Spinal intramedullary tuberculosis

First reported by Cascino and Dibble ¹⁾.

Epidemiology

Intramedullary spinal tuberculosis is rare and constitute only 0.2-5% of all CNS tuberculomas $^{2) 3)}$. The combination of intramedullary and intracranial tuberculomas is extremely rare and only few cases have been reported in the literature so far $^{4) 5) 6) 7) 8)}$.

Clinical features

Clinical presentation of spinal intramedullary tuberculosis (SIMT) is similar to intramedullary spinal cord tumor, with a characteristic subacute myelopathy, with slowly progressive paraplegia, sensory deficits, and/or bowel and bladder dysfunction.

Diagnosis

Diagnosis is strongly suspected with a clinical history of known tuberculosis in conjunction with characteristic findings on magnetic resonance imaging.

The MRI is a sensitive and non-invasive tool for diagnosing and localizing intramedullary as well as brain tuberculomas. The lesion appears as an isointense or hyperintense ring on the T1-weighted images and as an isointense or hypointense lesion on the T2-weighted images. MRI will also delineate the extent of surrounding edema. MRI also helps in determining the stage of tuberculoma formation. Presence of a bright central spot in the granuloma (target sign) is indicative of central caseation (rich foci).

Gd-DTPA enhancement MRI is more sensitive than MRI without enhancement in demonstrating the lesions of tuberculoma and arachnoiditis. In early stages of brain tuberculoma contrast MRI will show homogeneous enhancement representing the early tuberculoma stage, which may later evolve to ring enhancement with hypointense center.^{9) 10) 11)}.

Jaiswal et al. suggest that MRI of the brain should be performed in all case of intramedullary spinal tuberculoma because of the possible presence of early asymptomatic/mild symptomatic intracranial tuberculomas ¹²⁾.

Treatment

Management involves multiagent antitubercular chemotherapy without or with operative intervention.

Conservative treatment with antituberculosis medications and a short course of injectable steroids offers an effective, inexpensive, safe, and feasible option for treating intra-medullary tuberculoma, especially in developing countries ¹³⁾.

Role of steroid is largely unproven. However, in patients with peri-lesional edema short-term steroids may be helpful ¹⁴⁾. Usually, the conservative treatment is successful in achieving complete clinical neurological recovery over a period of 1 year, which is also accompanied by resolution of the tuberculomas ¹⁵⁾.

Surgery is reserved for the patients with large lesions causing significant compression, patients who do not respond to or deteriorates during conservative treatment ^{16) 17) 18) 19) 20) 21) 22) 23) 24).}

Case series

2009

Fifteen patients were analyzed. Mean age of presentation was 31 years (range: 18-45 years), with average duration at presentation being 11 months (2-24 months). Common locations: dorsal region: 7 cases, cervical: 5 cases, cervicodorsal: 2 cases and dorsolumbar region: 1 case. Sensori-motor involvement was noted in fourteen patients. Bowel and bladder involvement was seen in ten patients while one patient had respiratory distress. Only 40% of patients had secondary involvement of spine while the rest of the cases were having primary spinal intramedullary tuberculosis. Three patients had previous history of tubercular meningitis, while one patient had old pulmonary tuberculosis. There were one case each of cervical node involvement and intracranial granuloma. Twelve patients underwent surgery while others were conservatively managed, all patients received antitubercular therapy for 18 months. Nine of the twelve operated patients showed improvement in motor power, while two of the conservatively managed patients improved. Patients presenting late had a poorer outcome.

Spinal intramedullary tuberculosis is a non-malignant, treatable lesion giving a good outcome on management. Surgically managed patients showed a better outcome ²⁵⁾.

2002

During a period of 16 years (1985-2000), ten cases of intramedullary tuberculomas were diagnosed in All India Institute of Medical Sciences, Ansari Nagar, New Delhi, India. Of these, eight cases were histologically proven intramedullary tuberculomas. The clinical profile, radiological data and histological slides were reviewed.

Age ranged from 18 to 45 years (mean 29.7 years) and there was slight male preponderance (six men, four women). Duration of symptom varied from 3 to 20 months (mean 11.5 months). All of them presented with motor weakness and sensory impairment. Most common site of involvement was dorsal cord followed by cervical, cervicodorsal and dorsolumbar regions. Three patients had associated involvement of lungs, cervical lymphnodes, and brain, and one patient had past history of tuberculous meningitis. Two patients were treated conservatively but surgical excision was done in eight cases followed by medical treatment.

Radiologically, intramedullary tuberculomas should be differentiated from other space occupying lesions (SOL) to avoid unnecessary surgery especially in those patients with tuberculosis of the other organs. The incidence of intramedullary tuberculomas is likely to increase with a rise in the incidence of AIDS ²⁶.

Case reports

2017

A case of concurrent occurrence of intramedullary tuberculoma with multiple intracranial tuberculomas in a young 16-year-old boy, who presented with two weeks history of paresthesias and weakness of the lower limbs and diminution of vision in left eye, who had been treated for pulmonary tuberculosis. Magnetic resonance imaging (MRI) spine showed a well-circumscribed lesion opposite L1, which was diagnosed as intramedullary tuberculoma. As for vision complaint, on cranial imaging, he was found to have multiple round contrast enhancing lesions, which were diagnosed as intracranial tuberculomas based on their typical MRI findings. He had complete recovery with conventional treatment of anti-tubercular therapy and steroids, without any surgical intervention.

They suggest that MRI of the brain should be performed in all case of intramedullary spinal tuberculoma because of the possible presence of early asymptomatic/mild symptomatic intracranial tuberculomas ²⁷⁾.

A 9 month old boy with a retrospectively-recognized history of pulmonary TB presenting with fever and back tenderness found to have lower extremity hypertonia and clonus. Imaging revealed concurrent intracranial and spinal intramedullary tuberculomas. The patient was treated for hydrocephalus with external ventricular drainage followed by T8-10 laminectomy, drainage of abscess, and duraplasty. Parietal lobe biopsies proved the tuberculous etiology of intracranial lesions ²⁸⁾.

Varghese et al. report the case of a 49-year-old female with dull aching pain of both upper limbs of 1week duration. On examination, she had no motor deficits. All the deep tendon reflexes were normal. The plantar responses were flexor bilaterally. Cervical spine imaging favored intramedullary tumor. She had partial relief of symptoms with steroid treatment. Repeat imaging done 1 month later revealed mild interval enlargement of the intramedullary lesions and multiple enlarged mediastinal and hilar nodes. Endoscopic ultrasound-guided fine-needle aspiration cytology of mediastinal nodes was suggestive of granulomatous inflammation. Hence, SIMT was considered as the probable diagnosis. The patient was started on antituberculosis therapy ²⁹.

2015

A 25-year-old male who presented with a history of progressive paraparesis. Initial diagnosis was made as an intramedullary tumor by magnetic resonance imaging (MRI). The treatment of the patient involved is complete surgical excision of intramedullary lesion followed by appropriate antituberculous therapy. Postoperatively, his neurological symptoms were dramatically improved. With combination of both surgical and medical treatments, excellent clinical outcome was obtained.

This case illustrates the risk of misdiagnosis and the importance of histological confirmation of a pathological lesion as spinal cord tuberculoma prior to surgical therapy, which should be kept in mind as a differential diagnosis of the intramedullary spinal cord tumors ³⁰.

2012

A patient with dorsal intramedullary tuberculoma who improved clinically as well as radiologically with antituberculous treatment and steroids ³¹⁾.

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