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A rare case report: tubercular spondylodiscitis following lumbar disc surgery

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ABSTRACT

Postoperative spondylodiscitis is a rare but serious complication after lumbar disc surgery. Most cases are due to more virulent organisms such as *Staphylococcus aureus* and *Streptococcus*. No case of post operative tubercular spondylodiscitis has been reported till date to our knowledge. We are reporting a case of tubercular spondylodiscitis followed by lumbar disc surgery of L2–3 level.

Keywords:

Spondylodiscitis

Tubercular

Lumbar disc surgery

1. Introduction

Postoperative spondylodiscitis is a rare but serious complication after lumbar disc surgery. Incidence after conventional or microscopic surgery varies between 0.1%–3%[1].

Postoperative lumbar spondylodiscitis can cause a failed back syndrome. Most cases are due to more virulent organisms such as *Staphylococcus aureus* and *Streptococcus*. Some cases with *Propionibacterium acnes*, has been reported[2]. No case of post operative tubercular spondylodiscitis has been reported till date to our knowledge. We are reporting a case of tubercular spondylodiscitis followed by lumbar disc surgery of L2–3 level.

A healthy looking 35 year female presented with right sided monoparesis in our Outpatient Department. On clinical examination, there was motor power grade 3 of right hip flexor, grade 1 of hip extensor, and grade 1 in knee & ankle. Bowel & bladder were intact. There was hypoesthesia below L2 dermatome. No bowel & bladder incontinence. The lab investigation showed blood sugar

was normal, WBC was within normal limit, and ESR was 24 mm after one hour. MRI examination (Figure 1) revealed disc prolapsed at L2–3 level. She underwent disc surgery by right side hemilaminectomy under antibiotic coverage. Neurological recovery was noted 6th postoperative day. She was ambulatory without support on 14th postoperative day. Her ESR came to preoperative level on 14th postoperative day. Over the next 3 month she was symptom free performing her routine activities. However, approximately 16 weeks later she presented with right sided monoparesis in the Emergency Department. Clinical examination revealed there was a–febrile, healthy previous surgical scar, Para vertebral muscle spasm was present, monoparesis of right lower limb again without involvement of bowel & bladder. Laboratory data revealed ESR was 45 mm, C reactive protein was positive, with lymphocytosis. Radiological examination revealed decrease in disc space of L2–3 level on X–ray and on MRI examination (Figure 2) showing paradiscal lesion of L2 & L3 vertebra with decrease signal intensity on T1 weighted images & increased signal intensity on T2 weighted images. CT guided fine needle aspiration cytology(FNAC) was performed from the lesion which showed tubercular pathology (Figure 3). She was given antitubercular therapy with dorsolumbar orthosis and started showing neurological recovery within 17 day of antitubercular chemotherapy, and full recovery after 5 week of chemotherapy. She took antitubercular therapy for nine months. Follow up for 18 months showed full neurological recovery with minimal back pain with radiological sign of healing (Figure 4).

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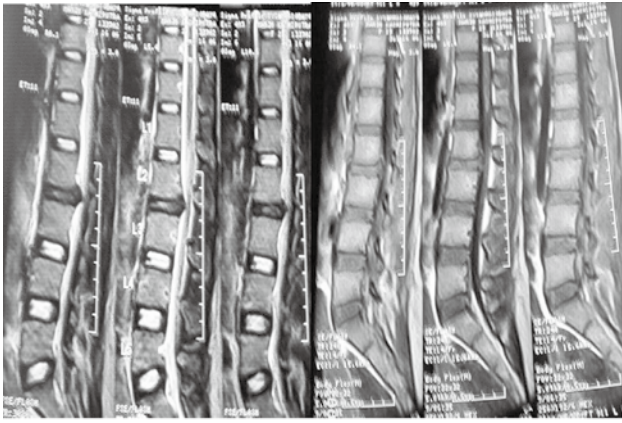


Figure 1. Left: A Sagittal T1- weighted magnetic resonance image (MRI) of lumbar spine in patient before lumbar disc surgery. Right: sagittal T2-weighted MRI images showing L2-3 disc prolapsed causing neural compression.

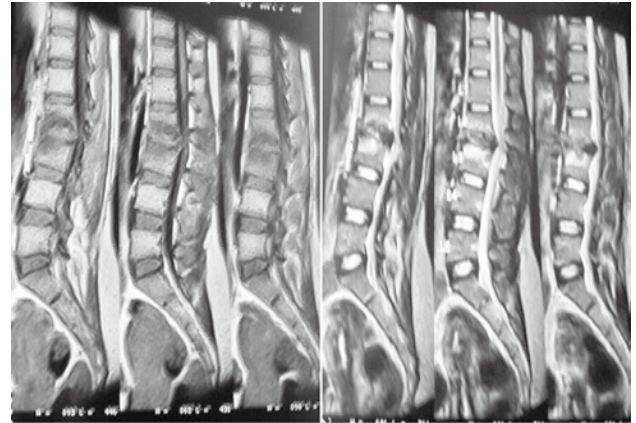


Figure 2. Right: A sagittal MRI T1--weighted images of lumbar spine of the same patient 16 weeks after surgery showing paradiscal lesion of L2 & L3, vertebra with decrease signal intensity. Left: A sagittal T2--weighted MRI images of the same patient showing increased signal intensity in L2-3 intervertebral disc space, L1 and L2 vertebral bodies consistent with discitis.

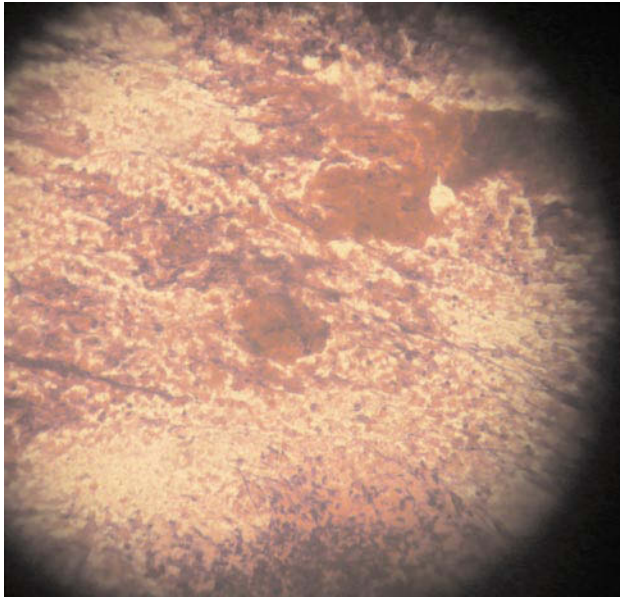


Figure 3. FNAC from lesion showing caseating material with giant cell suggestive of tuberculosis.

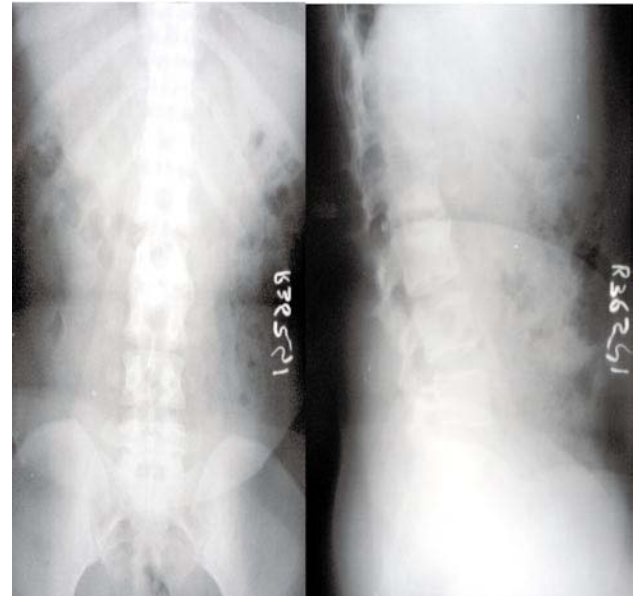


Figure 4. Radiological examination 18 months after surgery showing sclerosis of lower endplate of second lumbar & upper endplate of third lumbar vertebra.

2. Discussion

However postoperative spondylodiscitis is a rare but serious complication of lumbar disc surgery. Spondylodiscitis may occur after lumbar operations on intervertebral discs; the frequency depends on the invasiveness of the operation and is between 0.1% and 0.6% for microsurgical operations and from 1.4% to 3% for macrosurgical operations[1]. The usual pathogenic bacteria are *Staphylococcus aureus* followed by other *Staphylococcus* species and anaerobic organisms[1, 3-5]. It's rarely caused by *Propionibacterium acne*[2]. Very rarely

a late and remote thoracic spondylitis due to methicillin resistant *Staphylococcus aureus* following cervical surgery is also reported[6]. Although the exact cause of post procedural discitis is controversial, the majority of spine surgeons agree that it's resulted from direct inoculation of an offending pathogen into the avascular disc space[1,3-5] but few think haematogenous inoculation mainly happens in pediatrics spine where blood supply is abundant[1,3-5]. As the majority of individuals in developing nations such as ours are routinely exposed to/infected with *Mycobacterium tuberculosis*, it is unlikely that the lesions in this patient

were due to implantation of mycobacterium into the wound at the time of surgery. Sudhir kumar *et al*[7] have reported five cases of skeletal tuberculosis following fracture fixation. Similarly there was report of peri–prosthetic tuberculous infection of the hip in a patient with no previous history of tuberculosis by Kaya *et al*[8]. Before immunity is established, bacilli from the primary infectious focus or from the nearest lymph node are transported and disseminated throughout the body by the lymph system and then via the bloodstream. Secondary foci containing a limited number of bacilli are thus constituted, particularly in the lymph nodes, serous membranes, meninges, bones, liver, kidneys and lungs. As soon as an immune response is mounted most of these foci spontaneously resolve. However, a number of bacilli may remain latent in the secondary foci for months or even years[9].

Different factors that can reduce the organism's system of defense may lead to reactivation of the bacilli and their multiplication in one or more of these foci. This reactivation is the cause of clinical disease at extrapulmonary sites and of a proportion of pulmonary tuberculosis cases. We speculate that decreased immunity in response to surgery allowed reactivation of latent bacteria at a distant focus, with subsequent seeding at the surgical site in these patients.

Use of antibiotic have reduced incidence of postoperative discitis. Prophylactic antibiotics have been clearly established as an effective adjunct to decrease the chance of a surgical site infection[10,11]. Studies in both animals and humans have documented the effectiveness of perioperative antibiotics for prophylaxis of postoperative spondylodiscitis[12,13]. Usually in postoperative discitis there is reappearance of symptoms in a postoperative period of 2 days to 10 weeks[1,3], but in this case there was reappearing neurological loss after 16 week of surgery without any back symptoms. The interval period after disc surgery is longer as compared to pyogenic bacteria. Symptoms are of more neurological weakness as compare to back symptoms of our case. Post operative tuberculosis spondylodiscitis may be a rare complication which can present after three months of surgery. This rare complication should be kept in mind for failed back syndrome in region where tuberculosis is endemic.

Though tubercular spondylodiscitis following disc surgery is atypical & very rare, we believe that tuberculosis should be kept in mind as a possible cause of delayed post procedural discitis especially in zones endemic for tuberculosis. Patient with delayed presentation of post

procedural discitis should undergo investigations for mycobacterial infection.

Conflict of interest statement

We declare that we have no conflict of interest.

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