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Intradural Extramedullary Tuberculoma of the Spinal Cord : A Case Report

Intradural extramedullary (IDEM) tuberculoma of the spinal cord is uncommon entity and moreover, few reports have been documented on concurrent IDEM and intracranial tuberculomas. Authors report a case of IDEM spinal tuberculoma having intracranial lesion simultaneously. A 49-year-old woman suffered from paraparesis and urinary incontinence while being given medical treatment for tuberculous meningitis. Magnetic resonance imaging (MRI) revealed an IDEM mass lesion between the T1 and T2 spinal levels, and multiple intracranial tuberculous granulomas. Surgical resection of the IDEM tuberculoma followed by anti-tuberculous medication resulted in good outcome.

Key Words: *Tuberculoma; Spinal Cord; Magnetic Resonance Imaging (MRI)*

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INTRODUCTION

Intradural spinal tuberculomas comprise only 2 to 5% of central nervous system (CNS) tuberculomas (1-3). There are only 17 detailed reports of intradural extramedullary (IDEM) tuberculomas of the spinal cord in literature (1, 4-14). Moreover, no previous reports have been documented on concurrent IDEM and intracranial tuberculomas. Authors report a case of IDEM tuberculoma of the spinal cord with concurrent multiple intracranial involvement.

CASE REPORT

This 49-year-old woman was admitted to our hospital on October 3, 1997, because of left-side weakness and dysarthria which developed one day ago.

She had suffered from headache and drowsy consciousness eight months before the admission. Her cerebrospinal fluid (CSF) bacteriologic examination revealed positive for *Mycobacterium tuberculosis* polymerase chain reaction (PCR) and *Mycobacterium tuberculosis* were isolated from CSF culture. Brain MRI showed multiple contrast enhanced nodules in the right temporal lobe and left portion of the basilar cistern (Fig. 1). So she had been diagnosed as tuberculous meningitis and started with anti-tuberculous medication (isoniazid, rifampin, pyrazinamide) since then.

Nonetheless, she had an episode of seizure, paraparesis, and sensory disturbance below T6 dermatome on the therapy for three months. At that time an IDEM mass between the T1 and T2 spinal levels was documented in spinal MRI. After adding ethambutol and streptomycin to the regimen, her paraparesis was improved gradually.

Neurological examination revealed left central-type facial palsy, weakness of the left upper extremity, paraparesis, hypesthesia below T6 dermatome, and urinary incontinence. Spinal MRI showed an increased size of the IDEM mass and exacerbated surrounding edema (Fig. 2). She underwent an operation and a yellow-colored, nodular, avascular IDEM mass was resected. Histologic examination revealed chronic arachnoiditis with fibrosis and calcification (Fig. 3). However neither epithelioid granuloma nor caseous necrosis was noted. Postoperatively, she was maintained the previous anti-tuberculous regimen and showed gradual improvement of the neurological impairment. Although typical granuloma and caseation necrosis were not found in histologic examination, we

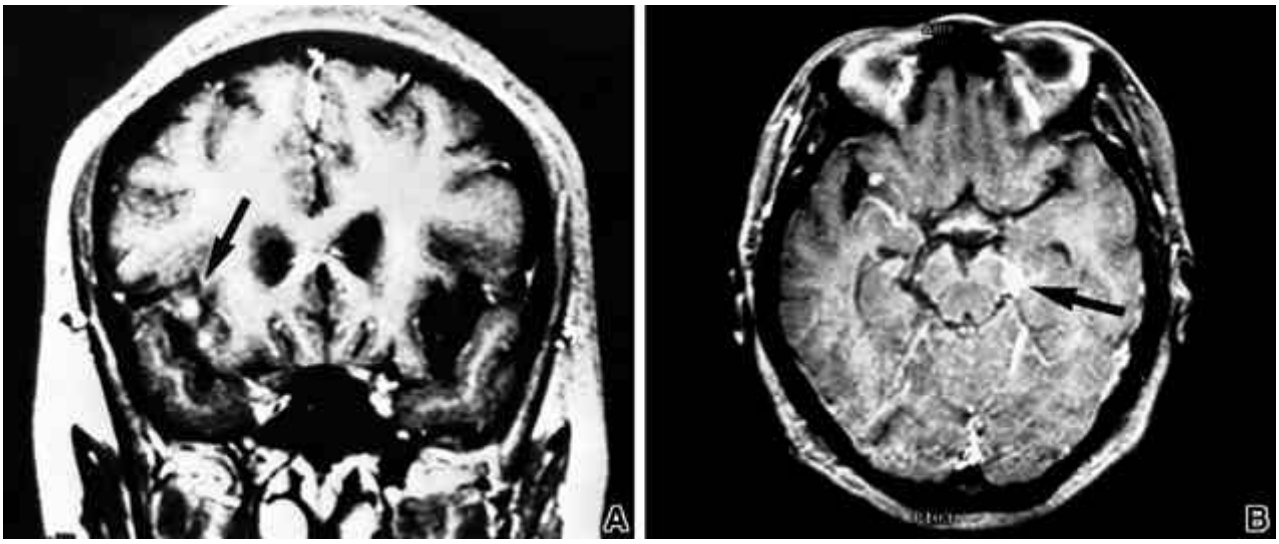

Fig. 1. Brain MRI shows a small enhanced mass in the right temporal lobe (A, black arrow) and a few small enhanced mass in left portion of the basilar cistern (B, black arrow).

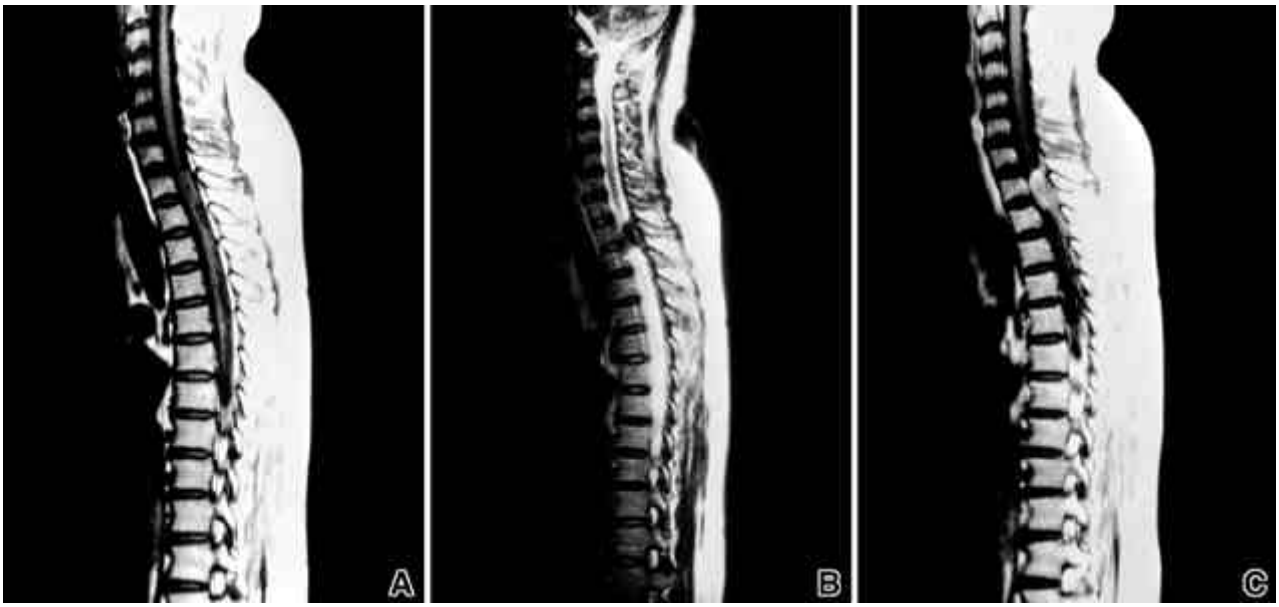

Fig. 2. MR images show an intradural extramedullary mass at the T1-2 spinal level. The mass is isointense in the T1-weighted image (A) and hypointense in the T2-weighted image (B). Gadolinium enhanced MRI reveales a homogeneously enhanced mass (C).

could confirm the diagnosis of IDEM tuberculoma by previous bacteriologic study.

At the one-year follow-up, she experienced much improved paraparesis and normal urinary function.

DISCUSSION

Although *Mycobacterium tuberculosis* can involve the neural and perineural tissues directly and lesions may occur anywhere within CNS, IDEM tuberculous granuloma is the most uncommon form of intraspinal tuberculoma (1, 2, 5). There are only 17 detailed reports of IDEM tuberculomas of the spinal cord in literature and no previous reports have been documented on IDEM tuberculoma of the spinal cord with concurrent intracranial tuberculoma. So our case is unusual in that spinal IDEM and intracranial tuberculomas occurred simultaneously.

Tuberculosis of the spinal cord, in the absence of vertebral disease, almost always originates from a primary focus in the lung (2) and patients with history of past or concurrent tuberculosis or exposure to the disease were frequent (2, 8, 15). As the present case had no pulmonary

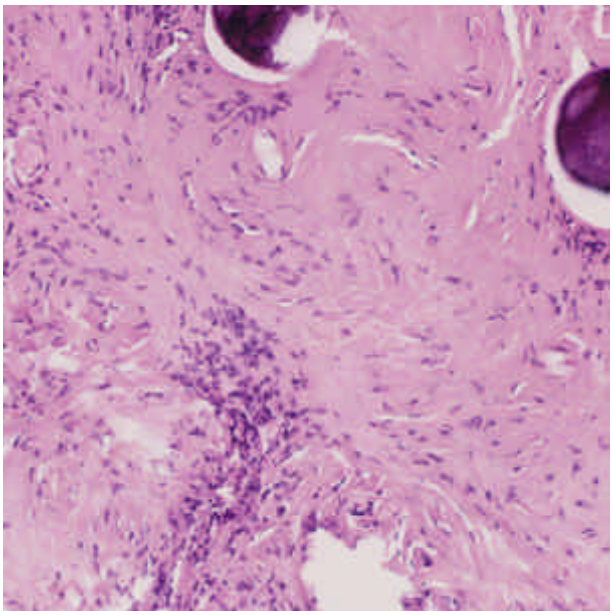

Fig. 3. Photomicrograph shows dense fibrosis and infiltration of inflammatory cells with calcifications (psammoma bodies). Histiocytes are focally aggregated; however, neither epithelioid granuloma nor caseous necrosis is noted (H&E, ×100).

tuberculosis or tuberculous spondylitis, it is uncertain how she developed tuberculous meningitis and whether the IDEM tuberculoma was secondary to the intracranial lesion or not.

In general, patients with IDEM tuberculomas face a gradual onset of the disease over weeks to years with progressive weakness of the legs, sometimes associated with sphincter or sensory deficit (5, 7). It is suggested that a slow deterioration of neurological symptom is caused by an expansion of the lesion causing pressure on the cord (5). But surprisingly, the strain of heavy lifting or a trivial motor-vehicle accident also appear to be able to precipitate an acute illness in IDEM tuberculoma patients, possibly by rupturing a wall of inflammatory tissue surrounding the lesion (5, 7). The present case showed a typical example of progressive neurological deterioration in IDEM tuberculoma.

Previous reports stated that medical treatment alone would not improve the clinical status of IDEM tuberculoma and the recovery prognosis is excellent in patients with localized IDEM tuberculomas, which can be totally removed (1, 5-7, 15-17). And surgical resection also provides immediate decompression of the spinal cord and makes possible to avoid missing curable granulomatous disease (1, 5, 6, 16). In our case, therefore, operative treatment should have been considered at the time of diagnosis of the IDEM lesion though the patient showed temporary improvement of paraparesis while on anti-tuberculous medication.

Conclusively, surgical excision followed by anti-tuberculous medication is the preferred treatment of IDEM tuberculoma and thorough investigation and/or surgery should be considered in the patient with tuberculous meningitis if any neurological deterioration developed despite of anti-tuberculous medication.

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