

Intramedullary Tuberculoma Concomitant with Intracerebral Disseminated Tuberculoma

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Abstract

Disseminated tuberculosis to the brain and spine may present before typical tuberculosis systemic symptoms manifest. We present a case where a patient presented with progressive paraplegia and change in mental status. Imaging revealed a thoracic tuberculoma and disseminated disease to the brain. Conservative treatment was initiated with improvement in sensorium. Due to lack of surgical success in the literature for tuberculoma resection and 14 day delay in presentation to our institution from onset of paraplegia surgical intervention was not considered for this patient.

Keywords Intramedullary Infection; Intracranial; Spinal Cord; Tuberculosis; Tuberculoma

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Case Report

Tuberculosis of the Central Nervous System (CNS) involves up to 10-15% of all tuberculous infections and is associated with high rates of morbidity and mortality [1]. We report a case of spinal intramedullary tuberculoma in association with multiple intracranial tuberculomas in a HIV negative patient who initially presented with complaints of

progressive lower extremity weakness without signs of systemic involvement. To our knowledge this is the fourth case to be presented in world literature of disseminated tuberculoma in the brain and spinal cord.

A previously healthy female with no significant medical history, born outside the United States in a region where tuberculosis is endemic, was referred for evaluation of progressive lower extremity weakness and altered mental status. The patient's lower extremity weakness and numbness progressed to complete paraplegia two weeks prior to presentation at our institution, along with a one day history of headache, confusion and urinary retention.

Clinical examination revealed the patient arousable to sternal rub and following simple commands. Bilateral lower extremity weakness was evident at 0 out of 5 at all stations with absent lower extremity reflexes. Sensory exam revealed diminished sensitivity to light touch and pinprick extending to the T-12 level. Upper extremity examination was unremarkable. Axillary temperature was recorded at 103 degrees Fahrenheit. Conventional non-contrast head CT showed an area of hypo density in the left frontal lobe. Magnetic Resonance Imaging (MRI) of the brain revealed multiple enhancing mass lesions in the left frontal lobe as well as the right cerebellum (Figure 1). MRI of the thoracic spine showed an intramedullary enhancing mass lesion resulting in expansion of the cord with associated abnormal enhancement of the nerve roots (Figure 1). The patient underwent a lumbar puncture yielding an opening

pressure of 18 mm H₂O. Cerebrospinal fluid analysis included an elevated protein of 5,436 mg/dL, glucose level of 17 mg/dL, a red blood cell count of 30/uL, and a white blood cell count of 370/uL with 99% lymphocytes. Cerebrospinal fluid acid-fast bacilli stains were positive and cultures grew *M. Tuberculosis*. Based on these findings a diagnosis of intramedullary tuberculoma was made.

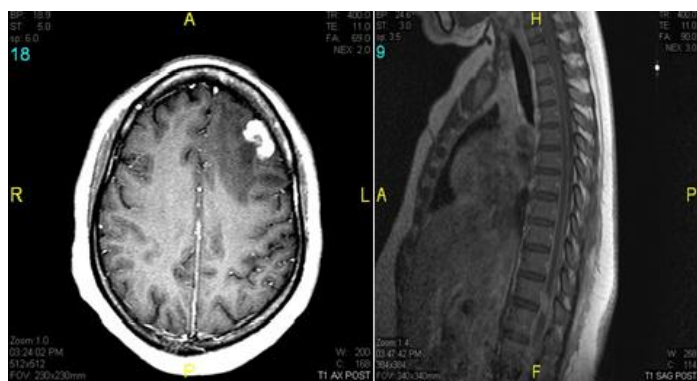


Figure 1: Gadolinium-enhanced T1 weighted MRI. Left: enhancing mass lesion in the left frontal lobe (arrow) Right: Sagittal image showing a diffuse area of enhancement in the lower thoracic spine (arrow)

The patient was started on anti-tuberculous therapy with isoniazid, ethambutol, pyrazinamide and rifampin. Due to the long duration between onset of paraplegia and presentation to our institution, and disappointing surgical results cited in the literature, the patient was treated conservatively. The patient showed improvement in mental status following initiation of anti-tuberculous drugs with no improvement in motor function. Seven days after the start of medical therapy CSF analysis revealed total protein 1801 mg/dL, down from 5436 mg/dL and new neuroimaging studies of the thoracic spine showing stable appearing tuberculoma with decreased nerve root enhancement.

Since the description of intramedullary tuberculosis first described by Abercrombie in 1928, there have been many case reports and few small case series [2]. Only three other cases have been reported in the world literature of simultaneous spinal cord and brain tuberculomas, only two of which were case reports [3-5]. In both of the prior case reports, the patient had an initial presentation showing signs of systemic disease

and was diagnosed with pulmonary military tuberculosis. Recent case reports have described intramedullary tuberculomas in HIV positive patients with other evidence of tuberculosis infection [6]. In our case, the patient was HIV negative with five months of lower extremity weakness and numbness before the onset of systemic symptoms with no signs of pulmonary involvement, both of which are different from the prior studies.

Both intracranial and intramedullary tuberculosis tend to occur predominantly in young people with the majority of the lesions located in the thoracic spine [7, 8]. Clinical presentation is variable with the majority of intramedullary tuberculomas presenting as space occupying lesions. Much less common is constitutional symptoms such as fever, sweats and weight loss. In the prior case reports of combined intramedullary and intracranial tuberculomas, constitutional symptoms were present at the time of diagnosis [3, 4].

Medical therapy with anti-tuberculous drugs is the mainstay for treatment of intracranial tuberculomas, whereas surgery is reserved for medical failure. However progression of disease despite antitubercular therapy is documented [7]. According to Shashank et al series, surgery should be reserved for patients presenting with acute neurological deterioration or not showing any improvement with antitubercular therapy [4].

A rare case of disseminated tuberculoma of the brain and spinal cord is presented with an unusual presentation of spinal tumor syndrome before systemic symptoms. With the increasing prevalence of HIV, there will likely be a rise in these rare presentations of tuberculosis. One needs to be cognizant that tuberculosis infection should be considered in the differential diagnosis of intramedullary spinal cord masses concomitant with intracerebral disseminated tuberculoma in an immunocompetent patient.

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