

A CASE REPORT OF POTT'S DISEASE WITH UNUSUAL INVOLVEMENT OF TWO SEPARATE LEVELS OF SPINE AND DELAYED PROGRESSIVE KYPHOSIS

V. Rahimi Movaghar

Department of Neurosurgery, Khatam-ol-anbia hospital, Faculty of Medicine, Zahedan University of Medical Sciences, Zahedan, Iran

Abstract - In Pott's disease (tuberculous spondylitis), involvement of two separate levels of spine is rare. Attention to stability of spine prevents delayed progressive kyphosis. A 12-year-old girl presented with neck pain, tenderness and swelling. Imaging showed C1-C2 and T9-T10 destruction. Mild spastic paraparesis was noticed. Preoperative diagnosis was metastasis. T9, T10 and T11 laminectomy and cervical operations were done in 2 sessions. Both pathologic examinations confirmed tuberculosis. Although antituberculous medications and casting were performed, kyphosis progressed and neurologic deficit restarted, reoperation was done for spinal cord decompression and stabilization. Tuberculosis could involve multiple spinal levels. Laminectomy is not suggested in children. Bone fusion and serial observations are important. *Acta Medica Iranica* 39 (1): 54-57; 2001

Key Words: Pott's disease, tuberculous spondylitis, atlantoaxial dislocation, T9-T10 destruction, laminectomy, kyphosis, child

INTRODUCTION

Tuberculosis of the spine (Pott's disease or tuberculous spondylitis) usually involves the vertebral body, although in about 10% of patients, neural arch, transverse process or spinous process may be affected (1,2). Involvement of cervical area is infrequent, especially C1-C2 (atlantoaxial) is rare (3,4). There have been only 95 case reports of atlantoaxial tuberculous since the turn of the last century (3). Involvement of two separate areas of spine is very rare (5,6,7,8) and in these cases, preoperative physicians' impression were malignant tumor.

Ideal operations for known cases of Pott's disease in the thoracic region are anterior (thoracotomy) or posterolateral (costotransversectomy) approach, decompression of spinal cord and bone fusion. Good recovery is expected in most of the cases.

There are two important goals worthy of attention

in this case presentation: 1. In Pott's disease (tuberculous spondylitis), involvement of two separate levels of spine is rare. 2. Attention to stability of spine prevents delayed progressive kyphosis.

Case report

A 12-year-old girl presented with neck pain of 2 weeks duration. There was tenderness and swelling in the left posterior upper cervical area. No neurologic deficit was present and general examination was normal. Plain X-ray showed C1-C2 dislocation and destruction (Fig. 1).

Preoperative diagnosis was metastasis. Purified protein derivative (PPD) had not been checked. Chest X-ray was normal.



Fig. 1. Atlantoaxial dislocation and destruction of body of C2 and neural arch of C1, a hypodense, cystic and homogenous mass in the left posterolateral area of C1-C2.

In order to demonstrate cord compression, myelography and CT-myelography were performed. There were multiple positive findings: A. T9-T10 spinal cord compression (partial block), and anterior deviation of spinal cord by epidural soft tissue mass were seen (Fig. 2). B. Bilateral pedicles and costovertebral joint destruction of T9 and T10 were noticed (Fig. 2).



Fig. 2. Partial block of T9 and T10, destruction of pedicles and costovertebral joint and anterior deviation of spinal cord by epidural soft tissue mass in CT - myelography.

24 hours after myelography, we noticed mild spastic paraparesis; so an emergency T9, T10, T11 laminectomy decompression was done. Postoperative pathologic examination of bone and soft tissue specimen showed caseous necrosis and chronic inflammatory granulomatosis suggestive of tuberculous spondylitis.

Antituberculosis medication, including daily doses of

isoniazid 200 miligram (mg.), rifampin 300 mg., ethambutol 400 mg., pyrazinamide 700 mg. and vitamin B6 was started.

No operation was scheduled for C1-C2 lesion, because we assumed that the lesion might respond to medical therapy.

After a month, neck swelling (8 × 10 centimeters) and tenderness progressed and patient was referred to us from infectious disease hospital. She had mild spastic quadriparesis.

On laboratory investigation, we found the following results: Hemoglobin = 13 mg/deciliter (dl.), Hematocrit = 40%, White blood cells = 8000, Neutrophil = 78%, Lymphocyte = 20%, ESR = 116 mm and CRP = 3+.

Due to progressive neurologic deficit, the patient underwent an operation for the mentioned cervical lesion. Under general anesthesia, in prone position, a posterior midline cervical incision was performed. A paravertebral abscess noted and drained. The obtained fluid was sent for smear and culture. The bone was debrided, and submitted to the pathology department. The diagnosis of tuberculosis (TB) was confirmed on pathology.

As we assumed that C1 and C2 were stable, bone fusion was not performed. Patient's neurologic status improved and she was discharged on antituberculosis regimen and cervical collar. After 3 months mild thoracic kyphosis developed. Her family was reluctant for another operation because of economical problem. Therefore we performed outpatient thoracolumbar casting.

She was asymptomatic with casting and antituberculosis drugs. The cast was removed after 4 months and antituberculosis drugs were discontinued after about 1 year.

Gradually thoracic kyphosis progressed and the patient did not return until the kyphosis became severe, 16 months after first operation (Gibbus angle of 90 degrees) (Fig. 3).

She had significant paraparesis and had lost remaining slight sensory and motor power in 1 to 2 days. An urgent thoracotomy was done. T10 vertebral body was identified. Spinal cord decompressed, and the disc was removed microscopically.

There was severe adhesion between dura and its overlying fibrous tissue. Accidentally dura was perforated by microdrill. There was no place for dural repair. Surgicel was inserted for prevention of cerebrospinal fluid leak. 3 parts of rib inserted as bone graft and truncal casting was made. Sensory and motor power of lower limbs improved slowly after a few hours of operation. She had mild superficial skin infection that improved by medical therapy and skin graft. Although she has significant paraparesis 25 months after her first operation, she can sit without any help.

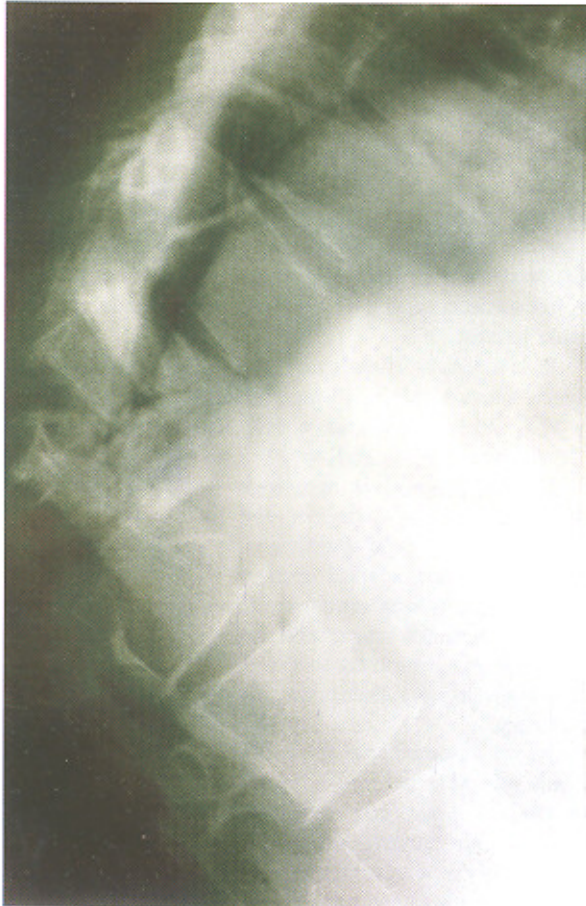


Fig. 3. 16 months after first operation: Gibbus angle of 90 degrees. Rib grafts are seen in postoperative X-ray

DISCUSSION

TB spondylitis rarely involves C1-C2 or two separate levels. As far as we know, there is no report about the combination of them. Our patient was a rare case of Pott's disease with involvement of C1-C2 and T9-T10 and especially with involvement of posterolateral elements of vertebrae.

Epidural infections are often dorsal and if so, are best treated by laminectomy (9,10).

In children, before maturation of bone, even with a normal spine, laminectomy could have complications such as spine instability (11, 12, 13, 14, 15). So it is clear that when TB destructs vertebral body, bilateral pedicles and costovertebral joint laminectomy without fusion may cause progressive kyphotic deformity. It is preferable to perform costotransversectomy instead of laminectomy even in spinal tumors of children, although the latter provides more satisfactory spinal cord

decompression.

Some remarks should be noted in this case: In order to see the degree of flexibility in kyphosis, it is recommended to take a lateral X-ray in hyperextended position being suggested by some authors. Delayed antikyphotic procedure is not recommended when solid bone fusion is produced. Anterior elements (discovertebral body) of spine is involved in most cases of tuberculous spondylitis, so that anterior instability is produced; so laminectomy is contraindicated in these cases to prevent posterior instability and secondary delayed progressive kyphosis.

In conclusion TB spondylitis should be suspected, when two separate levels of spine are involved. Although antituberculosis therapy and casting usually results in acceptable healing without symptomatic kyphosis, but careful and serial follow-up is mandatory especially in children.

REFERENCES

1. Kumar K: A clinical study and classification of posterior spinal tuberculosis. *Int. Orthop.* 9: 147, 1985.
2. Rahman NU, Al-Arabi KM and Khan FA. Atypical forms of spinal tuberculosis. *Acta Neurochir. (Wien)*. 88:26, 1987.
3. Tabib W, Sayegh S, Colona D, Istria F Meyer M. Atalntoaxial pott's disease. Apropos of a case with review of the literature (French). *Rev. Chir. Orthop. Reparatrice. Appar. Mot.* 80(8): 734-738, 1994.
4. Dowd CF, Sartorius DJ, Haghghi P and Resnick D. Case report 344 Tuberculous spondylitis resulting in atlanto-axial dislocation. *Skeletal Radiol.* 15(1): 65-68, 1986.
5. Miragliotta G, Del-Prete R and Mosca A. Pott's disease with unusual involvement of two different skeletal sites. *Int-J Clin Lab Res.* 27(4): 261, 1997.
6. Uho M, kamijo T and Odo T. A case report of atypical tuberculous spondylitis: *Kansenshogaku. Zasshi.* 68(8): 982-985, 1994.
7. Raju CT, Raju AZ, Mathai D and Pulimood BM. Multifocal tuberculous spondylitis. *J. Assoc. Physicians. India.* 39(8): 637-641, Aug, 1991.
8. Kulali A, Cobbanoglu S and Ozyilmaz F. Spinal tuberculosis with circumferential involvement of two noncontiguous isolated vertebral levels, case report. *Neurosurgery.* 35(6): 1154-1158, 1994.

9. Babhulkar SS, Tayade WB and Babhulkar SK. Atypical spinal tuberculosis. *J. Bone. Joint. Surg. Br.* 66: 239, 1984.
10. Dastur DK. Neurosurgically relevant aspects of pathology and pathogenesis of intracraial and intraspinal tuberculosis. *Neurosurg. Rev.* 6: 103, 1983.
11. Bell DF, Walker JL, O'Connor G and Tibshirani R. Spinal deformity after multiple level cervical laminectomy in children. *Spine.* 19(4), 406-411, 1994.
12. Peter JC, Hoffman EB and Arens LJ. Incidence of spinal deformity in children after multiple level laminectomy for selective posterior rhizotomy. *Childs. Nerv. Syst.* 6(1): 30-32, 1990.
13. Saito T. Analysis and prevention of spinal column deformity following cervical laminectomy, I, Pathogenetic analysis of postlaminectomy deforminectomy deformities. *Spine.* 16(5): 492-502, 1991.
14. Otsuka NY, Hey I and Hall JE. Postlaminectomy and postirradiation kyphosis in children and adolescents. *Clin. Orthop.* (354): 189-194, 1998.
15. Peter JC, Hoffman EB and Arens LJ. Spondylosis and spondylolisthesis after five lumbosacral laminectomy for selective posterior rhizotomy in CP. *Childs. Nerv. Syst.* 9(5): 285-288, 1993.