

Case Report

Case report on the development of a brucellosis-related epidural abscess

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Abstract

Brucellosis is an endemic disease in developing countries. The most commonly observed complications include bone-joint involvement, particularly sacroiliitis and spondylitis. Epidural abscesses caused by brucellosis are a rare complication. We describe the case of a 33-year-old man presenting with high fever, back pain, and weakness. At physical examination, the patient was found to be paraparetic. At thoracic MRI, spondylodiscitis and epidural abscess with significant cord compression were observed. In laboratory examinations, Rose Bengal and tube agglutination tests were positive in patient's serum for brucellosis, and specific antibiotherapy was initiated. Total laminectomy was performed and the abscess was aspirated. The biopsy sample was consistent with chronic non-specific inflammation in acute abscess. No growth was detected in the abscess or blood cultures. Following surgery, medical treatment was initiated and, at six weeks' follow-up, clinical and MRI findings indicated that he had recovered. The diagnosis of spinal epidural abscess due to brucellosis should be considered among differential diagnoses in endemic regions. Early diagnosis and specific treatment are important to prevent later complications.

Key words: spinal epidural abscess; brucellosis; spondylodiscitis

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Introduction

Brucellosis is a zoonosis caused by *Brucella* spp. which are facultative intracellular organisms transmitted by unpasteurised milk or dairy products from infected animals to humans and observed as an endemic disease among animals and humans in developing countries [1]. Common symptoms are fever, weakness, decreased appetite, back and low back pain [2]. The disease can lead to some complications, most commonly bone-joint involvement (10%-80%), particularly sacroiliitis and spondylitis [3]. When they occur, *Brucella*-related epidural abscesses generally occur in the thoracic and lumbar spine regions, but can also be found as localized abscesses in the cervical spine region; they rarely lead to spinal cord compression [4-6].

We report a case of brucellosis with thoracic spondylodiscitis and epidural abscess at the thoracic level, showing that *Brucella* spp can be the causative agent of epidural abscesses.

Case report

A 33-year-old man presented to the Infectious Diseases and Clinical Microbiology Clinic of Izmir Tepecik Education and Research Hospital in

November, 2009, with high fever, back pain and weakness, and was hospitalized for further diagnosis and treatment. From the patient's anamnesis, it was found out that the patient's complaints had started nearly two weeks before admission to our clinic. It was noted that unpasteurized cheese had been consumed about a month prior to admission. At physical examination, the patient was found to be paraparetic with grade 2/5 in the left lower limb and grade 1/5 in the right lower limb; no other pathological findings could be detected. In laboratory examinations of blood samples, the white blood cell count was 9.3 K/ μ l, sedimentation was measured as 83 mm/h, and C-reactive protein (CRP) was measured as 5.56 mg/dl. At thoracic magnetic resonance imaging (MRI), there was spondylodiscitis at T9-10 level and epidural abscess between T7-8 and T10-11 levels, while significant cord compression was observed at these levels (Figure 1). Upon determining that the Rose Bengal test was positive in the serum, together with a tube agglutination titer of 1/320, treatment was initiated with doxycycline (200 mg/day orally), rifampin (600 mg /day orally), and streptomycin (1g/day intramuscularly, for three weeks). The patient was operated on and total

Figure 1. Magnetic resonance image showing spondylodiscitis and epidural abscess with significant cord



laminectomy at T8, 9, 10, and 11 was performed; the abscess was aspirated after collecting samples for pathology and culture. Biopsy sample analysis revealed chronic non-specific inflammation in acute abscess, and no growth was detected in the culture. Following surgery the patient received six weeks of medical treatment (the aforementioned antibiotic therapy), after which he recovered (based on clinical and MRI findings).

Discussion

Epidural abscess generally represents an acute infection of the thoracolumbar region and is one of the causes of rapidly developing paraplegia [7]. It is usually diagnosed based on the development of motor deficits in the lower extremities as well as the symptoms of fever, weakness, and back pain [8].

Spinal MRI examination is the gold standard among all radiological methods of diagnosis [6]. The most common agent isolated from epidural abscess cultures is *Staphylococcus aureus*, found in 60 % of cases [9].

Brucellosis is generally associated with common symptoms such as fever, weakness, and musculoskeletal complaints such as back and low back pain [10]. Vertebral osteomyelitis, paravertebral abscesses, and especially sacroiliac infections may develop during *Brucella* infection. Spinal brucellosis may appear in the form of spondylitis, spondylodiscitis, and epidural abscess [11]. The sources of epidural abscess usually include skin, upper respiratory tract infection, and osteomyelitis of adjacent vertebrae [8]. In case of *Brucella*-related epidural abscess, the source is most probably adjacent vertebrae. Several cases of brucellosis related epidural abscess have been reported in the literature [6, 12-14]. A study by İzci *et al.* in 2005 reported that a patient who had presented with leg and sciatic pain was found to have spinal epidural abscess on MRI examination and development of *Brucella melitensis* in the blood culture [13]. There are several *Brucella*-specific assays such as microbiological culture, serological assays (*e.g.* slide or tube agglutination, Coombs test, immunocapture agglutination, Brucellacapt, immunochromatographic lateral flow, enzyme-linked immunosorbent assays and the indirect fluorescent antibody test), and molecular assays (*e.g.* polymerase chain reaction and real-time PCR), and they need to be interpreted carefully, since in some cases brucellosis can produce false negative test results [15].

Brucella abscesses generally respond to antibiotic treatment [16]. Surgical treatment should be considered if there are neurological deficits resulting from nerve root or spinal cord compression [17]. In our case, there was significant cord compression and paraparesis which developed secondary to brucellosis in the lower extremities; therefore, immediate surgery was arranged for the patient. Since short-term monotherapy has a high rate of relapse (30%), generally combination therapies are preferred for the treatment of brucellosis [18-19]. The most commonly administered therapy is combination treatment with doxycycline, rifampin and streptomycin. In cases of perineural abscess, the treatment can be extended up to 6 to 12 months [20].

In conclusion, in cases of non-specific symptoms, including back and lower back pain and progressive paraparesis, the diagnosis of spinal epidural abscess

should be considered among differential diagnoses, and *Brucella* bacteria should be considered among the causative agents in endemic regions. If there are surgical indications in epidural abscesses, the abscesses should be drained as soon as possible. Otherwise, neurological deficits may develop which may become persistent.

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