

Spinal Intramedullary Tuberculoma Presenting as a Conus Lesion: A Case Report

Mohammad Hossain¹, Narendra Shalike², Ayub Ansari³, Kaisar Haroon⁴, Silak Ram Chaudhary⁵, Abdullah Al Mahbub⁶, Monsur Ahmed⁷

Abstract:

Background: Spinal intramedullary tuberculoma (SIMTB) is a rare form of spinal tuberculosis which can be easily misdiagnosed. Although it is a treatable condition, delay in diagnosis may lead to significant morbidity.

Case report: We report a case of spinal intramedullary tuberculoma with paraparesis with retention of urine and presenting as a conus lesion, mimicking as a tumor.

Conclusion: This case illustrates the risk of misdiagnosis and the importance of histological confirmation of a pathological lesion as spinal cord tuberculoma, which should be kept in mind as a differential diagnosis of the intramedullary spinal cord tumors, especially in the developing countries where tuberculosis is prevalent. It should be considered in other parts of the world as well, because of re-emergence of this menacing disease.

Key Words: Tuberculoma; intramedullary lesion; conus.

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Introduction:

Tuberculosis (TB), is endemic in the developing countries. Though spinal tuberculosis is prevalent here, spinal intramedullary tuberculoma (SIMTB) is still a rare entity. Central nervous system (CNS) involvement by TB accounts only for two per 100,000 cases, while SIMTB occurs in merely two of 1000 patients of CNS TB. 1-3 Here, we report a case of rarest of SIMTB, a conus medullaris SIMTB.

Case History:

A 22 years old female presented with mid-back pain radiating to both lower limbs for one year, hesitancy

followed by retention of bladder for ten months, progressive weakness of both lower limbs for nine months leading to inability to walk for two months, and saddle anaesthesia for two months. She denied history of any constitutional symptom relevant to TB except history of exploratory laparotomy for pelvic mass two years back, histopathologically proven to be tuberculosis. She completed 12 month of anti-TB regimen following that surgery. No clinical feature suggestive of active tuberculosis and any radiological or biochemical parameter in favour of TB were present this time.

Magnetic resonance Imaging (MRI) of thoracolumbar spine revealed an iso-to-hyperintense ill-defined intramedullary mass causing enlargement of the spinal cord between T11-L1 levels on T1WI, which was heterogeneous with more hypointensity in the center on T2WI and showed peripheral ring enhancement in contrast image. (Figure 1)

With gradual worsening of the patient's neurological condition, surgery was contemplated and gross total removal of an intramedullary, well capsulated mass of variable consistency, consisting of whitish cheesy content to firm granulomatous parts, was accomplished. Histopathology revealed granulomatous lesion composed of epithelioid cells, giant cells, lymphocytes and central caseous necrosis, conclusive of TB. Culture of pus yielded no growth. (Figure 2)

1. Associate Professor, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Dhaka
2. Resident, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Dhaka
3. Associate Professor, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Dhaka
4. Assistant Professor, Department of Neurosurgery, NINS&H, Dhaka.
5. Resident, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Kazi Nazrul Islam Avenue, Dhaka
6. Resident, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Kazi Nazrul Islam Avenue, Dhaka.
7. Resident Surgeon, NINS&H, Dhaka.

Address of Correspondence: Mohammad Hossain; MS (Neurosurgery), Associate Professor, Department of Neurosurgery, Bangabandhu Sheikh Mujib Medical University, Kazi Nazrul Islam Avenue, Shahbag, Dhaka 1000, Bangladesh, Cell: +8801819231842, E-mail: mhossain_ns@gmail.com

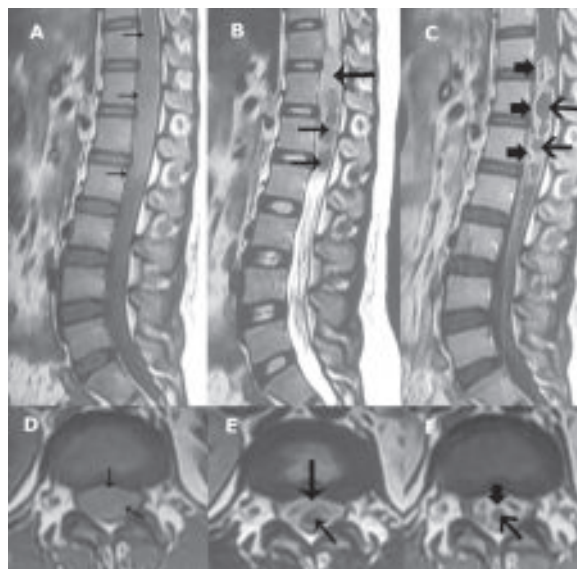


Fig.-1: MRI of Thoraco lumbar spine showing iso-to-hyperintense ill-defined intramedullary mass causing enlargement of the spinal cord between T11-L1 levels on T1WI (arrows in A & D), heterogeneous lesion with more hypointensity (small arrows in B & E) in the center on T2WI and peripheral ring enhancement in contrast image (thick arrows in C & F).

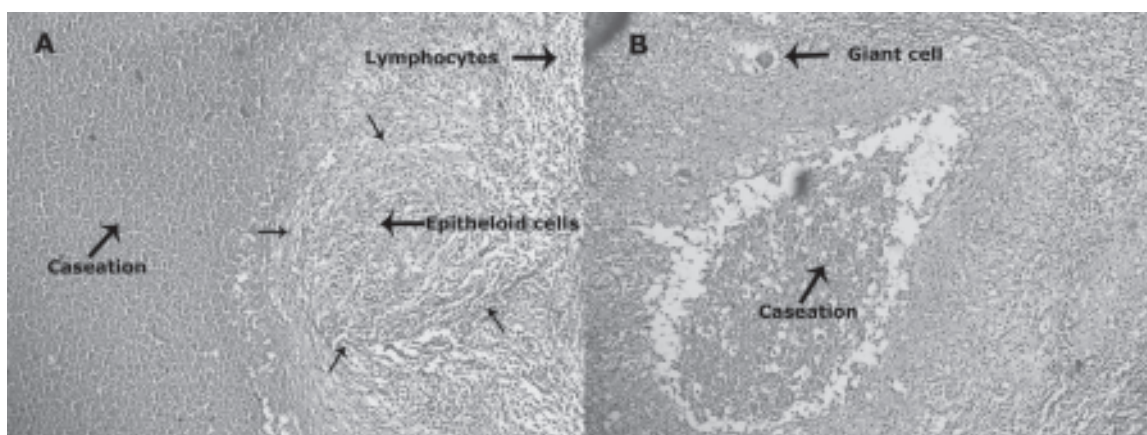


Fig.-2: Photomicrograph showing caseation (A & B), Lymphocytes (A), Epithelioid cells (A), Giant cell (B) and Granuloma (small arrows in A).

Immediate post-operatively she remained same neurologically. Standard anti-TB therapy was continued and was planned to continue for 18 months. Patient gradually improved neurologically and after three months following surgery, she was able to walk alone but her retention of bladder still persisted.

Discussion:

SIMTB, mostly induced by hematogenous dissemination or cerebrospinal fluid (CSF) infection, in about 55%-72% cases affects the thoracic region. 1, 3-6 Brain is 42 times more likely to be complicated by TB than the spinal cord, presumably due to

discrepancy between their weight and blood supply. 3, 4, 7, 8 SIMTB is most often observed in young people and evidence of active or distant TB is not apparent in about one third of patients. 3, 8 The lady in our case was in her early 20s and had SIMTB at T11-L1 level without any active TB elsewhere at the time of presentation.

Tubercle bacilli, (*Mycobacterium tuberculosis*) have the aptitude to turn into its two non-replicating stages: microaerophilic and anaerobic. The anaerobic form can lie dormant in the host for long time. Its thick waxy envelope resists many antibiotics, and offers

extraordinary safeguard from host defense. The dormant bacilli inside a caseous lesion or macrophages is not amenable to eradication by any drug. 9 Our patient had a history of pelvic TB, and despite undergoing surgery and having a full course of standard anti TB regimen at that time, it might be possible that all the bacilli were not eradicated and she harboured some bacilli in the dormant form, which reactivated to pledge the present condition.

Patients of SIMTB present primarily with features of spinal cord compression depending on location and extent of the lesion. 2, 3, 7 Concomitant systemic features of tuberculosis, with or without past history of tuberculosis and/or exposure to the disease, may or may not be present. 4 Clinically, our patient presented with features of spinal cord compression at and around T11-12 levels. Although she had no feature of active TB, her history of surgery for pelvic TB two years back seems to be related with the reappearance of TB.

MRI can precisely demonstrate location, size, character and number of lesions. 1, 4 The MRI characteristics vary according to the stage of tuberculoma. In the early phase, when the collagenous capsule is lacking and inflammatory reaction is predominant, peripheral edema is more discernible. At this stage, the lesion is isointense on both T1WI and T2WI, and enhances homogeneously. Subsequently, the collagenous capsule forms and the inflammatory reaction subsides, giving the appearance of an isointense lesion in T1WI and an iso-to-hypointense lesion on T2WI. The collagenous capsule appears as ring enhancement with a hypointense center representing caseous necrosis. 2, 3, 5 The MRI of our patient revealed an iso-to-hyper intense ill-defined lesion on T1WI in the conus with expansion of parenchyma. On T2WI, this was heterogeneously hypointense while the contrast MRI showed typical ring enhancement, suggestive of well-formed capsule and central necrosis. (Figure 1)

Differential diagnosis include ependymoma, astrocytoma, haemangioblastoma, metastasis in immunocompetent patients, while lymphoma or fungal abscess is considered in immunocompromized state. 1, 2, 5 The MRI features of our patient were consistent with an intramedullary lesion, suggestive of a SIMTB in concordance with past history, ependymoma being another possibility.

Medical therapy remains the mainstay of treatment. 1, 4, 7, 8 Decompression, when obligatory, should be performed straightway. Delay in surgery may lead to irreversible cord damage in patients with neurological deficits or in patients not responding to or deteriorating despite adequate medical treatment from possible enlargement of the lesion and progression of caseating necrosis. Surgery also helps in confirmatory histopathological diagnosis. 3-5, 7, 8 As the patient was deteriorating despite continuation of the anti TB regimen, surgery was performed. She was advised to continue the anti TB regimen for 18 months, as is our practice for all CNS TB cases.

Early surgical intervention gives satisfactory result as the duration of neurological symptoms is vital in good neurological recovery. 6, 10 Our patient recovered well, as seen at three months follow up.

Conclusion:

SIMTB should be kept in mind while dealing with an intramedullary conus lesion, especially in TB endemic zones. Because of reemergence, it should be considered in the western world as well. Reactivation of dormant infection with *Mycobacterium tuberculosis* should be strongly pondered if any patient has a history of TB in any form. With prompt diagnosis and necessary medical and surgical intervention, these patients do fairly well, leading to a near normal life.

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Conflict of Interest: None

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