

Case report ■

Late Diagnosed Cervical Spine TBC Spondylitis: Case Report

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SUMMARY

Cervical tuberculosis is a rare disease with a high complication rate. Tuberculosis of the cervical spine is reported in about 6-9% of all cases of spinal tuberculosis. Early diagnosis and treatment of spinal tuberculosis is essential in order to prevent neural deficit. Management strategies for spinal tuberculosis range from ambulatory chemotherapy to radical surgical debridement with fusion.

The paper presents a case of an 18-year-old patient with TBC spondylitis C3-C5. Eleven months passed from the onset of the disease until surgery and final diagnosis. When hospitalized, the patient suffered from the overall weakness, a 15-kg weight loss, dysphagia, neck pain, neck rigidity, febrility, cervical radiculopathy and paresthesia of both upper extremities. MR image showed a complete destruction of C3, abscess perforation in the anterior epidural space with the spinal cord compression and abscess extension to prevertebral space from C2 to C5. After the radical surgical debridement of C3-C5 and anterior decompression, a tricorticate autologous bone graft obtained from the iliac crest was placed and a plate fixation was done. Tuberculostatics were included for 12 months after surgery. Complete recovery occurred six months after surgery.

Anterior decompression with autologous iliac bone graft led to a good clinical and radiological outcome in patients with cervical spine tuberculosis.

Key words: spine, cervical TBC spondylitis

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INTRODUCTION

The problem of tuberculosis as an infectious disease persisted worldwide even 50 years after the curative therapy was discovered. After years of stable control of disease, in the last 10 years, the epidemiological situation has taken a deterioration trend (1). Tuberculosis of the cervical spine is reported in about 6-9% of all cases of spinal tuberculosis (2,3) Early diagnosis and treatment of spinal tuberculosis is essential in order to prevent neurologic deficit. Management strategies for spinal tuberculosis range from ambulatory chemotherapy to radical surgical debridement with fusion (4-6). The absolute indication for surgical treatment are marked neurological deficit, especially if it is related to severe kyphosis or retracted bone or disc in the neural canal. Spinal tuberculosis primarily involves the anterior vertebral structures and, therefore, anterior operative approaches are usually recommended. Using an anterior approach, abscesses can be evacuated, all avascular material can be excised, and anterior decompression of the spinal cord can be performed safely. Tissue is easily obtained for histological study and culture, and kyphosis can be corrected or at least stabilized with the use of an autogenous bone graft. Anterior decompression surgery has been reported to produce a good outcome with reduction of kyphosis (7-9). We present a case of a young, 18-year-old patient with TBC spondylitis of the neck segment C3-C5. The disease began 11 months before surgery was performed.

CASE REPORT

An 18-year-old patient was treated in different healthcare facilities by means of symptom-therapy without being examined clinically. When the patient was hospitalized, the obtained anamnestic and hetero-anamnestic data showed that he had been treated with antibiotics and antipyretics. The disease started 11 months before he was hospitalized, manifesting as overall weakness, lack of muscle strength, weight loss (15 kg) and febrility. The examination showed the local tenderness, muscle spasm, restricted motion, pain, cervical radiculopathy, paresthesia of both upper extremities, and dysphagia. Radiograph of the lungs did not show the signs of lung tuberculosis. Laboratory analyses showed the increased values of erythrocyte sedimentation rate (ESR) 80 mm/h, C-reactive protein (CRP) 96 mg/L, white blood cells (WBC) 25000 and the presence of mild anaemia. MR image showed complete destruction of C3. Note the enhancing epidural collection compressing the spinal cord and extension of disease into the prevertebral space from C2 to C5 (Figure 1).

Tuberculin skin test was positive. A couple of days after hospitalization, the patient was ready for the surgery. The anterior extensive approach was used. A cold abscess extending into the epidural space with the spinal cord compression and complete destruction of the

vertebral body C3 were detected intraoperatively. The disease spread even to C4-C5. After drainage of the prevertebral collection and curettage of the granulation tissue, corporectomy was performed. Anterior decompression involving corporectomy of destroyed vertebral bodies C3-C5, discectomy and the evacuation of cold abscess and detritus were done. Any collection of pus in the ventral epidural space was drained and the compressing bony elements and disc material in the ventral spinal canal were excised, to avoid injury to the dural tube. A tricorticate autologous bone graft obtained from the iliac crest was placed and a plate fixation was done at the level C2-C6 (Figures 2, 3).

A hard cervical collar was used for six months postoperatively. Postoperatively, the patient received anti-tuberculous therapy with isoniazid (5mg/kg daily), rifampicin (10 mg/kg daily), ethambutol (15 mg/kg daily) for the first three months followed by isoniazid and rifampicin for another 12 months. Pathohistological examination confirmed the TBC spondylitis diagnosis. The patient achieved complete neurological recovery six months after surgery (Figure 4). The general condition was notably improved. Radiographs made after 6 months showed a good consolidation - bone fusion. Twelve months after surgery, the patient received the tuberculostatic therapy. The patient made a complete neurological recovery, gained 8 kg, no dysphagic disorders occurred, with normalization of ESR, CRP, WBC and anemia.

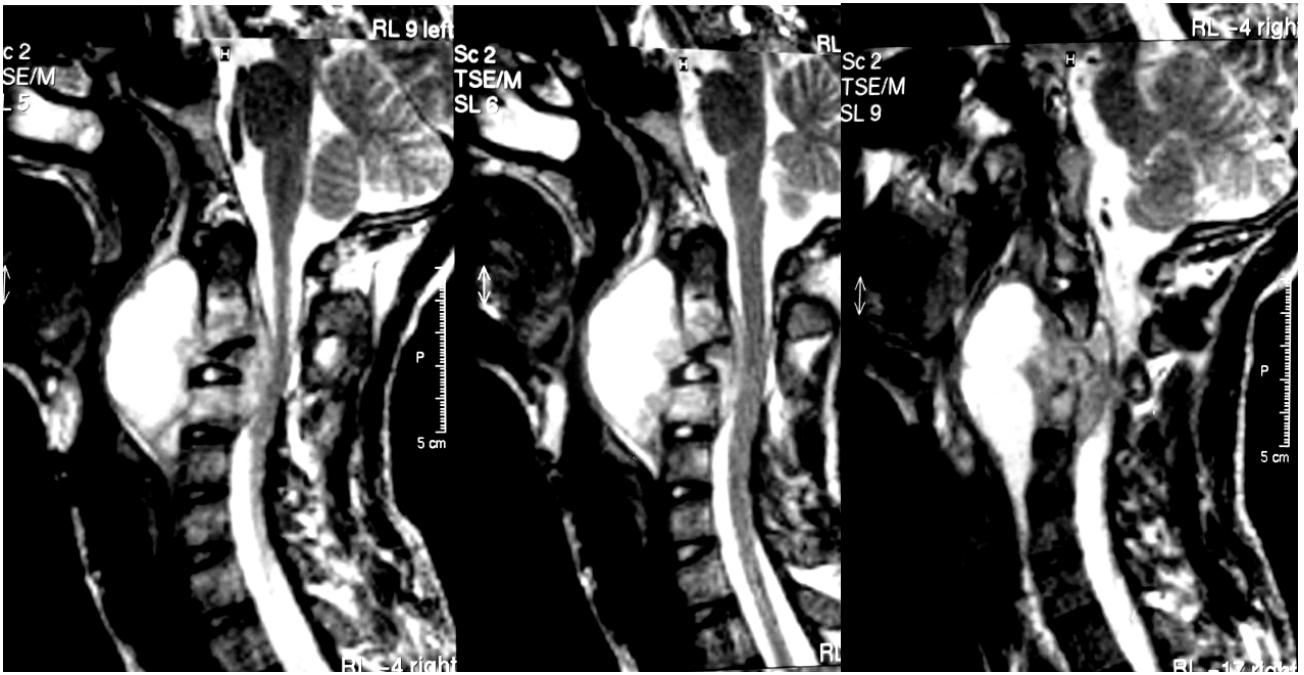


Figure 1. Sagittal T1W MR image of an 18- year-old man showing complete destruction of the C3 vertebral body. Note the enhancing epidural collection compressing the spinal cord and extension of disease into the prevertebral space from C2 to C5.

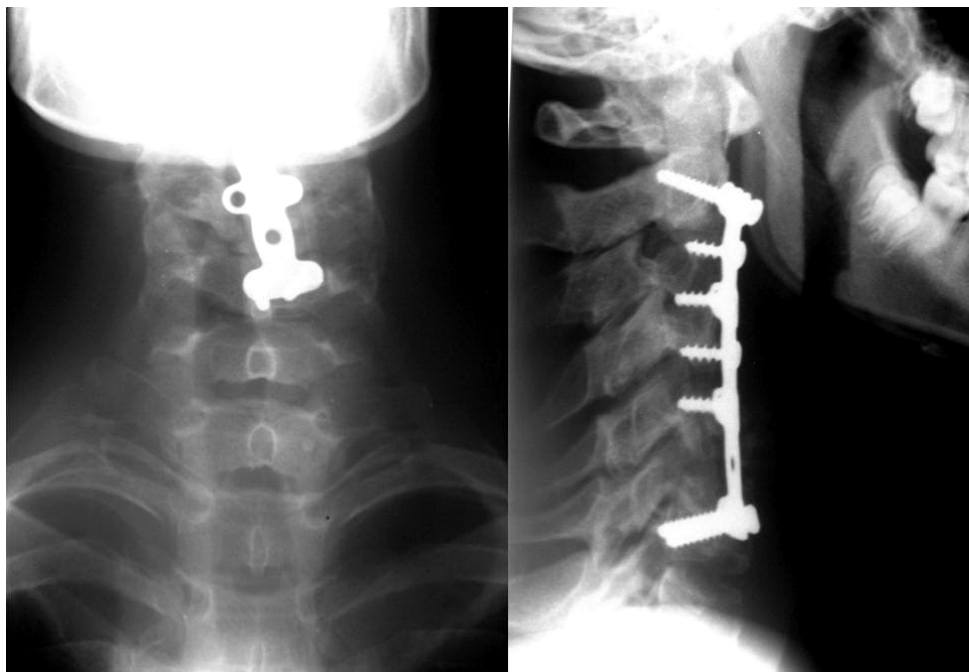


Figure 2. Radiographs (AP, lateral views) after surgery

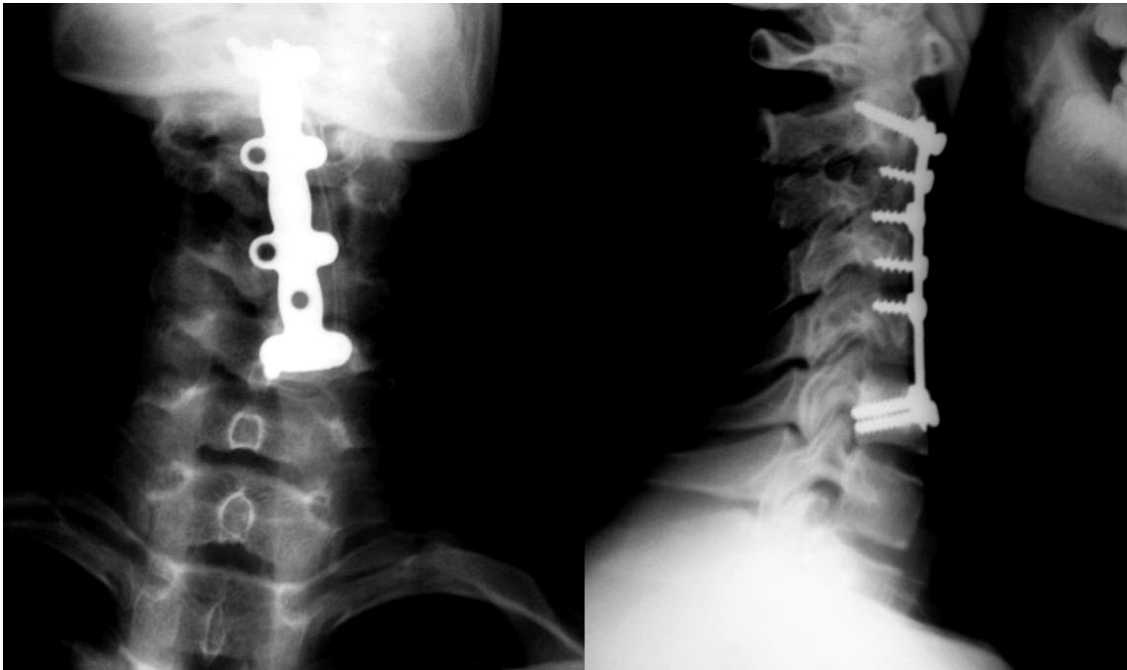


Figure 3. Radiographs (AP, lateral views) 6 months after surgery. Lateral radiograph shows bone fusion



Figure 4. Photographs of the patient 6 months after surgery

DISCUSSION

The incidence of tuberculous spondylitis varies considerably throughout the world and is generally proportional to the quality of the available public health services (10). Spinal involvement develops in approximately 50% of patients with tuberculosis. Spinal tuberculosis generally occurs by hematogenous spread from a distant focus of infection. The pulmonary and genitourinary systems are the most frequent sources, but tuberculosis may also spread from other skeletal lesions. The spine may also become infected by direct extension from visceral lesions. Spinal tuberculosis 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). In our patient's case, 11 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 tuberculosis varied from 23% to 76% (12, 13). The incidence of paraplegia is highest with spondylitis in the thoracic and the cervical spine (3, 14). Some surgeons recommend surgery to almost all patients, whereas most surgeons recommend surgery in selected cases only (8, 9, 15). Patients with cervical spine involvement are at high risk for neurologic deficit but do well after anterior debridement and fusion. Neurologic compromise is the primary indication for surgery since anterior decompression and fusion have been shown to lead to higher recovery rates in patients with neurologic deficit than non-operative treatment alone (2). When surgery is necessary, radical debridement and anterior strut graft fusion in association with chemotherapy is recommended (7, 12, 16-18). Cervical tuberculosis is a rare disease with a high complication rate. Hsu and Leong reported a

42.5% spinal cord compression rate in 40 patients (5). Children younger than 10 years old 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 débridement 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 et al. suggested definitive débridement and grafting at the same time. In 1960, Hodgson et al. reported 412 patients treated by radical removal of the diseased area and anterior spinal arthrodesis (19). When surgery is indicated, it is easier to do it early, because abscesses tend to dissect along tissue planes. If surgery is delayed, fibrosis makes the procedure technically much more difficult. There is a direct correlation between the duration of neurologic symptoms before operation and the time for recovery from paraplegia (19, 20). Surgery may also be performed for late-onset paralysis associated with cord compression by a hard bony ridge in association with kyphosis. Complications of surgical treatment are frequent. The operative risk is greatest in elderly patients with extensive disease. In one series, the operative mortality was 2,9%, and additional 1% of the patients died of the disease later (19). The prognosis of patients treated for tuberculous spondylitis depends on the age and general health of the patient, the severity and duration of the neurologic deficit, and the treatment selected. Before the advent of chemotherapy, the mortality rate for patients treated nonoperatively was 12 to 43% (14). The rate for patients with a neurologic deficit was close to 60% (21).

CONCLUSION

Anterior decompression with autologous iliac bone graft combined with antituberculous therapy led to a good clinical and radiological outcome in patients with cervical spine tuberculosis.

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KASNO DIJAGNOSTIFIKOVANA TUBERKULOZA VRATNE KIČME: PRIKAZ SLUČAJA

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Sažetak

Tuberkuloza vrata je retka bolest, sa visokom stopom komplikacija. Tuberkuloza vratne kičme je opisana u 6-9% slučajeva spinalne tuberkuloze. Rana dijagnoza i tretman tuberkuloze kičme neophodni su da bi se sprečio neurološki deficit. Strategija tuberkuloze kičme se kreće od ambulantne hemoterapije do radikalnog hirurškog debridmana sa fuzijom.

Prikazujemo slučaj bolesnika, starosti 18 godina, sa tuberkulozom vratne kičme C3-C5. Od početka bolesti do operacije i postavljanja dijagnoze prošlo je 11 meseci. Do hospitalizacije, bolesnik je izgubio na

težini 15 kg, imao je teškoće pri gutanju, bolove u vratu, ukočenost vrata, povišenu telesnu temperaturu, vratnu radikulopatiju i osećaj trnjenja u gornjim ekstremitetima. MRI nalaz je pokazao kompletnu destrukciju C3 vratnog pršljena, prodor hladnog apscesa u prednji epiduralni prostor, sa kompresijom na kičmenu moždinu i širenjem apscesa u prevertebralni prostor od C2 do C5 vratnog pršljena. Posle radikalnog hirurškog debridmana C3-C5 i prednje dekompresije, plasiran je trikortikalni autologni koštani grefon sa ilijačne kriste i urađena je fiksacija pločom. Uključeni su tuberkulostatici u trajanju do 12 meseci od operacije. Kompletan oporavak nastupio je 6 meseci posle operacije.

Prednja dekompresija sa autolognim koštanim grefonom sa ilijačne kriste vodi ka dobrom kliničkom i radiološkom rezultatu kod bolesnika sa vratnom tuberkulozom kičme.

Cljučne reči: tuberkuloza vratne kičme