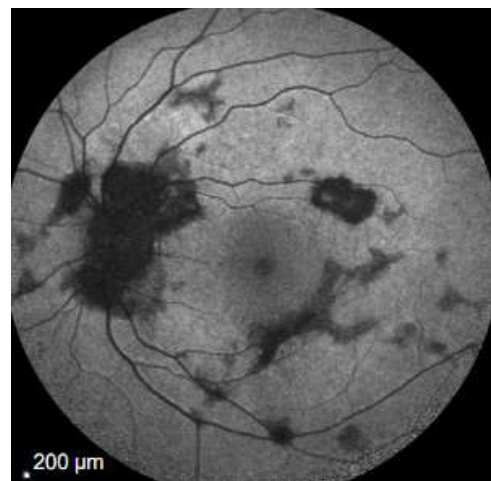
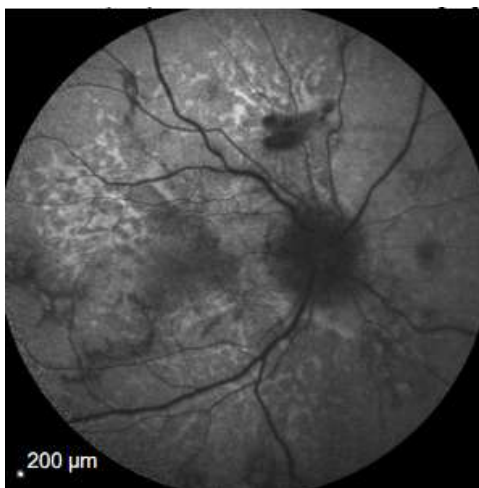


**Figures 2a and 2b.** The fundus examination of the right eye showed no vitritis, resolution of subretinal fluid, and healing choroidal granuloma around the optic disc (Figure 2a). The left eye fundus showed healing choroiditis patches( Figure 2b).

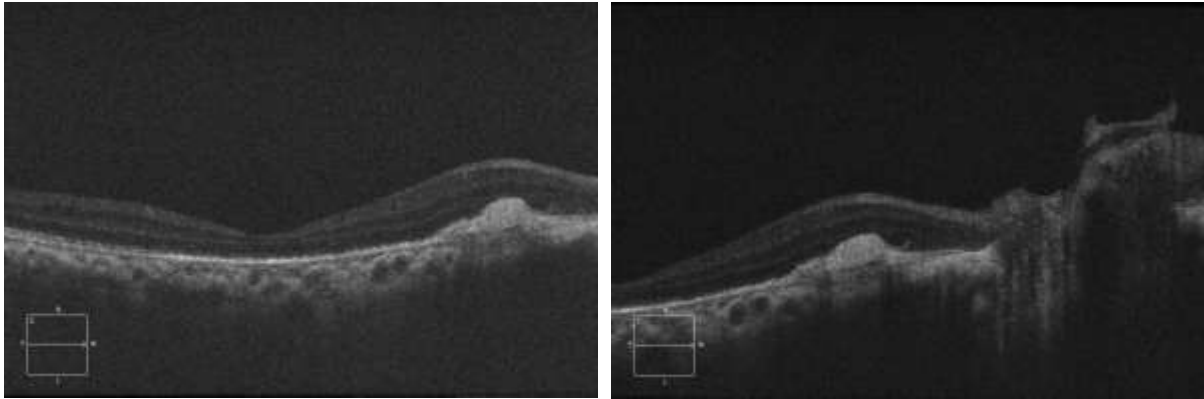
The patient was started on Tab Prednisolone 40 mg, and the topical steroid was tapered to 2 times a day. On the next follow-up, after one month, her right eye visual acuity improved to counting fingers at 1 metre. The right eye anterior segment examination was uneventful except for the RAPD.



**Figures 3a and 3b.** Fundus examination of the right eye (Figure 3a) revealed no vitritis, the optic disc was pale, the optic disc granuloma was resolving, and there was no retinal detachment. The left eye fundus (Figure 3b) showed healed choroiditis patches.



**Figures 3c and 3d.** The fundus autofluorescence image of the right eye (Figure 3c) shows a resolving granuloma around the disc and healing choroiditis lesions, while the left eye shows healed choroiditis lesions (Figure 3d).



**Figures 3e and 3f.** The OCT B scan through the right eye macula shows a normal foveal contour with subretinal hyperreflective material parafoveally (Figure 3e). A more nasal scan showed distorted architecture with choroidal hypertransmission, suggesting a healed granuloma along the scarred nasal optic disc margin (Figure 3f).

The patient was in the continuation phase of ATT with Rifampicin and Isoniazid and was asked to continue accordingly. The oral prednisolone was tapered by 10mg every 2 weeks, and the topical steroids were stopped.

## II. Discussion

Ocular TB may occur as a consequence of primary infection, dissemination of systemic infection, reactivation of latent TB, or immune-mediated disease. Uveitis is the most common ocular manifestation of TB. According to the Collaborative Ocular Tuberculosis Study (COTS-1), the most common type of choroidal involvement of TB is serpiginous-like choroiditis (SLC) (46.1%) followed by choroidal tuberculoma (CTC) (13.5%). [1-3]

TB choroiditis is more likely to affect younger patients, be unilateral or asymmetric in pattern, multifocal, irregular, variably pigmented, arranged in a serpiginoid pattern involving the posterior pole and periphery, but sparing the juxta papillary region, and be associated with vitritis.[4,5] The left eye of our patient had serpiginous like TB choroiditis with no vitritis or anterior segment inflammation, and choroiditis was also present in the papillary area unlike most of the literature cases.

In choroidal tuberculoma, a single choroidal mass is the characteristic feature on presentation, although a few adjacent satellite lesions may also be seen. The mass is typically elevated and may be accompanied by an overlying exudative retinal detachment.[6] Our patient had a huge lobulated tuberculoma in her right eye, which was below the optic disc and extending towards the macular area.

Optic disc granuloma may be the presenting sign of ocular tuberculosis. But it is very rare.[7-12] Both serpiginous like choroiditis and tuberculoma, are predominantly unilateral lesions.[5,13] Our patient had these lesions, which presented unilaterally in her. According to the COTS-1 study, choroidal granuloma occurs in immunocompromised individuals, whereas serpiginous like choroiditis occurs when the patient's immunity can fight the mycobacterium well. Both these lesions occurred simultaneously in our patient.

The delay in starting the systemic corticosteroids, along with the ATT, as the patient did not follow up, must have contributed to the gliosis of the optic disc and a lack of improvement in final visual acuity.

## III. Conclusion

The rare occurrence of choroidal granuloma, especially an optic disc granuloma, and serpiginous like choroiditis in a single patient make this case unique.

## References

- [1]. Agrawal R, Gunasekeran DV, Agarwal A, Et Al. The Collaborative Ocular Tuberculosis Study (COTS)-1: A Multinational Description Of The Spectrum Of Choroidal Involvement In 245 Patients With Tubercular Uveitis. *OculImmunolInflamm*. 2018;1–11
- [2]. Agrawal R, Gunasekeran DV, Grant R, Et Al. Clinical Features And Outcomes Of Patients With Tubercular Uveitis Treated With Antitubercular Therapy In The Collaborative Ocular Tuberculosis Study (COTS)-1. *JAMA Ophthalmol*. 2017;135(12):1318–1327.
- [3]. Agrawal R, Agarwal A, Jabs DA, Et Al. Standardization Of Nomenclature For Ocular Tuberculosis - Results Of Collaborative Ocular Tuberculosis Study (COTS) Workshop. *OculImmunolInflamm*. 2019;1–11. Vasconcelos-Santos DV, Rao PK, Davies JB, Et Al. Clinical Features Of Tuberculous Serpiginouslike Choroiditis In Contrast To Classic Serpiginous Choroiditis. *Arch Ophthalmol*. 2010;128(7):853-8.
- [4]. Gupta V, Bansal R, Gupta A. Continuous Progression Of Tubercular Serpiginous-Like Choroiditis After Initiating Antituberculosis Treatment. *Am J Ophthalmol*. 2011;152(5):857-63.

- [5]. Vasconcelos-Santos DV, Rao PK, Davies JB, Sohn EH, Rao NA. Clinical Features Of Tuberculous Serpiginouslike Choroiditis In Contrast To Classic Serpiginous Choroiditis. *Arch Ophthalmol*. 2010;128(7):853–858.
- [6]. Cangemi FE, Freidman AH, Josephberg R. TuberculomaOf The Choroid. *Ophthalmology*. 1980;87:252-8
- [7]. Majumder AK, Sheth S, Dharani V, Dutta Majumder P. An Unusual Case Of Tuberculous Optic Neuropathy Associated With Choroiditis. *Indian J Ophthalmol*. 2019;67:1210–2.
- [8]. 2. Dutta Majumder P, Ali S, Biswas J. Optic Disc Granuloma With Epididymitis:ADiagnostic Challenge. *J Ophthalmic Inflamm Infect*. 2017;7:12.
- [9]. 3. Invernizzi A, Franzetti F, Viola F, Meroni L, Staurengi G. Optic Nerve Head Tubercular Granuloma Successfully Treated With Anti-VEGF Intravitreal Injections In Addition To Systemic Therapy. *Eur J Ophthalmol*. 2015;25:270–2.
- [10]. Periyayagi M, Sangeetha S, Sherlyn Deepika KM. A Case Report Of Optic Nerve Head Tuberculosis. *TNOA J Ophthalmic Sci Res*. 2018;56:20–2.
- [11]. Bansal P, Narula R. Management Of Optic Disc Granuloma In A Patient Of Miliary Tuberculosis With IntravitrealRanibizumab In Addition To Antitubercular Therapy. *Indian J Ophthalmol*. 2020;68:1946–7.
- [12]. Mansour AM, Tabbara KF, Tabbarah Z. Isolated Optic Disc Tuberculosis. *Case Rep Ophthalmol*. 2015;6:317–20.
- [13]. Agarwal A, Aggarwal K, Pichi F, Meng T, Munk MR, Bazgain K, Bansal R, Agrawal R, Gupta V. Clinical And Multimodal Imaging Clues In Differentiating Between TuberculomasAnd Sarcoid Choroidal Granulomas. *Am J Ophthalmol*. 2021 Jun;226:42-55. Doi: 10.1016/J.Ajo.2021.01.025. Epub2021 Jan 30.