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Case Report

Concurrent Occurrence of Choroidal, Optochaismatic and Intracranial Tuberculomas: A Paradoxical Reaction of Anti Tubercular Drugs

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Abstract
Paradoxical response in CNS tuberculosis poses a diagnostic challenge in the management. We describe a 35 year-old immunocompetent female with documented tubercular meningitis with normal fundus and visual acuity without any history of tuberculosis and antitubercular drugs therapy (ATT),being treated with first line ATT, who 4 months later ,developed visual impairment in both eyes. Funduscopy showed the presence of a choroidal tuberculoma in her left eye. Brain MRIs revealed multiple tuberculomas intracranially and around the optic chaisma. ATT with addition of high dose steroid was continued. Following 2 years, she had no visual deficit. She was diagnosed with concurrent development of intracranial, optochaismatic and choroidal tuberculomas as a paradoxical reaction to ATT which is a rare occurrence and is yet not reported to our knowledge .Visual impairment developing in a patient on treatment with ATT should give rise to a suspicion of rare occurrence of optochiasmatic and choroidal tuberculomas thus preventing vision loss.

Keywords: *Choroidal , optochaismatic tuberculoma, intracranial tuberculoma,*

Introduction

Paradoxical response has been defined as recurrence or appearance of fresh symptoms, physical and radiological signs in a patient who had previously shown improvement with appropriate antitubercular therapy (ATT). There is now need for greater understanding regarding the rare presentations, diagnosis and management of paradoxical response in CNS tuberculosis.

Tuberculomas may rarely develop during treatment of Tubercular meningitis (TBM) around the anterior optic pathway including the optic nerve, optic chiasm , threatening vision [1]. We describe a paradoxical occurrence of concurrent choroidal, optochaismatic and multiple intracranial tuberculomas in an immunocompetent patient during the 4th month of ATT.

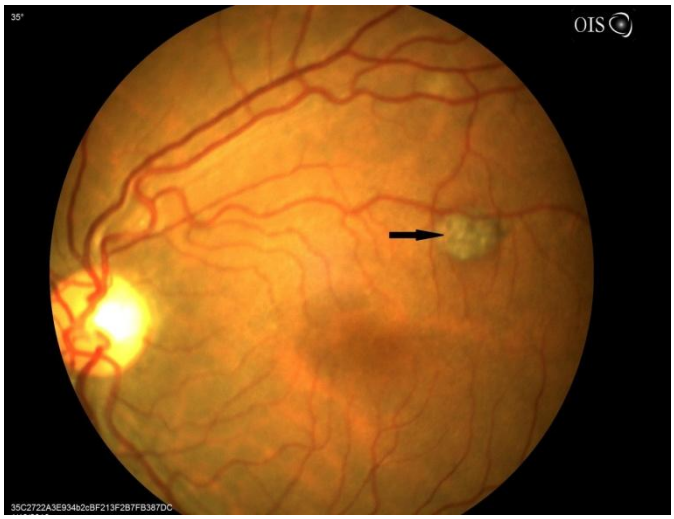
Case Presentation

A 35-year-old non diabetic, non hypertensive immunocompetent female, with documented tubercular meningitis based on clinical, laboratory and radiological data ,with normal fundus and visual acuity without any history of tuberculosis and antituberculous drugs therapy (ATT) was started on first line ATT as combination of rifampicin, isoniazid, pyrazinamide and ethambutol, as well as corticosteroids for four weeks with gradual tapering. Following 4 months after starting the therapy she presented in our neurology outpatient department with complaints of headache and progressive diminution of vision in both eyes since 20 days.

After the initial improvement with ATT, she started to suffer vision diminution. On examination the best corrected visual acuity was 6/18 in right eye and finger counting of 1 metre in left eye (snellen). Bilateral intraocular pressures were normal. Funduscopy showed choroidal tuberculoma in left eye (*Fig 1a and 1b*). Rest of systemic examinations were unremarkable. CSF analysis showed raised proteins, normal sugar and lymphocytic pleocytosis. CSF culture was negative for tubercle bacilli. MRI brain axial view post contrast T1 weighted (*Fig 2)* showed multiple ring enhancing lesion clustered around optic chiasma in the suprasellar cistern, sella, interpeduncular fossa and also intracranially in bilateral frontoparietal region.

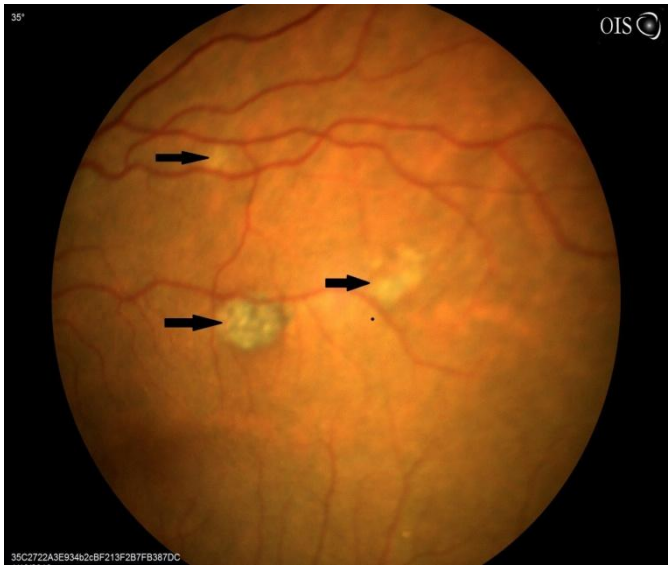
Clinical features and imaging findings were compatible with a diagnosis of TBM with multiple brain tuberculomas complicated by optochiasmatic and choroidal tuberculomas resulting in neuro-opthalmologic manifestations, possibly due to paradoxical response to treatment. ATT was continued along with high dose corticosteroids. 2 years later, her visual acuity was normal, and she had no residual visual symptoms.

Fig 1a



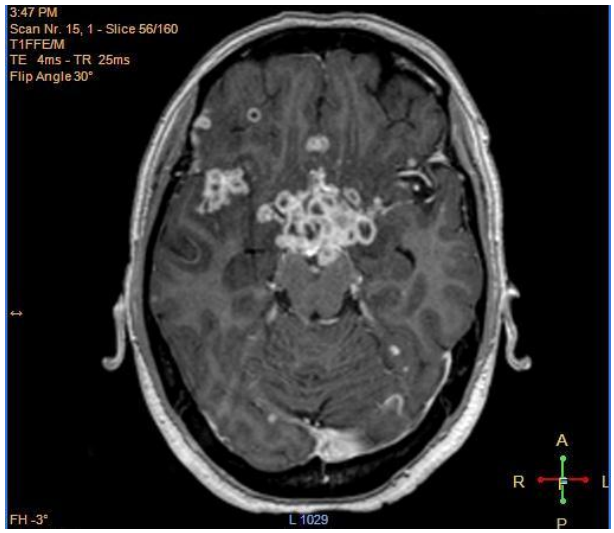
Left fundus photograph showing a choroidal tuberculoma (black arrow) temporal to optic disc

Fig 1b



Left fundus photograph showing 3 choroidal tuberculoma (black arrows) more temporally to optic disc

Figure-2



MRI BRAIN axial view Post-gadolinium enhanced T1W image in axial section showing multiple ring enhancing lesions clustered around optic chiasma and intracranially in frontoparietal region

Discussion

Paradoxical response is now increasingly being recognized as a cause of subsequent deterioration in cases of CNS tuberculosis despite adequate and appropriate therapy. Few cases have been reported regarding the paradoxical response in CNS tuberculosis. Ilir Ahmetgjekaj et al. reported paradoxical growth of Optochiasmatic Tuberculoma during the Treatment of Tuberculous Meningitis[(2)]. Pauranic et al reported two patients of TBM who developed tuberculoma during the course of regular chemotherapy and reviewed 12 similar cases collected from literature [(3)]. In context with paradoxical development of tuberculomas, we face serious problem regarding the diagnosis and management in the absence of positive tests of culture and sensitivity for Mycobacterium tuberculosis. One of the largest series of 10 patients with paradoxical response, reported from India suggested that close monitoring of patient with continuation of drugs already in use with addition of steroid, increasing the dose of drugs already in use and/or addition of second line ATT is the only the practical solution regarding the management[(4)]. In our case we continued with ATT with addition of high dose steroid. On follow up of 24 months, she recovered with no residual visual deficit.

The duration of paradoxical response range from two weeks to 18 months after the initiation of ATT by various authors[(5,6)]. The interaction between host's immune response and the direct effect of mycobacterial products was suggested as a possible explanation for the paradoxical reaction [(7,8)].

Concurrent choroidal and intracranial tuberculomas is extremely rare and only two case reports were found in the literature [(9,10)] but as a paradoxical reaction , has yet not been reported. One must be aware of such a rare occurrence of paradoxical optochiasmatic and choroidal tuberculomas as a cause of visual impairment in the spectrum of tuberculosis and its treatment.

Early recognition of the paradoxical response, clinical judgement, regular follow up and continued ATT and steroid therapy may help in preserving the visual function.

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