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ORIGINAL ARTICLE

Neck Pain in a Young Girl: A Pott's Disease Case Study

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ABSTRACT

Cervical spinal tuberculosis (TB) is a rare variant of extrapulmonary TB with a high complication rate. Tuberculosis of the cervical spine is reported in about 6 to 9% of all cases of spinal TB. Early diagnosis and treatment of spinal TB is essential in order to prevent neural deficit. Management strategies for spinal TB range from ambulatory chemotherapy to radical surgical debridement with fusion. We present a case of an Old Dhaka citizen, 15-year-old girl, who was admitted to the Department of Physical Medicine and Rehabilitation, Bangabandhu Sheikh Mujib Medical University, because of a severe painful restriction of neck movement with torticollis to left for 5 months, neck stiffness, and restriction of neck movement in all planes of cervical spine. On physical examination, the girl was subfebrile, mildly anemic, and tenderness present over the upper part of cervical spine. Head was deviated toward left side. Neurological examination revealed no focal motor weakness. The roentgenograms of chest, pelvis, and cranium were without pathological changes. Abdominal ultrasonography was normal. A magnetic resonance imaging scan revealed marrow contusion in body of C2 with odontoid process, adjacent anterior and left side of prevertebral soft tissue swelling with small collection at C2 level, and scoliosis with straightening of cervical spine. Histopathological examination of the removed material showed typical granulomatous inflammation with characteristic infiltrate of lymphocytes, epithelioid macrophages, and Langhans-type multinucleated giant cells.

Keywords: Cervical spine, Neck pain, Pott's disease.

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INTRODUCTION

Tuberculosis (TB) of the spine, also known as Pott's disease, is a well-known condition in developing countries and is the most common form of skeletal TB. Tuberculosis of the cervical spine is reported in about 6 to 9% of all cases of spinal TB.[1,2] Early diagnosis and treatment of spinal TB is essential in order to prevent neural deficit. Management strategies for spinal TB range from ambulatory chemotherapy to radical surgical debridement with fusion.[3-5] Though the general consensus in the literature is that patients with neurological sequelae or spinal instability should be reserved for surgical stabilization, still we have found that, in clinical practice, patients are often surgically treated frequently due to either the initial radiographic findings or severe pain, which is often not adequately managed in the context of rifampin drug interactions. We describe a case of cervical spine TB in a young patient who was treated medically with appropriate anti-TB therapy and subsequently showed complete resolution of her skeletal findings on magnetic resonance imaging (MRI).

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CASE REPORT

A 15-year-old girl presented to our department with worsening neck pain and stiffness without any history of trauma. Her symptoms had been present for 5 months with persistent moderate left-sided neck pain with restriction of movement interrupting her forward vision. She did note low-grade fever, night pain, and dysphagia. She denied weight loss, leg or arm weakness, bowel or bladder incontinence, change in appetite, lassitude, night sweats, lethargy, or other sites of pain. She also denied exposure to TB in the past and had no history of any previous TB screening; she had received Bacillus Calmette-Guerin (BCG) vaccination during early childhood.

On physical exam, vital signs were normal with the exception of mild anemia and mild enlargement of left submandibular lymph node. Neurological exam had no significant findings. Restriction of neck movement was found in all planes. Turning and tilting of head was toward left side. Tenderness over the nape of the neck coincided with C2 vertebra. Tightening and thickening was felt in the left sternocleidomastoid muscle. One BCG vaccination scar was noted on the upper arm.

Baseline blood investigations were normal despite mild raised erythrocyte sedimentation rate and C-reactive protein. A chest radiograph was normal. A lateral cervical spine radiograph demonstrated straightening of spine (Fig. 1). Sputum was sent for acid-fast bacilli (later noted to be negative).

An MRI of the cervical spine demonstrated marrow contusion in body of C2 with odontoid process. There

Fig. 1: X-ray cervical spine L/V

were also adjacent anterior and left side of prevertebral soft tissue swelling with small collection at C2 level, disk desiccation, scoliosis with straightening of cervical spine (Figs 2 and 3).

Computed tomography (CT) findings an irregular compression is seen in the C2 vertebral body. CT-guided fine-needle aspiration cytology was done and microscopic description of smear shows mostly necrotic debris and a small number of polymorphs, lymphocytes, histiocytes, and occasional epithelioid cells and Langhans giant cells with fibrocartilage. The necrosis appears to be caseation in type.

The patient was treated empirically with four drug regimen of antitubercular chemotherapy as per National TB Guideline of Bangladesh along with aggressive pain management. She was rehabilitated with Philadelphia collar to maintain chin in midline position followed by isometric neck muscle stretching and strengthening exercise.

DISCUSSION

Tuberculosis infection of the spine, also known as Pott's disease, represents approximately half of all cases of skeletal TB,[6] but less than 1% of all TB cases.[7] Most common involved site is the midthoracic vertebrae, with involvement of the cervical spine much less common.[8] The incidence of tuberculous spondylitis varies considerably throughout the world and is generally proportional to the quality of the available public health services.[9] Spinal involvement develops in approximately 50% of patients with TB. Spinal involvement is usually a result of hematogenous spread of *Mycobacterium tuberculosis* into the vasculature of cancellous bone of the vertebral bodies, with the primary site of infection usually being a pulmonary or genitourinary lesion.[10] The spine may also become infected by direct extension from visceral lesions. Spinal TB typically has an insidious onset and slow progression, although an acute onset has been reported in the literature. Patients usually seek attention weeks to months after the onset of the original symptoms due to the low intensity of the initial symptoms. The mean duration between the onset of symptoms and clinical presentation in one series was 11.2 months (4–24 months).[11]

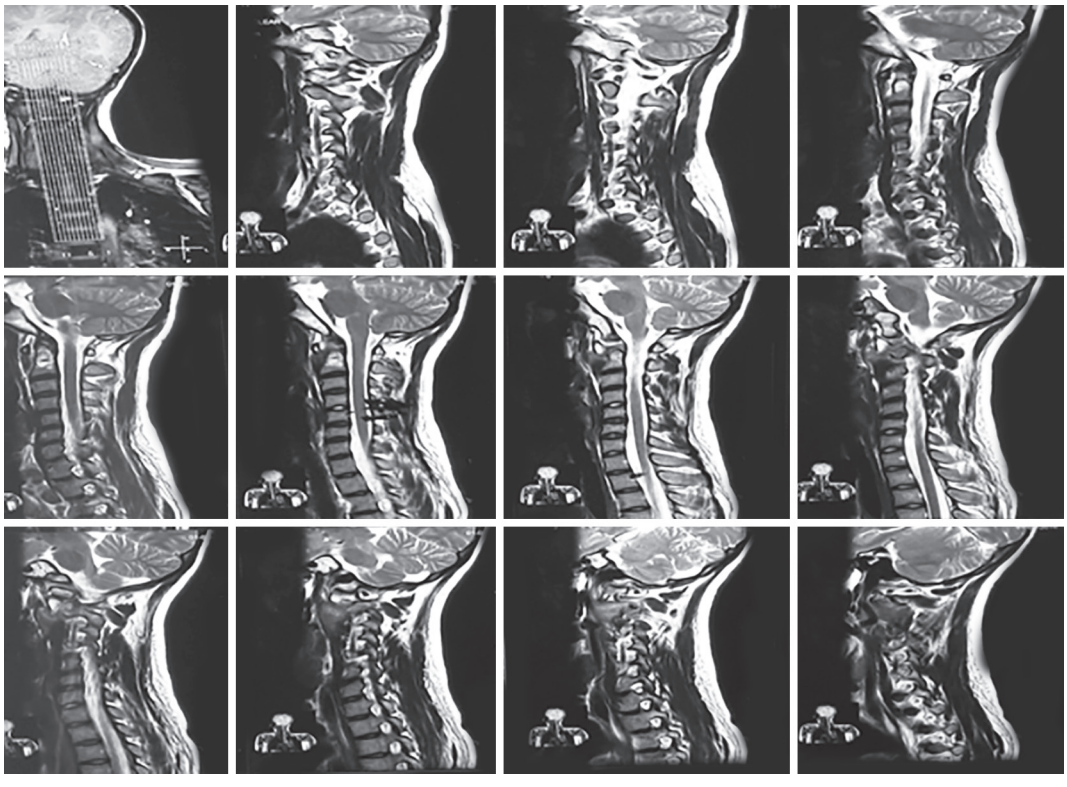

Fig. 2: Magnetic resonance imaging of cervical spine (T2-weighted image)

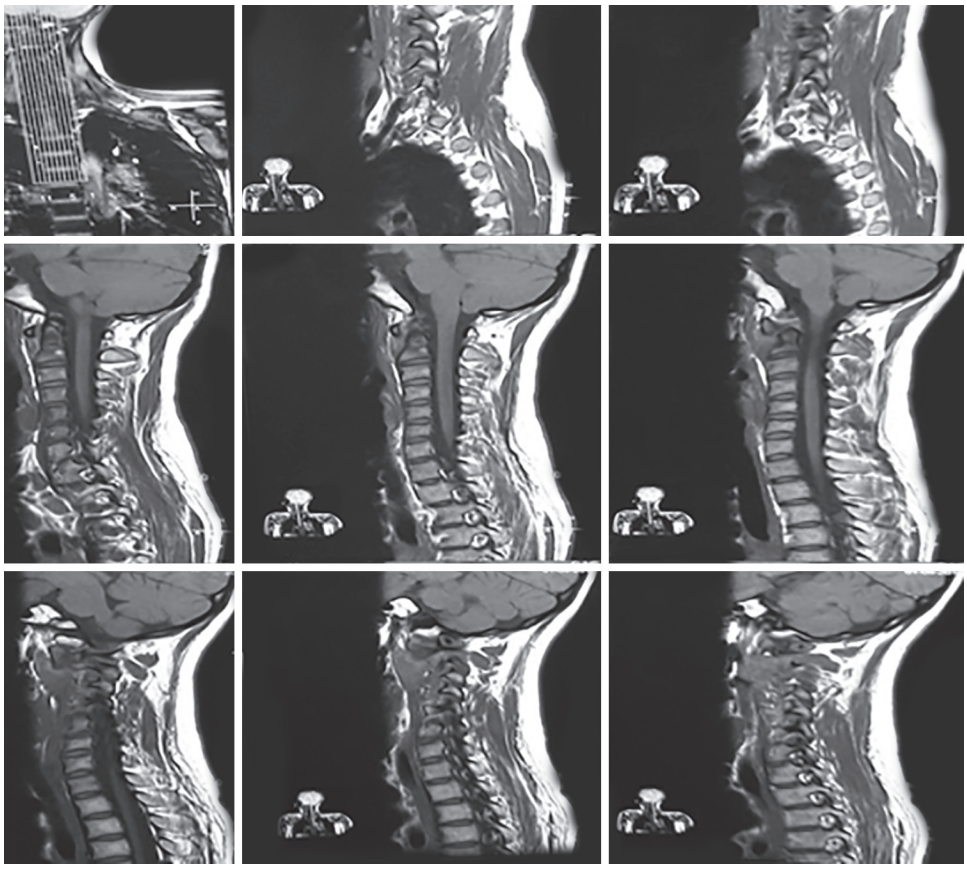

Fig. 3: Magnetic resonance imaging of cervical spine (T1-weighted image)

In our patient's case, 5 months passed from the onset of the disease until the real diagnosis was established. The classic presentation of a patient with tuberculous spondylitis includes a patient with spinal pain and manifestations of chronic illness, such as weight loss, malaise, and intermittent fever. The physical findings include local tenderness, muscle spasm, and restricted motion. The patient may also have a spinal deformity and neurologic deficit. The reported incidence of neurologic deficit in cases of spinal TB varied from 23 to 76%.[12,13] The incidence of paraplegia is highest with spondylitis in the thoracic and the cervical spine.[3,14]

Cervical TB is a rare disease with a high complication rate. Hsu and Leong[4] reported a 42.5% spinal cord compression rate in 40 patients. Children younger than 10 years were more likely to develop abscesses, whereas older children were more likely to develop paraplegia. Drainage and chemotherapy were adequate for the younger children. For older patients, these researchers recommended radical anterior debridement and strut grafting followed by chemotherapy. Definitive diagnosis by culture of a biopsy specimen is important because of the toxicity of the chemotherapeutic agents and the length of treatment required. If open biopsy is required, Hodgson and Stock[15] suggested definitive debridement and grafting at the same time.

In our experience, frightening radiographs have occasionally pushed early surgical intervention given the belief that stabilization is needed to avoid neurologic complications. We have also seen patients sent for surgical stabilization after minimal attempts at pain management. As our patient was young and without neurological symptoms, the hope was to avoid surgical stabilization with hardware, which, along with the risk of infection, would have reduced his range of motion and potentially decreased quality of life. Close neurological follow-up with appropriate TB medications and aggressive pain control allowed for successful medical management. Indications for surgery should not be solely based on imaging; one must instead look at the complete clinical picture. Rapid initiation of treatment coupled with aggressive pain management and close medical follow-up served to solve the problem of this pain in the neck without turning an acute problem into a chronic one.[16]

CONCLUSION

Tuberculosis of cervical spine is a rare entity in Bangladesh also. Spinal involvement is usually a result of hematogenous spread of *M. tuberculosis* into the vasculature of cancellous bone of the vertebral bodies, with the primary site of infection usually being a pulmonary or genitourinary

lesion. In our case, the source of spread of infection could not be detected. That is why this case emphasizes the importance of recognizing these sorts of cases early in the course of disease, administering active treatment and preventing complications.

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