Spinal Tuberculosis Mimicking Failed Back Surgery

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Patient: Female, 59
Final Diagnosis: Spinal tuberculosis
Symptoms: Back pain • tiredness • night sweats
Medication: —
Clinical Procedure: Surgery and medical treatment
Specialty: Neurosurgery
Objective: Challenging differential diagnosis
Background: The aim of this study was to draw attention to rare spinal infections in recurrent failed spinal surgeries.
Case Report: A 59-year-old female was admitted to the hospital for back pain, which was assessed as a 9 on the visual analogue scale (VAS); the patient reported tiredness and night sweats. She had an operation for L3–4 far lateral disc herniation four years ago. Then another operation for L4–5 disc herniation six months ago and immediately three months later she has an operation with L3–4–5 fixation again. She had hypothyroidism, diabetes mellitus, and hypertension. Her daughter was cured of pulmonary tuberculosis 20 years ago. We performed an operation by L4–5 discectomy; all granulation formation with inflammatory processes were debrided and irrigated with antibiotics at levels of L3–5. The old fixation was controlled and replaced. Her back pain improved immediately after surgery; she had a score of 2 on the VAS. Two days after her surgery, our Infection Disease Department reported acid resistant bacillus (ARB+) in samples and began anti-tuberculosis medication.
Conclusions: Spinal infections should always be taken into consideration in recurrent failed back surgeries.

MeSH Keywords: Disease Management • Failed Back Surgery Syndrome • Tuberculosis, Central Nervous System

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Blood samples were taken for cultures, which was in concordance with spondylodiscitis (Figures 1, 2). MRI studies showed L3–4 and L4–5 laminectomy defects with values of C-reactive protein and erythrocyte sedimentation rate. The patient presented with low back pain and fever after multiple lumbar surgeries. We found acid resistant bacillus in a routine surgical specimen. The aim of this study was to draw attention to rare spinal infections in recurrent failed back surgery.

Failed back surgery is a very common problem for surgeons nowadays. With the increase in spinal surgeries, there has been an increase in complications such as instrumentation-related complications and infections.

We have presented an interesting case of failed back syndrome, where the patient presented with low back pain and fever after multiple lumbar surgeries. We found acid resistant bacillus in a routine surgical specimen. The aim of this study was to draw attention to rare spinal infections in recurrent failed back spinal surgeries.

**Case Report**

A 59-year-old female was admitted to the hospital in August 2017 for back pain, which was assessed as a 9 on the visual analogue scale (VAS); the patient reported tiredness and night sweats. She had prior back surgery, including an operation for L3–4 far lateral disc herniation in 2009. The patient had not participated in recommended controls or follow-up after surgery for a longtime, until her back pain reoccurred. Then L4–5 discectomy was performed in December 2016 and three months later she had another operation for L3–4–5 fixation. She had hypothyroidism, diabetes mellitus, and hypertension. Her daughter was cured of pulmonary tuberculosis in 1997.

In the patient’s preoperative diagnostic tests, she had increased values of C-reactive protein and erythrocyte sedimentation rate. MRI studies showed L3–4 and L4–5 laminectomy defects with an abscess in the L4–5 disc area. Granulomatous inflammation was occurring around the dura and disc spaces in L3–4 and L4–5 levels. L4–5 was intensely contrast enhanced, which was in concordance with spondylodiscitis (Figures 1, 2). Blood samples were taken for cultures.

During the operation, we performed L4–5 discectomy and all granulation tissue with inflammatory processes were debrided and irrigated with vancomycin at the level of L4–5. We performed curetage of the endplates and again irrigated the intervertebral disc space with vancomycin solution. We removed previous pedicle screws and replaced them with thicker screws (Figures 3, 4). We made an interbody fusion with an autograft from the iliac bone.

Postoperatively, her back pain improved immediately after surgery and she had a score of 2 on the VAS. Two days after her surgery, the Infection Disease Department reported acid resistance bacillus (ARB+) in samples and suggested anti-tuberculosis medication to prevent hematogenous spread. Pathological diagnosis confirmed granulomatous infection. A distant focus of tuberculosis was not found after the patient was evaluated with diagnostic and radiologic tests. The patient was cured after three months of medical treatment and she was referred to the Physiotherapy Department to improve muscle strength.

**Discussion**

The etiology of failed back surgery syndrome is varied. Wrong diagnosis, wrong sided surgery, inadequate surgery, instability, missed lateral stenosis, recurrent disc herniation, non-fusion, facet pain, infections, root injury, granulation tissues, arachnoiditis, meningeal cysts, and psychiatric problems are potential causes. Infections accounts for 3% of these cases [7]. Discitis is the main cause of infections, but tuberculosis can be a cause, although rare nowadays. In our case, we had concluded that the patient’s infection was a staphylococcal spondylodiscitis due to instrumentation failure; however, our treatment strategy changed when acid resistant bacillus was demonstrated in a surgical specimen.

Pande et al. reported a large case series of 684 patients who had operations for herniated lumbar disc. 87 patients had failed back syndrome and 12 were confirmed to have tuberculous infection of the same disc interval [8]. Our case differs from this study in that we report incidental finding of postsurgical spinal tuberculosis.

There are variations in practice with regards to spinal tuberculosis treatments. Some centers give medical treatment unti-l a neurological deficit appears [2,3,9,10]. Another method is surgery with medical treatment. Spinal tuberculosis surgery also has variations in practice. Posterior spinal decompression, single stage fixation, short or long segment instrumentation with or without interbody fusion, anterior-lateral or posterior approaches, are some of the strategies used [6,9–14]. In our
case, the patient had already undergone previous instrumentation; we changed the implanted screws, cleaned the granulation tissues and established an iliac autograft for interbody fusion.

Sahoo et al. reported on 16 thoraco-lumbar spinal tuberculosis patients who had an operation for posterior decompression and transpedicular screw fixation in a single stage along with antitubercular drug treatment [6]. At follow-up of 24 to 46 months, bony fusion was achieved in 55.5% of the patients. Neurological recovery occurred in 94.4% of the patients. Finally, they observed that all patients became pain free, with a final VAS of 0 to 2 points.

Kumar et al. arranged a prospective follow-up of 25 patients with active thoraco-lumbar spinal tuberculosis who underwent posterior spinal instrumentation with pedicle screws and rods [12]. These patients had posterior stabilization of the involved segment of the spine without anterior or posterior bone grafting. All patients had interbody bony fusion despite the absence of anterior bone grafting or cages.

Arora et al. performed a retrospective review of 24 patients with tuberculosis of the posterior spinal elements, vertebra corpus, and intervertebral disc space [9]. They found that the patients who had undergone operations for decompression for epidural abscess with neurological deficits had poorer outcome compared with patients who received medical treatment without neurological deficits [9].

Wang et al. followed 102 patients with mono-segmental spinal tuberculosis retrospectively [13]. They divided patients into two groups: single-segment and short-segment. They observed responses to postoperative chemotherapy and changes in the Cobb angle for kyphosis, fusion time, and Frankel grading. Each patient’s quality of life and ability to return to work, as determined by the Oswestry Disability Index (ODI), were also evaluated. They found that the differences between the two groups were not significant, but after bone fusion, single-segment fixation was effective in restoring and maintaining spinal stability and retaining normal segment motion more than the short-segment fixation approach.

Zhang et al. reported on 37 patients who suffered lumbar tuberculosis [14]. The patients were treated by two different...
surgical procedures, which were 1) one-stage posterior debride-
ment, TLIF and instrumentation, and 2) posterior instrumen-
tation, anterior debridement and bone graft in a single-stage
procedure. Operative duration and blood loss of the first group
was less than the other. Lumbar tuberculosis was complete-
ly cured, and the grafted bones were fused within 10 months
in all patients. There was no persistence or recurrence of in-
fecion and no differences in the radiological results between
the two groups. Kyphosis was significantly corrected within
three months in all patients.

Figure 3. Postoperative x-ray lumbar sagittal view.

Chandra et al. treated 212 patients who had spinal tubercu-
losis [1]. They divided the patients into two groups: medical
or surgical treatment. After surgery, the improvement of para-
plegia was better. Bladder symptoms correlated with the tim-
ing of surgery, and they observed that medical treatment was
the main stay; however radical, instrumented surgeries should
be offered when indicated. They also concluded that the pres-
ence of paraplegia should not preclude surgery.

Figure 4. Postoperative x-ray lumbar coronal view.
Conclusions

Tuberculosis spondylodiscitis as a cause of recurrent failed back surgery, but is rare. However, spinal infections should always be taken into consideration in recurrent failed back surgeries.

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