INTRODUCTION

Tuberculosis (TB) is a serious health problem in poor countries and a leading cause of death. Approximately eight million new cases of TB and three million deaths are reported annually.1 Pulmonary tuberculosis in Pakistan is quite common. However, there is limited data about uncommon forms of tuberculous infection of central nervous system (CNS) in Pakistan.

Although tuberculosis can involve any conceivable body part, spinal cord involvement is extremely rare. Involvement of spinal cord compared to that of brain occurs in the ratio of 1:42. Even in communities where CNS-tuberculosis is common, intra-medullary tuberculoma is rarely encountered, the incidence quoted being 2 in 100,000 cases of all tuberculosis and constitute only 0.2-5% of all CNS tuberculosis.2,3 Concurrent occurrence of intracranial tuberculomas along with intramedullary spinal tuberculoma is even more rare. Only 5 such cases have been reported in world literature.4-8

We report one such rare case of young girl diagnosed to have spinal cord intramedullary tuberculoma and concurrent multiple intracranial tuberculomas who had subsequently complete recovery with ATT without surgical treatment and follow-up MRI showed either complete disappearance or resolution of lesions.

CASE REPORT

A 17 years old girl from Islamabad was admitted in hospital with history of low grade fever for past 3 months and progressive weakness of both lower limbs for the past one month associated with urinary incontinence and numbness from waist down. There was also history of weight loss of 10 kgs in last 3 months and anorexia. On examination, she was pale and had cervical lymphadenopathy. She had paraparesis with a power 2/5 in both lower limbs proximally and distally, hypertonia, hyperreflexia in both lower limbs, bilateral upgoing plantars and a sharp sensory level at T6 with sensation of touch, pinprick and proprioception impaired below it.

She had no respiratory signs. Her Montoux test was positive and CSF examination revealed 2 WBCs normal proteins (42 mg/dl) and normal glucose (65 mg/dl). MRI of spinal cord showed a well-defined intramedullary contrast enhancing lesion opposite T6 (Figure 1).

Figure 1: MRI T1 weighted sagittal section contrast enhancing lesion opposite T6 vertebræ.
On MRI T2 weighted image the lesion was hyperintense and on administration of gadolinium the lesion showed contrast enhancement at the periphery. These findings were typical of intramedullary tuberculoma. MRI brain of the patient was done to rule out any possible lesions present intracranially, although the patient had no symptom suggesting intracranial tuberculosis. Chest radiograph of the patient were normal.

MRI brain showed multiple intense ring enhancing well defined mass lesions in frontal region, right temporal, left parietal and left cerebellar hemisphere (Figure 2).

Full dose of anti-tuberculous therapy ATT-INH, Pyrazinamide, Rifampicin, Streptomycin and intravenous steroids 1 gm for 3 days and oral steroids were given for 2 months. The patient improved symptomatically. Power in the lower limbs improved from grade 2/5 to grade 3/5 in 15 days. Sensory system also showed some improvement.

Patient was followed-up at 6 months interval, with continued improvement during the course of treatment. After one year of ATT, power in the lower limbs improved to 5/5 and she became completely asymptomatic.

Follow-up MRI of the patient was done showing the lesions in the temporal, parietal and frontal lobes completely disappeared. The intramedullary lesion opposite T6 showed marked regression in size.

**DISCUSSION**

Despite WHO's universally recommended Directly Observed Treatment Strategy, Pakistan is one of the several developing countries where tuberculosis remains an highly endemic disease. Although tuberculosis can involve any conceivable body part, spinal cord involvement is extremely rare. Involvement of spinal cord compared to that of brain occurs in the ratio of 1:42. Even in communities where CNS-tuberculosis is common, intra-medullary tuberculoma is rarely encountered, the incidence quoted being 2 in 100,000 cases of all tuberculosis and constitute only 0.2-5% of all CNS tuberculomas. Concurrent occurrence of intracranial tuberculomas along with intramedullary spinal tuberculosis is even more rare.

Thacker and Puri reported a 6-year-old girl who presented with progressive paraparesis in whom imaging revealed intramedullary tuberculoma with incidentally discovered multiple intracranial tuberculoma. Yen, et al. reported a 67-year-old man with known pulmonary tuberculosis who developed symptoms of spinal cord compression. Imaging revealed an intramedullary tuberculoma along with multiple intracranial tuberculomas. In both cases, the intracranial lesions were incidentally discovered, as in this patient. The chest X-ray of this patient was normal with no evidence of pulmonary tuberculosis, a normal ESR and she was completely asymptomatic regarding her intracranial tuberculomas. Thus, the absence of features of tuberculosis on chest X-rays being asymptomatic regarding intracranial lesions, should therefore, not rule out the possible existence of brain tuberculosis and in such asymptomatic cases MRI brain should be done to rule out possible presence of early asymptomatic intracranial tuberculomas.

However, in the other cases reported in literature, cases reported by Huang, et al.5 Shen et al. and Muthukumar, et al. reported patients symptomatic for both intracranial and intramedullary lesions.7,9

The MRI findings in the present case were typical and have been reported previously. Iso-or hypointensity of intracranial lesions on both T1 weighted and T2 weighted MR imaging are characteristic of the caseous necrotic content that is usually found in tuberculomas. Non caseous tuberculomas typically display a hypointense signal on T1 and a hyperintense signal on T2 weighted image, with homogenous enhancement after gadolinium administration. In this patient, the size of the lesion combined with the classical ring enhancement and surrounding oedema was thought to be typical of a tuberculous granuloma. The differential diagnosis of such intramedullary lesions includes granulomas, which in settings like Pakistan being the tuberculosis are the most common diagnosis, other it can be a cysticercal granulomas or neoplastic lesions like astrocytoma, metastasis or lymphoma. However, the resolution of the pathological changes in the brain as well as the spinal cord as seen on the MRI after the institution of anti-tuberculous treatment confirmed the diagnosis.

MR Spectroscopy is an exciting new development and is rapidly evolving as a reliable diagnostic tool. MRS of tuberculoma demonstrates lipid peaks at 0.9, 1.3, 2.0 and 2.8 ppm; and a phosphoserine peak at 3.7 ppm. The lipid peak is due to presence of fatty acids found in caseous material in the centre of tuberculoma. However,
currently in local settings, this diagnostic modality has limited utility due to lack of standardization and limited experience. It may become a useful and safe technique for diagnosing intracranial lesions especially tuberculomas.

ATT with corticosteroids offers an effective, inexpensive, safe and feasible option for treating intra-medullary tuberculoma, especially in developing countries where skilled microsurgical techniques may not be widely available.

REFERENCES


