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Case Report

Choroidal Tuberculoma in a Patient with Latent Tuberculosis

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Abstract

Choroidal tuberculoma is a rare ocular form of tuberculosis. A 60 year-old man presented with painless visual loss in his right eye. On examination, visual acuity was 0,16 decimal score in the right eye. He had vitreous hemorrhage, retinal hemorrhages, vascular sheathing and a yellowish white choroidal granuloma. Fluorescein angiography showed prominent peripheral vascular leakage and hypofluorescence in the region corresponding to retinal hemorrhages. Family history revealed lung tuberculosis in the patients daughter. QuantiFERON-TB Gold Plus test performed on the patient was positive. Thorax computed imaging revealed calcifying lymphadenopathy and calcified nodule in the right lung suggestive of latent TB. Choroidal tuberculoma and associated lesions responded well to anti-tuberculosis treatment and did not require systemic steroids. Early diagnosis and prompt initiation of quadruple anti-tuberculosis therapy is effective in the treatment of ocular TB lesions.

Keywords: Choroidal Tuberculoma; Latent Tuberculosis; Anti-tuberculosis Treatment

Case Report

A 60 year-old man presented with painless visual loss in his right eye. At the first examination, visual acuity was 0,16 decimal score in the right eye and 1,0 in the left eye. Intraocular pressures were 14 mmHg on the right eye and 12 mmHg on the left by applanation tonometry. In the slit-lamp examination, the anterior segment bilaterally was normal. In the fundus examination, intravitreal hemorrhage was observed in the right eye at the posterior pole, while the left eye was normal (Figure 1).

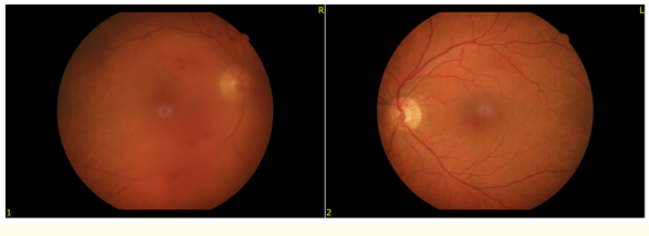

Figure 1: Colour fundus images show vitreous hemorrhage in the right eye, the left fundus is normal.

In addition, retinal hemorrhages, vascular sheathing and choroidal granuloma as an elevated whitish lesion were detected at the nasal to the optic disc in the right fundus (Figure 2).

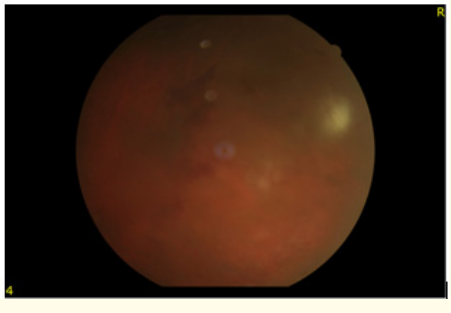

Figure 2: Right fundus photograph shows choroidal tuberculoma as a yellowish white elevated mass and accompanying retinal hemorrhages and vascular sheathing detected in the nasal to optic disc.

Fundus fluorescein angiography (FA) revealed prominent peripheral vascular leakage increasing with time and hypofluorescence in the region corresponding to retinal hemorrhages in the right eye (Figure 3).

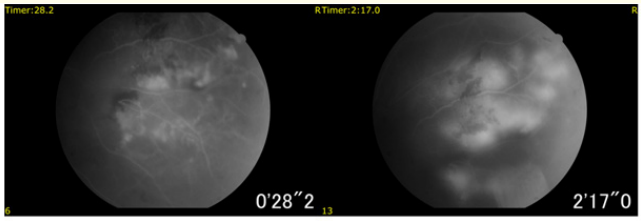

Figure 3: Fluorescein angiography showing prominent peripheral vascular leakage and hypofluorescence in the region corresponding to retinal hemorrhages in the right eye

With these findings, the patient was followed up clinically with a preliminary diagnosis of posterior uveitis, choroidal granuloma and accompanying retinal vasculitis. Patient reported effort dyspnea. Family history revealed lung tuberculosis in the patients daughter. Although tuberculosis was considered in the foreground of the patient, he was consulted to the relevant clinics in terms of retinal vasculitis etiology. Thorax Computed Imaging (CT) showed calcifying lymphadenopathy and calcified nodule in the right lung suggestive of latent TB. Serum ACE value was 33,3 U/L and calcium value was 9,4 mg/dl within normal range. Paranasal sinus CT was normal. The patient had no clinical findings suggestive of active tuberculosis, sarcoidosis or granulomatous polyangiitis. There was no abnormality in the rheumatological examination of the patient. Serological examinations for Toxoplasma, Syphilis and HIV were negative. QuantiFERON-TB Gold Plus test performed on the patient was positive. The patient without active tuberculosis was diagnosed as retinal vasculitis and choroidal tuberculoma due to latent tuberculosis.

Topical steroid and cycloplegics were first used in the medical treatment of the patient. Isoniazid, rifampicin, ethambutol and pyrazinamide were started for 2 months as quadruple anti-tuberculosis therapy (ATT), and then he received dual isoniazid and rifampicin treatment for 4 months. In this process, after the vitreous hemorrhage cleared, laser photocoagulation was applied to the ischemic retinal areas. Also barrier photocoagulation around the granuloma was performed to prevent retinal traction and further leakage. At the end of the 6-month follow-up, his visual acuity improved to 1,0. Intraocular pressure was 10 mmHg in the right eye and 12 mmHg in the left eye. Anterior segment was bilaterally normal. On fundus examination with a 90 diopter lens, vitreous hemorrhage disappeared in the right eye, retinal hemorrhages and choroidal tuberculoma regressed. The posterior segment was normal in the left eye (Figure 4).

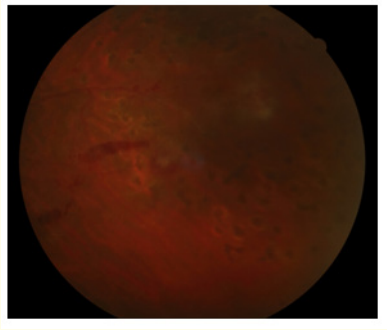

Figure 4: Clearance of vitreus hemorrhage and regression of retinal tuberculoma after ATT. Laser scars are also visible around the lesion.

In addition, the patient's dyspnea and post-ejaculation pain complaints disappeared systemically after ATT. The clinical follow-up of the patient continues.

Discussion and Conclusion

Tuberculosis (TB) is a chronic granulomatous infection caused by the airborne, obligate aerobic, acid-fast bacillus Mycobacterium tuberculosis that most commonly affects the lungs [1]. Ocular TB is increasingly recognized as a common cause of uveitis in both endemic and non-endemic countries [2]. It is a rare event comprising 1% of all cases of TB and can occur with or without evidence of systemic TB [3]. The primary mechanism by which TB affects the eye is hematogenous spread. However, local dissemination and hypersensitivity reactions may also cause intraocular manifestations [4]. Ocular TB often affects the ciliary body and choroid due to its high oxygen concentration, and posterior uveitis, in particular, is the most common form of ocular tuberculosis [5]. Among the forms of intraocular involvement, focal or multifocal choroidal lesions such as tuberculoma or serpiginous choroiditis, retinal lesions such as retinal vasculitis, optic nerve lesions such as optic disc granuloma or optic neuritis as well as anterior and

intermediate uveitis can be counted [4]. Less commonly, intraocular TB may present as a large solitary tuberculoma generally located in the posterior pole. Rapid multiplication of the bacilli within a tuberculoma can cause tissue destruction through liquefactive necrosis, thus forming a surrounding exudative retinal detachment [3].

Tuberculin skin test and interferon gamma release test (IGSA) QuantiFERON-TB Gold are useful tests for detecting latent TB, especially in patients with clinical findings specific to intraocular TB and no other systemic symptoms or findings. Today, it is reported that IGSA is more specific than tuberculin skin test in detecting intraocular TB as it is unaffected by previous BCG [3,6]. TB retinal vasculitis (TRV) more commonly involves veins and is characterized by vitritis, retinal hemorrhages, and neovascularization. Eales' disease is included in the differential diagnosis of TRV because of its clinical similarity. Neovascular complications accompanying occlusive vasculitis are seen in both diseases [7]. TRV typically presents with exudative, segmental, hemorrhagic retinal vasculitis, often accompanying perivascular or subvascular choroiditis, vitritis, and disc edema and macular edema when localized in the posterior pole [8]. Eales' disease, on the other hand, is seen as an isolated retinal vasculitis that is typically non-segmental, peripheral, minimally exudative, and nonhemorrhagic. It is rarely associated with choroiditis, vitritis, and macular edema [9].

TRV can be successfully treated with ATT alone [10]. The ATT treatment protocols used in ocular TB are similar to the protocol in pulmonary or extrapulmonary TB. It is recommended to use isoniazid, rifampicin, ethambutol and pyrazinamide for 2 months initially, followed by 4-7 months of treatment with isoniazid and rifampicin [11]. In addition, oral corticosteroids can be used when inflammation threatens vision, provided that they are used together with ATT, because it is likely that there is an immunological component in the pathogenesis of TRV. Also, systemic steroids can be used in cases that paradoxically worsen due to severe inflammatory response after ATT (Jarisch-Herxheimer reaction). However, choroidal tuberculoma and associated retinal vasculitis responded well to ATT and systemic steroids were not given in our patient.

Capillary loss and extraretinal neovascularization as a result of inflammatory vascular occlusions require peripheral retinal laser photocoagulation to ischemic areas identified by FA. Photocoagulation is contraindicated in the presence of active vasculitis because of the greater release of angiogenic factors that stimulate neovascularization [12]. In large patient series, vitreous hemorrhage was reported in more than half of TRV patients. We emphasize that these cases should be followed carefully and regularly because untreated recurrent vitreous hemorrhages can lead to tractional retinal detachments, iris neovascularization and neovascular glaucoma.

In conclusion, although it is rare, choroidal tuberculoma and accompanying hemorrhagic retinal vasculitis can occur in latent TB. Early diagnosis and prompt initiation of quadruple ATT is effective in the treatment of these lesions without sequela. Careful history and regular follow-up are the essential parts of the management.

This study was not reported elsewhere. There are no conflict of interest among authors.

The patient provided written informed consent for publication of this paper and accompanying images.

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