

Unilateral Choroidal Tuberculoma Masquerading As Central Serous Retinopathy

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ABSTRACT

A choroidal tuberculoma is a feature of ocular tuberculosis (TB). Tuberculoma can arise with or without systemic presentation of active pulmonary tuberculosis. It is responsive to treatment with anti-tuberculosis therapy, and prompt treatment helps resolve the lesion completely. We report a case of a solitary large active choroidal tuberculoma in one eye with subretinal fluid in fovea misdiagnosed as central serous retinopathy and healed tubercle in the other. The patient was asymptomatic clinically for other systemic signs of tuberculosis. Based on clinical history and investigations, treatment with four-drug regimen of anti-tubercular treatment with concomitant corticosteroids was started, and total healing of the lesion occurred in 3 months.

KEYWORDS: *Mycobacterium tuberculosis*, Quantiferon Gold, Optical coherence tomography

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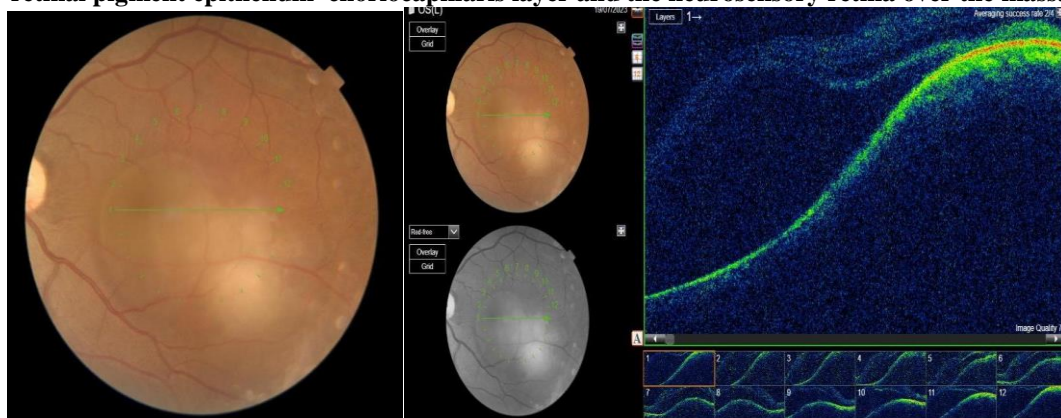
I. INTRODUCTION

Tuberculosis is a systemic infection caused by *Mycobacterium tuberculosis* that involves not only the lungs but also many other organs, including the eye. Ocular tuberculosis is a rare presentation involving any tissue of the eye (1% of all cases of tuberculosis)^[1]. Most patients with ocular involvement have no history of pulmonary or other systemic forms of tuberculosis, and 50% have normal findings on chest x-ray^[2] Ocular tuberculosis is caused either by an active infection or an immunologic reaction (delayed hypersensitivity) in the absence of any infectious agent. Since delay in diagnosis and treatment results in poor prognosis and severe sequelae, effective therapy should be initiated as early as possible. Response to the antitubercular treatment may be helpful to confirm the diagnosis of choroidal tuberculoma.

II. CASE REPORT

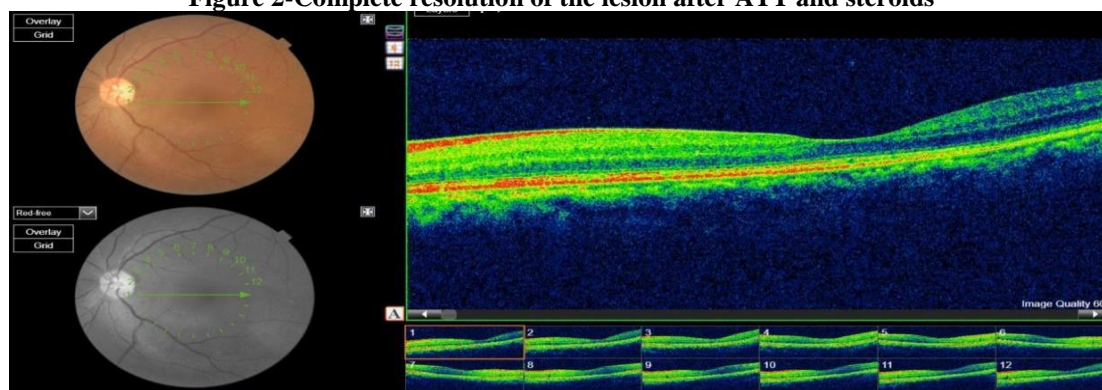
A 43-year-old female patient presented with complaints of diminution of vision in her left eye for 3 weeks. On examination, her best corrected visual acuity for distance and near was 6/9 and N6 in her right eye and 6/60 and N36 in her left eye, respectively. Slit lamp examination of the anterior segment showed early lenticular changes in both eyes and intraocular pressure in both eyes were normal. Vitreous was normal with no cells or haze. Dilated fundus examination of the right eye revealed a healed macular scar. The left eye showed a single ill-defined, yellow subretinal lesion with dimensions of 4.5×3 mm located along the inferotemporal temporal arcade with surrounding edema. There was associated subretinal fluid in fovea adjacent to lesion. OCT (optical coherence tomography) in the left eye showed a large choroidal elevation and adjacent serous detachment of the neurosensory retina involving the macular area [figure 1].

Figure 1 -Choroidal mass associated with a serous retinal detachment. Note the contact zone between the retinal pigment epithelium–choriocapillaris layer and the neurosensory retina over the mass.



This clinical picture had a high suspicion of ocular tuberculosis and patient was sent for laboratory investigation. Tuberculin skin test (TST) and QuantiFERON GOLD was positive while other investigations were negative. Chest X ray was normal. On the basis of these findings, patient was diagnosed with choroidal tuberculoma. Management with anti-tubercular treatment in the form of four drugs with isoniazid, ethambutol, pyrazinamide, and rifampicin for 3 months and isoniazid and rifampicin for 6 months was started. This was supplemented with prednisolone tablet 40 mg a day for 1 week tapered to 5 mg weekly to help resolve the surrounding choroidal inflammation. On subsequent followups, subretinal fluid started to resolve followed by reduction in the size of choroidal tuberculoma. On review after 3 months, the patient showed an improvement in her best corrected visual acuity to 6/9 and N6 in the left eye. On examination, the choroidal tuberculoma and subretinal fluid was found to have completely resolved [figure 2].

Figure 2-Complete resolution of the lesion after ATT and steroids



III. DISCUSSION

Choroidal tuberculoma is one of the most common ocular manifestation of ocular tuberculosis due to dissemination of the bacillus via the blood stream. They may manifest with or without active pulmonary tuberculosis. Choroidal tubercles present usually as unilateral but may be solitary or multiple lesions, yellowish with ill defined borders located in the posterior pole. They may vary in their presentation with features such as associated hemorrhage, striae, or exudative retinal detachment. Differential diagnosis of choroidal tuberculoma include syphilis, toxoplasmosis, sarcoidosis, brucellosis, histoplasmosis, hemangioma, metastasis, foreign body, and amelanotic melanoma. Choroidal tuberculoma has been reported in association with AIDS, tuberculosis of the spine, and miliary tuberculosis and masquerading as choroidal tumors [5,6]. An ocular involvement which appear innocuous could be associated with significant systemic tuberculosis that may need thorough investigations [7,8]. Choroidal tuberculomas can manifest in the presence or absence of active pulmonary disease, and even underlying latent tuberculosis has to be treated with ATT [9]. These tubercles can sometimes remain asymptomatic and may not always incite inflammation but associated anterior uveitis have been reported [10].

Definite diagnosis of choroidal tuberculoma is confirmed by histopathological examination of tubercles which is not practical [11]; therefore, diagnosis of choroidal tuberculoma is usually presumptive and is based on clinical and laboratory findings. QuantiFERON-TB or enzyme-linked immunosorbent spot has become a new technique to diagnose TB infection. QuantiFERON-TB is an indirect test for *M. tuberculosis* infection and has higher specificity than tuberculin skin test, as it is unaffected by previous BCG [12]. PCR can be used to confirm tuberculosis in an otherwise healthy patient with negative systemic tuberculosis evaluation in a case of isolated uveal tuberculoma when other investigative modalities fail [13].

Imaging techniques, such as fluorescein angiography and B-scan, can assist in excluding other diagnoses, especially intraocular tumors (e.g., melanoma) or infective abscesses. They were not performed in this case since the diagnosis was confirmed by laboratory tests and specific OCT findings. OCT is very helpful in differentiating choroidal granulomas from other noninflammatory conditions. Salman et al described a distinctive feature of attachment between the retinal pigment epithelial-choriocapillaris layer and the neurosensory retina over the granuloma known as “contact” sign [14]. This was associated with surrounding subretinal fluid and inflammatory infiltrate in the deeper retinal layers.

Systemic treatment with the first-line combination regimen comprising isoniazid, rifampicin, pyrazinamide, and ethambutol for a total of 6–12 months has been accepted as standard therapy [15,16]. In the present case, a favorable response to treatment was demonstrated by the complete resolution of choroidal tuberculoma on OCT at 3 months.

IV. CONCLUSION

A choroidal tuberculoma is one of the most common forms of ocular tuberculosis. It is probably due to rich vascularity of the choroid which permits easy hematogenous spread of infections from a caseous primary focus elsewhere in the body by eroding blood vessels or lymphatics. We should be aware that solitary choroidal tuberculoma can occur in immunocompetent individuals. OCT is a practical tool method for confirming diagnosis and monitoring disease evolution and response to treatment. This is one of the few reported cases of solitary choroidal tuberculoma in a patient with no other sign of TB. It sheds light on the place of OCT in the diagnosis and follow-up of the choroidal mass, in terms of measuring the size of the mass and monitoring the resolution of choroidal tuberculoma.

REFERENCES

- [1]. Yehs Senhn Colyerm Zaporm Wroblewski Update On Ocular Tuberculosis. *Curropinophthalmol*201223655155623047173 [Crossref] [Pubmed] [Web Of Science @], [Google Scholar]
- [2]. Bodaghib Lehoangpocular Tuberculosiscurr Opin Ophthalmol200011644344811141639 [Crossref] [Pubmed], [Google Scholar]
- [3]. Levecq LJ, Potter P (2005) Solitary Choroidal Tuberculoma In An Immunocompetent Patient. *Arch Ophthalmol* 123(6):864–866
- [4]. Cangemi FE, Friedman AH, Josephberg R (1980) Tuberculoma Of The Choroid. *Ophthalmol* 87(3):252–256
- [5]. Shimakawa M (2000) Choroidal Tuberculoma In A Patient With Acquired Immunodeficiency Syndrome. *Jpn J Ophthalmol* 44(6):697
- [6]. Demirci H, Shields CL, Shields JA, Eagle RC Jr (2004) Ocular Tuberculosis Masquerading As Ocular Tumors. *Surv Ophthalmol* 49:78–89
- [7]. Alaraj AM, Al-Dhibi H, Al-Mezaine HS, Abu El- Asrar AM (2013) Solitary Presumed Choroidal Tuberculomas Masquerading As Choroidal Tumors. *Saudi Med J* 34(1):86–90
- [8]. Papastefanou VP, Cohen VM (2011) Tuberculoma Of The Choroid Masquerading As A Choroidal Melanoma. *Eye* 25:1519–1520
- [9]. Mansouramhaymondchoroidal Tuberculomas Without Evidence Of Extraocular Tuberculosisgrafes *Arch Clin Exp Ophthalmol*199022843823832401424 [Crossref] [Pubmed] [Web Of Science @], [Google Scholar]
- [10]. Sharma PM, Singh RP, Kumar A, Prakash G, Mathur MB, Malik P (2003) Choroidal Tuberculoma In Miliary Tuberculosis. *Retina* 23(1):101–104
- [11]. Yeh S, Sen HN, Colyer M, Zapor M, Wroblewski K (2012) Update On Ocular Tuberculosis. *Curr Opin Ophthalmol* 23(6):551–556
- [12]. Kangyaleehwoonhidiscrepancy Between The Tuberculin Skin Test And The Whole-Blood Interferon Gamma Assay For The Diagnosis Of Latent Tuberculosis Infection In An Intermediate Tuberculosis-Burden Countryjama2005293222756276115941805 [Crossref] [Pubmed] [Web Of Science @], [Google Scholar]
- [13]. Marback EF, De Souza Mendes E Jr, Chagas Oliveira RD, Parikh JG, Rao NA (2011) Isolated Uveal Tuberculoma Masquerading As An Intraocular Tumor In An Immunocompetent Patient—A Clinical-Pathologic Study With Diagnosis By PCR. *J Ophthalmic Inflamm Infect* 1:81–84
- [14]. Salmanaparmarprajamohanmvnilacgthomas pajesudasancanoptical Coherence Tomography In Choroidal Tuberculosisam *Jophthalmol*2006142117017216815274 [Crossref] [Pubmed] [Web Of Science @], [Google Scholar]
- [15]. Zhangmzhangjliuyclical Presentations And Therapeutic Effect Of Presumed Choroidal Tuberculosisretina Phila Pa2012324805813 [Crossref] [Web Of Science @], [Google Scholar]
- [16]. Khalsa, A., Kelgaonkar, A. & Basu, S. Anti-TB Monotherapy For Choroidal Tuberculoma: An Observational Study. *Eye* 36, 612–618 (2022).