

Case Report

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A Case of Spondylodiscitis with Spinal Epidural Abscess Due to *Brucella*

Brucellosis, a zoonosis with worldwide distribution, is a systemic infection caused by facultative intracellular bacteria of the genus *Brucella*, which can involve multiple organs and tissues. We report an uncommon case of spondylodiscitis with epidural abscess due to *Brucella* in a male stockbreeder. Diagnosis was based on clinical history, and supported by *Brucella* serology and magnetic resonance imaging. Clinical and radiological improvement were observed with a combined antimicrobial therapy of doxycycline, rifampicin, and gentamycin.

KEY WORDS : Brucellosis · Spondylodiscitis · Epidural abscess.

INTRODUCTION

Brucellosis, a zoonosis with worldwide distribution, is a systemic infection caused by facultative intracellular bacteria of the genus *Brucella*, which can involve multiple organs and tissues^{1,4}. Brucellae are small, gram-negative coccobacilli transmitted to humans either by the consumption of unpasteurized milk or dairy products from infected animals or by direct contact with infected animals³. Spondylitis is the most prevalent and important clinical form of osteoarticular involvement in adults with infections due to *Brucella* species⁶. We report an uncommon case of spondylodiscitis with epidural abscess due to *Brucella* in a male stockbreeder with a review of the relevant literature.

CASE REPORT

A 56-year-old male was admitted to our hospital with a three-month history of low back pain, in addition to fatigue and intermittent febrile sensations for the past six weeks. His occupation was farmer, and he had been stockbreeding cows for 30 years. Five months ago, his cows contracted brucellosis and were slaughtered. He denied a past medical history of hypertension, diabetes mellitus, pulmonary tuberculosis, or hepatitis. Previous his family history did not have any evidence of infectious disease.

On physical examination, his body temperature was 37.4°C. Tenderness was present on the lower lumbar vertebrae. No neurologic abnormalities were noted.

Initial laboratory values were as follows : white blood cell count : 8,800/mm³, hemoglobin : 12.6 g/dl, hematocrit : 36.6%, platelet count : 279,000/mm³, erythrocyte sedimentation rate (ESR) : 56mm/h, C-reactive protein (CRP) : 51mg/L, and a normal blood biochemistry profile. *Brucella* standard tube-agglutination test was positive at a titer of 1 : 320, however, *Brucella* species were not isolated from repeat blood cultures and involved paraspinal tissue culture. Repeat acid-fast bacilli sputum stains and culture for tuberculosis were negative.



Fig. 1. Lateral radiograph of the lumbar spine showing disc space narrowing and vertebral osteophyte at the L4-L5 level.

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On chest X-ray, there was no evidence of tuberculosis. Plain film of the lumbosacral spine and pelvis revealed degenerative changes with the joint space narrowing at L4-5 (Fig. 1). Magnetic resonance imaging (MRI) of the lumbosacral spine revealed signs compatible with osteomyelitis of the L4 and

L5 vertebral bodies with accompanying discitis. There were also soft tissue edema, paraspinal abscess and epidural abscess (Fig. 2).

The patient was diagnosed as having brucellar spondylodiscitis. He was started on intramuscular gentamycin 320 mg/day, oral rifampicin 600 mg/day and doxycycline 200 mg/day. A decline of acute-phase reactants was observed with continued antimicrobial therapy. Follow-up computed tomography (CT) four weeks after medical treatment showed interval improvement of paravertebral and epidural inflammation (Fig. 3). Antimicrobial therapy was continued for seven weeks with the exception of gentamycin, which was continued for 15 days. He continued to experience a reduction in back pain and improved mobility over the following two months.

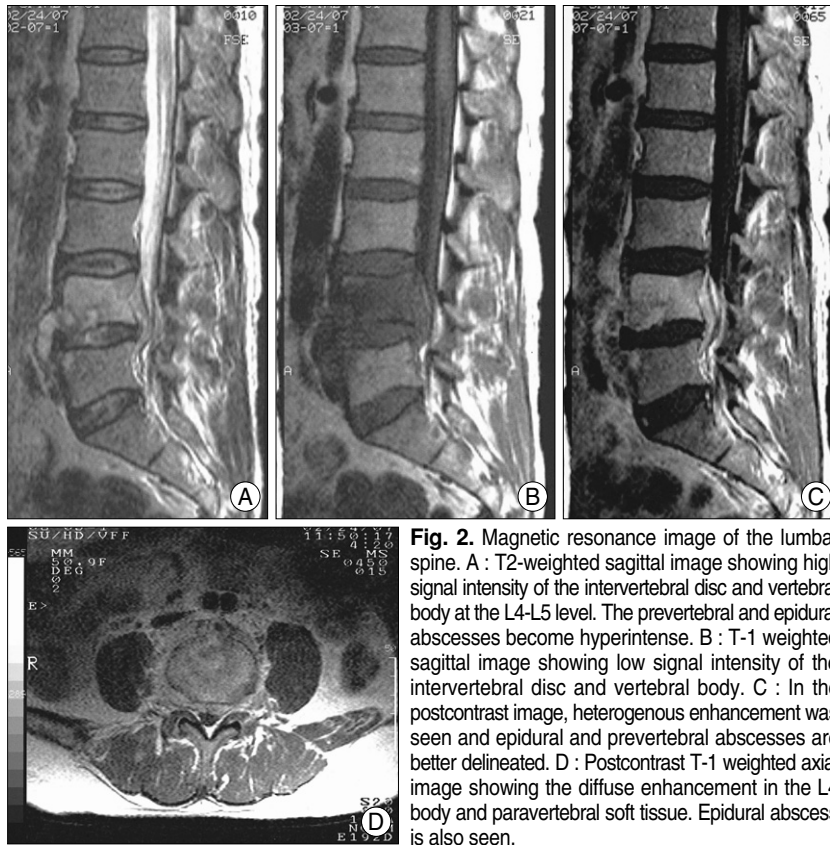


Fig. 2. Magnetic resonance image of the lumbar spine. A : T2-weighted sagittal image showing high signal intensity of the intervertebral disc and vertebral body at the L4-L5 level. The prevertebral and epidural abscesses become hyperintense. B : T-1 weighted sagittal image showing low signal intensity of the intervertebral disc and vertebral body. C : In the postcontrast image, heterogenous enhancement was seen and epidural and prevertebral abscesses are better delineated. D : Postcontrast T-1 weighted axial image showing the diffuse enhancement in the L4 body and paravertebral soft tissue. Epidural abscess is also seen.

DISCUSSION

Brucellae are small, gram-negative coccobacilli that can be transmitted to human either by consumption of unpasteurized milk or dairy product from infected animals or by direct contact with infected animals³. Osteo-articular disease such as sacroiliitis,

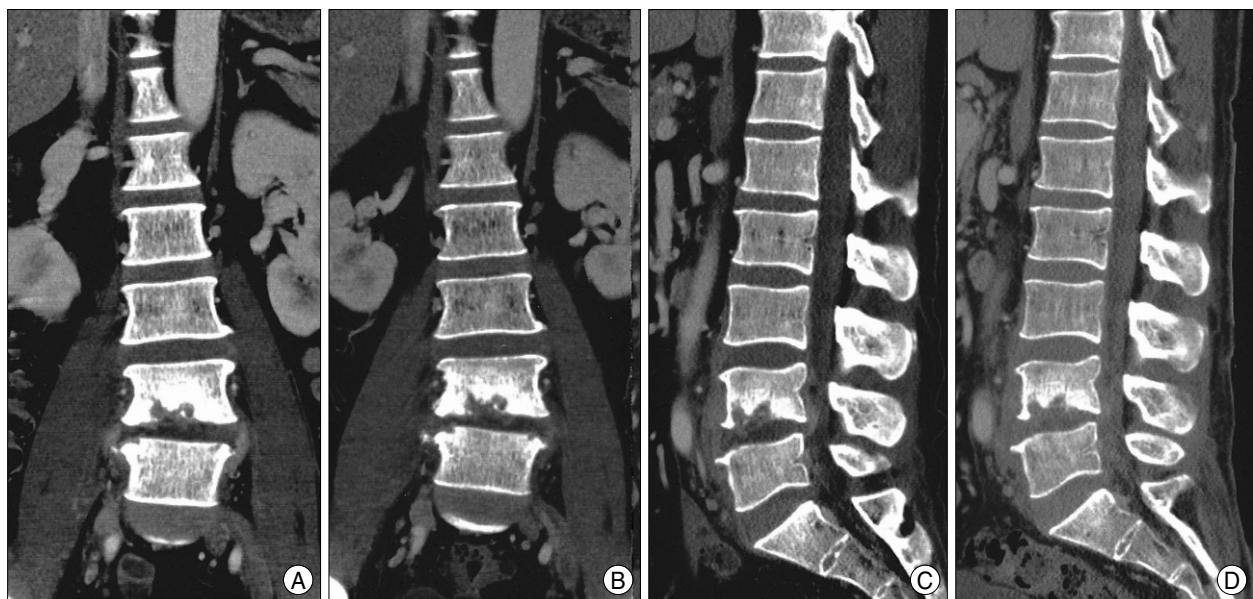


Fig. 3. A, B : Initial coronal (A) and sagittal (C) enhanced computed tomography (CT). C, D : Follow-up coronal (B) and sagittal (D) enhanced CT 4 weeks after antimicrobial treatment. Compared to initial CT, follow-up CT shows interval improvement of paravertebral and epidural inflammation.

arthritis, osteomyelitis and spondylodiscitis is the most common complication of brucellosis, and spondylitis is the most prevalent and important clinical form of osteoarticular involvement in adults with infections due to *Brucella* species⁶.

Considering the route of transmission from animal to human, clues to the diagnosis of brucellar spondylitis may come from the history, especially occupational history³. Clinically, the disease usually presents a wide range of non-specific clinical symptoms and signs such as fever, malaise, night sweating, polyarthralgia, myalgia, and headache¹². Fever appears to be the most consistent feature of the disease². A moderately elevated acute-phase reactants (ESR, CRP) are found in most cases and may be considered as useful measure for assessing the response to therapy.

The radiologic diagnosis of brucellar spondylitis is based on the MRI findings, although spine radiographs, bone scan and CT may also provide some information⁶. Brucellar spondylitis may mimic other diseases that affect the spine, such as tuberculous spondylitis, pyogenic spondylitis, intervertebral disc herniation, metastatic lesion, and spondylosis⁹. Distinctive MR features of brucellar spondylitis include a predilection for the lumbar spine, moderately abnormal paraspinal soft tissue without abscess formation, diffuse but exclusively anterior part involvement, intact vertebral architecture despite evidence of diffuse vertebral osteomyelitis, disc space involvement, and a lack of gibbus deformity^{10,13}. In our case, these was a lumbar spondylodiscitis that involved mostly the anterior part of the vertebral body with epidural abscess, and did not have vertebral architecture deformity. Yilmaz et al.¹³ reported comparison of MRI findings of tuberculous, brucellar and pyogenic spondylitis. Differentiating the types of infectious spondylitis (tuberculous, pyogenic and brucellar spondylitis) enables proper treatment of the different types and may be essential for reducing delays in treatment.

The finding of *Brucella* organisms in blood, bone marrow, or involved tissue culture is diagnostic. However, culturing *Brucella* species is notoriously difficult, because the bacteria grows slowly⁹ and bacteremia is intermittent¹². Therefore, serologic testing is important for the presumptive diagnosis of brucellar spondylitis. A positive serology for *Brucella* (titer >1:160) or a four-fold rise in *Brucella* antibody titer from baseline is considered definitive^{2,11}. Turgut et al.¹² suggest that the diagnosis of brucellosis is established based on the presence of at least two of the following criteria : (1) clinical picture compatible with brucellosis; (2) positive serology for *Brucella*; (3) radiologic findings suggesting infectious vertebral involvement; (4) isolation of *Brucella* species in blood or tissue sample; (5) histological findings consisting of chronic nonspecific inflammation and noncaseating granulomatous tissue. Our case fulfilled more than two

of these criteria, and was therefore diagnosed as brucellar spondylitis.

Management of brucellosis involving the spine has not been standardized and drug selection, duration of antibiotics, and the role of surgery still remain controversial^{11,12}. Various dual or triple antibiotic regimens including different antimicrobials such as doxycycline, tetracycline, rifampicin, ciprofloxacin, ofloxacin, trimethoprim sulfamethoxazole, and aminoglycoside have been suggested for spinal brucellosis^{1,3}. The duration of antibiotic therapy for brucellar spondylitis is longer than systemic brucellosis without spondylitis, commonly a period between 6 and 12 weeks. Bayindir et al.⁴ reported that there was a maximum good response and no relapse in the combination group of aminoglycoside (streptomycin 1g/day for 15 days), doxycycline (200 mg/day for 45 days), and rifampicin (15 mg/kg/day for 45 days). Because brucellosis usually responds to antibiotics, surgery is considered as the last resort in treating spinal brucellosis, but severe neurologic deficit and incapacitating pain often necessitate surgical intervention^{5,7}. In our case, there was no neurologic deficit and back pain was controlled by bed rest and analgesics; therefore antimicrobial therapy was preferentially considered over surgical decompression.

Our case presents spondylodiscitis with epidural abscess due to *Brucella* in a male stockbreeder. Diagnosis was based on clinical history supported by *Brucella* serology and magnetic resonance imaging. Clinical, laboratory and radiologic improvement were observed with combined antimicrobial therapy.

Occasionally, difficulties in the diagnosis of brucellar spondylitis may cause a delay in appropriate treatment, and the disease may lead to devastating consequences when associated with neurological and vascular complications¹⁵. A high degree of suspicion for brucellar spondylitis is essential to reduce a delay in treatment³.

CONCLUSION

A case of brucellar spondylodiscitis with epidural abscess was presented. Brucellar spondylitis is an uncommon but important condition, of which one should be aware in the diagnosis of patients with low back pain, although this zoonosis may be nonendemic to a particular area.

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