Case Report

Brucellar Spinal Epidural Abscess and Spondylodiscitis in Lumbar Spine

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Abstract

Brucellosis is an endemic zoonosis in Turkey and may involve many systems. Musculoskeletal involvement is the most commonly affected site in this infection. Diagnosis may be difficult due to non-specific symptoms. Spondylodiscitis is the most important clinical form. Delay in diagnosis and treatment may lead to abscess formation in patients with spondylodiscitis. Abscess formation is a rare complication and may lead to sudden onset of neurological deficits due to mass effect. In this report, we present a spinal epidural abscess in a 36-year-old woman with spondylodiscitis in lumbar spine. Patient attended with acute onset of muscle power and treated with surgery.

Keywords: Spinal brucellosis; Spondylodiscitis; Epidural abscess; Surgical decompression

Introduction

Brucella infections are endemic in Turkey. Humans are infected by three ways which are consuming of the meat and dairy products of infected cattle, sheep and goats, direct contact, and inhalation [1]. It may cause arthritis, bursitis, tenosynovitis, sacroiliitis, spondylitis and osteomyelitis in the bones and joints [2]. Spondylitis is seen in 2-53% of the patients with brucellosis, and is most commonly seen in the lumbar region followed by the cervical and thoracic regions [3, 4]. Spondylodiscitis is the most important clinical form. Spinal cord compression due to brucellar epidural abscess is a rare pathology but when it develops it may lead to sudden developed paraplegia. Abscesses are mostly located in the thoracolumbar region and less frequently in the cervical region. Treatment consists of surgical debridement of the abscess and preoperative and postoperative antibiotherapy [5].

In this report, we present a spinal epidural abscess in a 36-year-old woman with spondylodiscitis in lumbar spine. Patient attended with acute onset of muscle power and treated with surgery.

Case Report

A 36-year-old female patient was admitted to our clinic with lower back and bilateral leg pain. Leg pain was severe in the left side. Her complaints were increasing last 2 months which were severe especially at night. Loss of muscle strength was added to her complaints in last 3 days. Medical treatment consisting of rifampicin $1 \times 600$ mg and doxycycline $2 \times 100$ mg was arranged 2 weeks ago, but the patient had not used the treatment for 10 days. In the neurological examination, femoral stretching test was bilaterally positive and muscle power was 3/5 in the left foot dorsiflexion. Magnetic resonance imaging (MRI) showed contrast enhancement in the lumbar 4-5 disc and adjacent end plates. An epidural lesion looked like abscess which caused compression of the left root was seen on MRI (Fig. 1). Tube agglutination ($> 1/320$ positive) and Rose Bengal tests were found positive in our hospital.

Surgical decompression was planned due to the presence of muscle strength. Laminectomy, bilateral discectomy and abscess drainage were performed. The sample taken from the abscess was sent to microbiology for culture. Leg pain was resolved and muscle power was 4+/5 in the early postoperative period. Previously recommended antibiotherapy consisting of rifampicin $1 \times 600$ mg and doxycycline $2 \times 100$ was advised again. Patient was still under clinic controls without loss of muscle strength.

Discussion

Brucellosis may involve many organs and systems. Especially musculoskeletal involvement is the most common complication of the disease and plays an important role in the clinic picture [6]. However, non-specific symptoms of osteoarticular involvement usually lead to late diagnosis and delay the initiation of appropriate treatment [7]. Brucellosis spondylitis is observed in 3-15% of men, especially in men over 50 years, causing low back and back pain [8, 9]. L4 and L5 vertebrae are most commonly involved in the lumbar region [10]. Para-vertebral soft tissue involvement and epidural abscess may
develop as the disease progresses. Epidural abscess may mimic disc herniation. It may compress the spinal cord and nerve roots.

Direct radiographs and computed tomography provide limited information about vertebral corpus, paravertebral soft tissue and intervertebral disc height. However, MRI is the most useful imaging method in the diagnosis and follow-up of brucella spondylodiscitis [11-13]. Mild abnormalities in paravertebral soft tissues without abscess formation, diffuse involvement, intact vertebral corpus, abnormalities in intervertebral disc and absence of gibbus deformity are specific for brucella spondylitis in MRI [13]. Contrast-enhanced MRI is essential and contrast uptake in T1W images of the vertebral corpus or intervertebral disc is the earliest sign of spondylitis [12]. Turgut et al suggested that at least two of the following criteria were needed to confirm the diagnosis of brucellosis: appropriate clinical symptoms, serology, radiological findings of bone involvement and isolating brucella species from blood or tissue samples or cultures [14]. In our case, there were three of these criteria and the diagnosis of brucella spondylodiscitis with epidural abscess was made.

There are different medical treatment regimens including various antibiotics such as doxycycline, tetracycline, rifampicin, ciprofloxacin, ofloxacin, trimethrim sulfamethoxazole and aminoglycoside. In addition, the duration of treatment is different in the presence of epidural or paravertebral inflammation or abscess [7]. Therefore, the treatment regimen could not be standardized and treatment failure in brucella spondylitis is high [12, 15]. Bayindir et al compared the five antimicrobial regimens for the treatment of brucella spondylitis and found that the combination of aminoglycoside (1 g/day streptomycin for 15 days), doxycycline (200 mg/day for 45 days) and rifampicin (15 mg/kg/day for 45) reported no recurrence [16]. In our case, the combination of doxycycline and rifampicin was recommended.

Abscess formation does not always require surgery. Kaptan et al followed 19 patients with epidural abscess due to brucella spondylodiscitis and reported that only two of them needed surgical intervention and that none of the medical follow-ups developed functional loss [12]. Surgery should be considered in the presence of spinal cord or root compression, in the presence of pain or instability resistant to conservative treatment [11, 15]. Surgical intervention was planned due to the loss of muscle strength in our patient.

**Conclusion**

Brucella spondylodiscitis and epidural abscess formation should be kept in mind in the differential diagnosis of the patients presenting with lower back and leg pain in endemic regions like Turkey. Surgical decompression should be performed as soon as possible in patients attending with the loss of acute muscle strength as in our patient.

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Financial Disclosure

None to declare.

Conflict of Interest

None to declare.

Informed Consent

Informed consent has been obtained from the patient.

Author Contributions

HA contributed substantially to clinical evaluation, conception and design of the report, writing and critical review. IC contributed substantially to submission of the manuscript, clinical evaluation and critical review of the manuscript.

References