Loss of vision and hearing in a case of cervical lymph node tuberculosis: A rare paradoxical reaction

Sir,

A paradoxical response in a patient infected with tuberculosis (TB) is generally defined as the clinical or radiological worsening of preexisting tuberculous lesions or the development of new lesions in a patient who initially improves with anti-TB therapy.[1] This phenomenon has been recognized for many years now, but a systemic analysis

in patients not coinfected with HIV is lacking. It remains a diagnostic dilemma as it is a diagnosis of exclusion and also unpredictable in its occurrence, duration, and its severity, and there is neither a rapid nor an accurate diagnostic test. Paradoxical reaction (PR) during anti-TB treatment is a common phenomenon reported in several studies, with an incidence of 6%–30%.[2-4] In contrast to the extensive review of paradoxical responses during anti-TB therapy in HIV-positive patients, there has been no systematic analysis of this situation in HIV-negative patients.[1,5] In this article, we report a case of an HIV-negative patient in whom paradoxical deterioration occurred during anti-TB therapy.

A 12-month-old male child presented with cervical lymphadenopathy since 2 months. No resolution was seen after the treatment with antibiotics for 2 weeks. Lymph node biopsy was done. Histopathology report showed granulomatous inflammation with epithelioid cells and caseous necrosis. *Mycobacterium tuberculosis* was detected on GeneXpert and was sensitive to rifampicin. The patient was started on CAT 1 DOTS as per the RNTCP guidelines.

Fifteen days after the start of treatment, parents noticed that the child was not able to locate things properly and used to bang on doors. The vision further deteriorated. Ophthalmoscopic examination showed normal retina. A couple of days after the loss of vision, parents noticed that child does not respond when called in normal voice.

MRI brain was done. Axial section [Figure 1] showed multiple well defined hypo-densities surrounded by hyper-densities suggestive of tuberculomas and perilesional edema. Sagittal section [Figure 2] showed scattered tuberculomas all over the frontal and parietal white matter. High axial parietal section [Figure 3] showed a characteristic tuberculous granuloma.

It was observed that the patient had disseminated TB; central nervous system (CNS) TB was not diagnosed initially as the patient did not have symptoms. However, after the start of anti tubercular treatment (ATT), immune reconstitution inflammatory syndrome leads to increase in size of tuberculomas and perilesional edema which caused loss of vision and hearing.

The patient was continued with antitubercular treatment with tapering dose of oral corticosteroids. Vision improved and so did hearing progressively. Intensive phase was extended for 1 month. Three months after starting the treatment, vision and hearing were normal.

Paradoxical response is not an unusual phenomenon, and as defined earlier, PRs are transient worsening or appearance of new signs or symptoms or radiographic manifestations of TB that occur after initiation of treatment.[1,6] PR during anti-TB treatment is a common phenomenon reported in several studies, with an incidence of 6%–30%.[2-4]

PR, despite new insights into its causation over the last few years, is a clinical dilemma till date and remains a diagnosis of exclusion. Implying that, it can only be diagnosed after excluding poor compliance of the patient to treatment, drug resistance, side effects of antitubercular therapy, secondary bacterial/fungal infections, etc. Generally, patients receive anti-TB treatment and improve initially. The PRs during the antitubercular therapy is most frequently observed in the lymph nodes but is also encountered in the brain as well as lungs.

Campbell and Dyson proposed that rapid destruction of bacilli by effective anti-TB treatment causes release of large amounts of tuberculoprotein and other cell wall products.[2] The ability of these materials to elicit a severe and potentially fatal inflammatory response has been shown in other studies.[7] Intracranial tuberculomas develop in approximately 1% of all patients with active TB and 4.5%–28% of those with tuberculous meningitis.

PR has a wide range of presentations including recrudescence of fever, enlarging adenopathies, worsening pulmonary infiltrates, pleural effusion, ascites, new or enlarging parenchymal CNS lesions and superior vena cava syndrome.[8-10]

Inflammation in the CNS during paradoxical neurologic TB may result in permanent neurological disability or death. Hence, clinicians should suspect PRs in a patient with TB on antitubercular treatment as this is a diagnosis of exclusion. Adjunctive corticosteroid therapy is often used to treat neurologic PR. In a patient with CNS TB, the exclusion of underlying retroviral disease is very essential as the neurological worsening in the coinfection of TB and HIV is well known.

In our case, suspecting the child having neurologic PR was most important. Furthermore, differentiating it from drug resistance or adverse drug reaction was equally important. Ophthalmologists and physicians must recognize the occurrence of PRs to avoid labeling the case as a new or resistant infection. The treatment of the primary disease

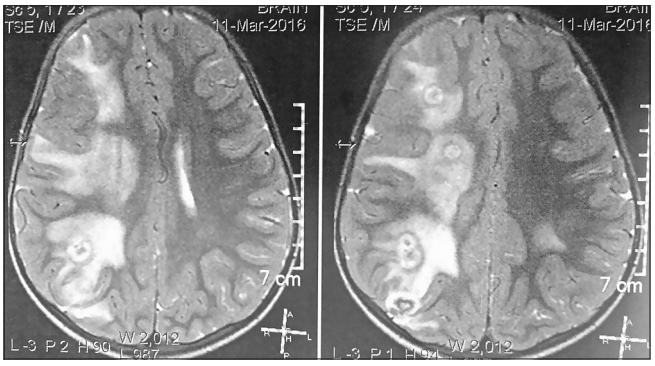

Figure 1: Axial sections showing well defined hypo-densities s/o tuberculomas, surrounded by peripheral halo of hyper-densities s/o perilesional edema

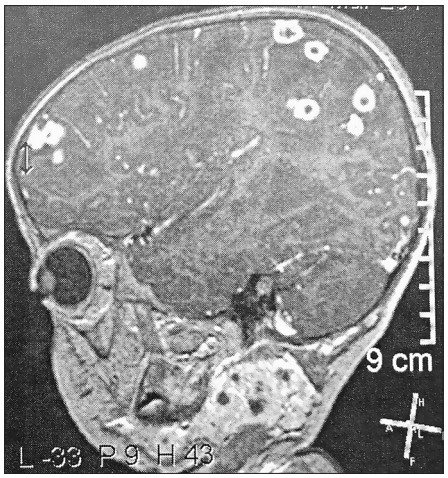

Figure 2: Sagittal section showing the distribution of tuberculomas in frontal and parietal white matter

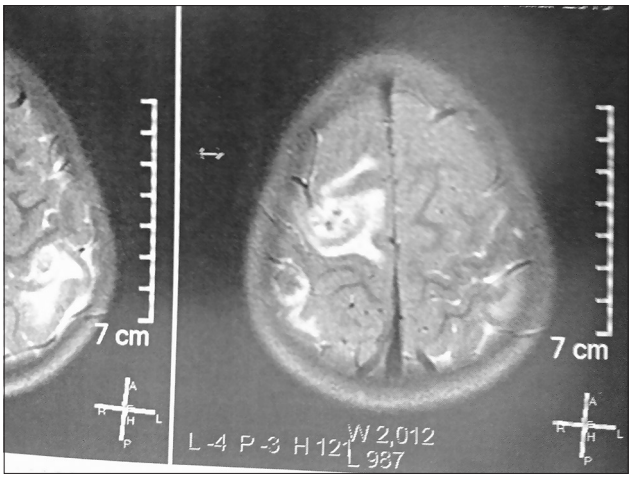

Figure 3: Parietal axial section showing the characteristic appearance of granulomatous tuberculomas

should continue, corticosteroids being added or their dose enhanced. The rationale behind the use of adjuvant corticosteroids lies in reducing the harmful effects of inflammation as the antibiotics kill the organisms. The improvement seen with steroid therapy of PR in neuro-TB may be due to a reduction in cerebral edema and/or to a direct anti-inflammatory mechanism on the cerebral vasculature.[11]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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