

Case Report

A CASE OF DISSEMINATED TUBERCULOSIS WITH OCULAR INVOLVEMENT

Md Fekarul Islam¹, Devdeep Mukherjee², Ritabrata Kundu³,
Prabal Chandra Niyogi⁴ & Joydeep Das⁵

¹Post Graduate, ²Senior Resident, ³Professor, ⁴Deputy Director, ⁵Assistant Professor, Institute of Child Health, Department of Pediatric Medicine, Institute of Child Health, Biresh Guha Street, Kolkata, West Bengal, India.

Correspondence :

Devdeep Mukherjee

Flat 6F, Uttara Co-operative Housing Society, 13, Broad Street, Kolkata - 700 019, West Bengal, India.

E-mail : devdeep_dm@rediffmail.com

Abstract :

Disseminated Tuberculosis (DTB) refers to tubercular involvement of two or more non-contiguous sites and is commonly associated with immunocompromised state. It is an unusual presentation of Tuberculosis (TB), especially in the absence of immunodeficiency. 1.4% of patients with Pulmonary Tuberculosis (PTB) develop ocular manifestations but many patients with ocular TB have no evidence of PTB. Tuberculosis can cause a wide variety of ophthalmic findings, ranging from the ocular surface through the optic nerve and to the central nervous system. In this article, we report a case of Disseminated Tuberculosis with ocular involvement in a 5 years old female. Our case is unique for the presence of bilateral squint, unilateral nebular type of corneal opacity, bilateral iritis with posterior synechiae and cataract at the same time. It lays emphasis on the fact that a patient with tuberculosis should be screened for multiple foci.

Keywords : Disseminated Tuberculosis (DTB), posterior synechiae, squint, cataract

Case Report :

A 5 years female child was admitted with the history of evening rise of temperature (100°F-101°F) for last 10-12 days which was associated with cough for same duration. She was also having nausea, vomiting, generalized headache and decreased appetite for last 5-6 days. She also complained of visual disturbances and photophobia for last 15 days.

There was no significant past history. There was no history of contact with PTB. She had received all her vaccines as per National Immunization Schedule. Her developmental milestones were also normal as per age. Her ophthalmological examination had also been done 5 months back as she was complaining of headache and was recorded to be normal.

On physical examination, the child was irritable and disoriented. Her vitals were stable. There were obvious bilateral squint and corneal opacity on the right eye. There were few

scattered crepitations on chest auscultation. There was no hepato-splenomegaly or meningeal sign. She had no lymphadenopathy. No other focal neurological signs were evident.

Following admission, her blood count showed Hemoglobin 10.2gm/dl, Total Leucocyte Count 10,100/cumm with Neutrophil 66% and Lymphocyte 30%, Platelet count 5 Lakh/cumm, Reticulocyte count 1.2%, Erythrocyte sedimentation rate 16 mm in first 1hour. C-reactive protein was 20.6 mg/dl. HIV serology was non-reactive. Chest X-Ray revealed bilateral diffuse miliary mottling suggestive of Miliary Tuberculosis [Figure 1].

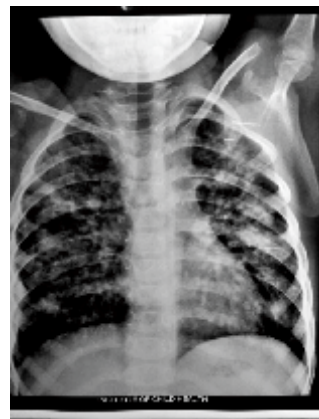


Figure 1: Mantoux test was 10 mm in transverse dimension. Zeihl- Neelsen stain for acid fast bacilli. Early morning gastric aspirate was positive for 2 consecutive days. Cerebro-spinal fluid study showed cells of 50/cumm with all lymphocytes, protein 64.6gm/dl, sugar 55gm/dl (capillary blood glucose-90 mg / dl), Adenosine Deaminase 8.9 U/L (normal upto 10 U/L).

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Ophthalmological check-up revealed bilateral squint, right side nebular type of corneal opacity, bilateral iritis, festooned shaped pupil with posterior synechiae and cataract. Posterior segment could not be examined properly due to presence of corneal opacity and cataract.

Magnetic resonance imaging (MRI) of Brain revealed multiple granulomatous lesions suggestive of Tuberculoma in right fronto-parietal and left cerebellar region with perifocal oedema [Figure 2]. Her immunological profile and CD4 and CD 8 counts were all normal.

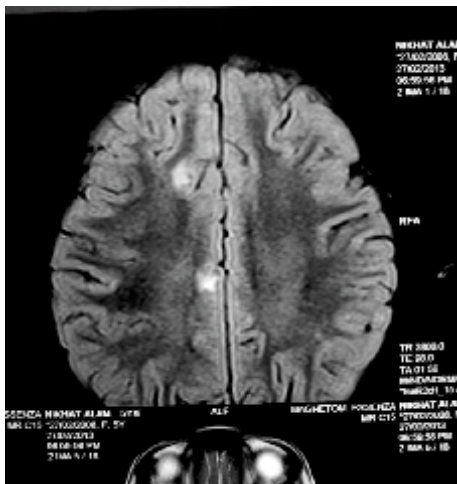


Figure 2: She was started on anti-tubercular treatment (ATT) with Isoniazid, Rifampicin, Pyrazinamide and Ethambutol (HRZE) daily along with intravenous Pantoprazole and Dexamethasone in a dose of 0.15 mg/kg 6 hourly. On day 5 of ATT, her sensorium improved, she became clinically better and was accepting oral feeds. We discontinued Dexamethasone and shifted over to oral prednisolone in a dose of 2 mg/kg/day in two divided doses. On day 6, she was communicating well and was discharged on day 8 and was advised to continue ATT for 9 months on alternate day therapy (2H₃R₃Z₃E₃+7H₃R₃) according to updated Revised National Tuberculosis Control Program (RNTCP) and Prednisolone was continued for 6 weeks in tapering doses. On follow up she has improved and is maintaining a stable condition on completion of 9 months of ATT without any focal neurological deficit. Squint has been resolved but cataract not, and we are planning for cataract extraction.

Discussion :

DTB is a contagious bacterial infection in which TB bacteria has spread from the lungs to other parts of the body through the blood or lymphatic system. DTB develops in a small number of infected people whose immune systems do not successfully contain the primary infection [1,2]. Although previously reported, it should be specifically

screened for in any patient diagnosed with TB.

Miliary TB is a potentially lethal disease if not diagnosed and treated early. Diagnosing miliary TB can be a challenge as clinical manifestations are nonspecific. Typical chest radiograph findings may not be evident till late in the disease. High resolution computed tomography (HRCT) shows randomly distributed miliary nodules and is relatively more sensitive[3]. MRI is commonly used for the detection of abnormalities such as meningeal enhancement, infarcts, communicating hydrocephalus with signs of cerebral oedema, tuberculomas^[4,5]. Fundus examination for choroid tubercles, histo-pathological examination of tissue biopsy specimens, conventional and rapid culture methods for isolation of Mycobacterium tuberculosis (M.TB), drug-susceptibility testing, along with use of molecular biology tools in sputum, body fluids, other body tissues are useful in confirming the diagnosis^[3]. Our patient had chest x-ray features suggestive of military TB and MRI features suggestive of Tuberculoma in brain. A high index of clinical suspicion and early diagnosis and timely institution of ATT can be life-saving. Response to first-line anti-tuberculosis drugs (ATD) is good^[3].

Treatment should be promptly started with standard ATT as the condition is uniformly fatal if not treated early. Treatment protocol consists of intensive phase of 2 months with 4 drugs namely Isoniazid, Rifampicin, Pyrazinamide and Ethambutol(HRZE) followed by continuation phase with Isoniazid and Rifampicin(HR).However, there is no consensus regarding optimum duration of therapy. Treatment should be continued for atleast 6 months which may be extended upto 12 months depending on response. Children who show poor or no response at 8 weeks of intensive phase (IP) may be given benefit of extension of IP for one more month. In patients with TB Meningitis, spinal TB, miliary /disseminated TB and osteo-articular TB, the continuation phase shall be extended by 3 months making the total duration of treatment to a total of 9 months. A further extension may be done for 3 more months in continuation phase (making the total duration of treatment to 12 months) on a case to case basis in case of

delayed response and as per the discretion of the treating physician. Under RNTCP, all patients shall be covered under directly observed intermittent (thrice weekly) therapy^[6]. Similar directly observed intermittent (thrice weekly) therapy was employed in our patient for 9 months, to which she has responded.

The current incidence of ocular Tuberculosis is uncertain. 1.4% of patients with PTB develop ocular manifestations but many patients with ocular TB have no evidence of PTB. Ocular TB is most often a result of hematogenous spread during PTB or extra-pulmonary tuberculosis. Infection may also occur via local spread from an active sinus or meningeal infection. It is often unilateral and asymmetric. Tuberculosis infection of the eyelid can start discretely as a minute nodule and later become lupus vulgaris, often accompanied by lymphadenopathy^[7]. The most common manifestation of ocular involvement is uveitis, usually presenting as a chronic anterior uveitis, panuveitis or as a choroiditis. Broad posterior synechiae in patients with latent TB have been highly suggestive of tuberculous uveitis in India and Singapore. The most frequent complications related to TB-uveitis included cystoid macular edema (40%) and cataract (38.9%)^[8] Other anterior segment presentations include conjunctival

granulomas, phlyctenulosis, sclerokeratitis, interstitial keratitis, episcleritis^[7].

The most common ocular sign in posterior segments is choroidal mass followed by choroiditis [7]. The presence of choroidal lesions, with or without inflammation, is strongly correlated with systemic disease. The majority of the choroid tubercles are unilateral, and can range in size from 1-4mm to several disk sizes in diameter [9]. Other posterior segment findings include optic neuropathy and cranial nerve palsies^[9].

In our case ocular findings were bilateral squint, right side nebular type of corneal opacity, bilateraliritis, festooned shaped pupil with posterior synechiae and cataract. Posterior segments could not be examined properly due to presence of corneal opacity and cataract. We are reporting this case as Disseminated Tuberculosis is an uncommon presentation of Tuberculosis and furthermore she had distinct ocular findings.

We would specifically like to emphasise that whenever TB is found in any organ, evidence of TB in other locations should be looked for, as early diagnosis and prompt institution of proper therapy is utmost importance for TB especially for DTB.

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