

## PAPER DETAILS

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## Brucellar Spondylodiscitis in Chronic Low Back Pain Patients Kronik Bel Ağrılı Hastada Brusellar Spondilodiskit

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### Abstract

Brucellosis is a common disease all over the World. It may involvement of many organs and systems. The aim of this article is to discuss a patient who was referred to our clinic because of fever and back pain; the diagnosis of brucellar spondylodiscitis was based on MRI (Magnetic Resonance Imaging) and clinical suspicion. We reported a case of brucellar spondylodiscitis in a 58-year-old male patient with complaining of back pain for approximately five months. He was treated in various clinics. The patient was also directed to spinal MRI examination. Especially for people living in endemic areas, having symptoms of fever and back pain should be considered potential signs of brucellosis.

**Keywords:** Brucellosis, Spondilodiscitis, Magnetic Resonance Imaging

### Özet

Bruseloz tüm dünyada yaygın bir hastalıktır. Birçok organ ve sistem tutulumu göstererebilir. Bu yazıda amacımız; ateş ve sırt ağrısı ile kliniğimize sevk edilen, brusella spondilodiskit tanısını MR (manyetik rezonans görüntüleme) ve klinik şüphe üzerine dayandırdığımız bir hastayı tartışmaktır. Brusellar spondilodiskit tanısı alan yaklaşık 5 aydır bel ağrısı şikayetiyle çeşitli kliniklerde tedavi edilen 58 yaşında erkek hasta vakasını sunuyoruz. Özellikle endemik bölgelerde yaşayan insanların, ateş ve sırt ağrısı semptomları için ayırıcı tanısında bruselloz potansiyel belirtileri dikkate alınmalıdır.

**Anahtar kelimeler:** Brulesoz, Spondilodiskit, Manyetik Rezonans Görüntüleme

### Introduction

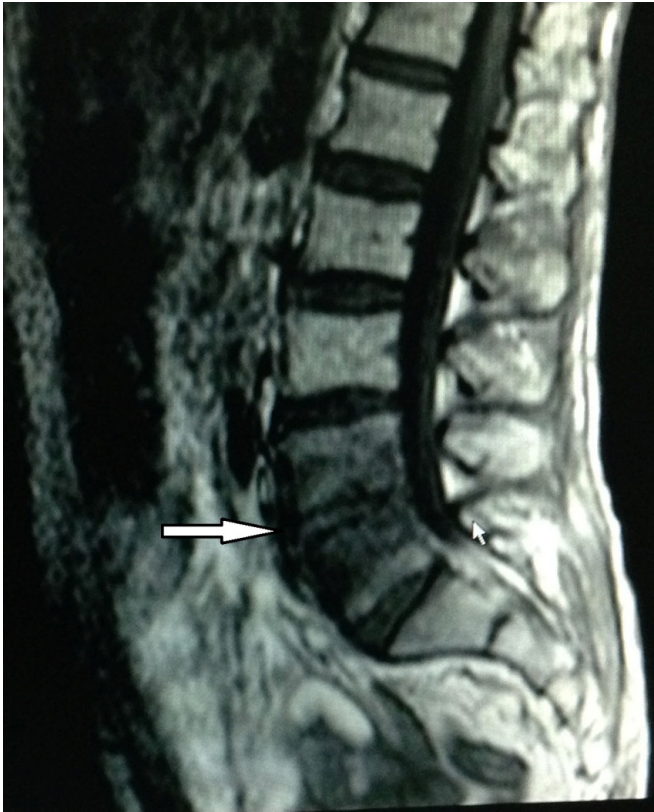
Brucellosis is a disease that is common all over the world and that indicates the involvement of many organs and systems. Brucellosis is a common zoonotic disease in our country and in developing countries because of economic losses and their direct impact on food safety, which constitutes an important public health problem (1,2). The disease is mostly transmitted to humans through contaminated milk and milk products. It can also be transmitted through direct contact with broken skin or secretions of the sick animals; infection by inhalation of aerosols and inoculation into the conjunctiva may occur (1). Brucellosis is endemic in Turkey. Various organs and tissues can be affected by brucellosis, and the most frequent complication is musculoskeletal involvement (1,2). Spinal involvement keeps the vertebrae adjacent to the disc in the 90% of cases. Brucellosis is primarily located in the spinal vertebral body, spreading to the adjacent disc space and the adjacent vertebral body (1,3). Osteoarticular complications are difficult to diagnose, and they can cause neurological and vascular complications (4). Osteoarticular involvement is one of the subtypes of brucellosis spondylodiscitis. It can be mixed with any disease involving the spine. There is no pathognomonic sign or symptom of the disease. In this article, the aim is to discuss a patient who was referred to our clinic because of fever and back pain; the patient's diagnosis of

brucellar spondylodiscitis was based on MRI and clinical suspicion.

### Case Report

A 58-year-old male patient complaining of back pain for approximately 5 months was treated in various clinics (neurology, physical therapy and rehabilitation, orthopedics, etc.), and direct radiography and tomography images had been evaluated as normal. Symptomatic treatment was given with analgesics, anti-inflammatory drugs and muscle relaxant drugs, providing temporary relief. Because there was no full recovery and due to increasingly severe back pain, the patient was admitted to emergency services. A consultation was requested from an infectious diseases expert, as the patient was suffering from fever (38.2° C), fatigue and weight loss. The patient's blood tests were: WBC 6700 mm<sup>3</sup>, CRP 8.5 Hb, 12.3g / dl and ESR (erythrocyte sedimentation rate) 59 mm/dL. The rose bengal test was positive. The standard tube agglutination test (SAT) results were 1/320 (positive), and the patient was also was directed to spinal MRI. In the MRI, hypointense (Figure 1) in corpus vertebrae L4-L5 and discs between L4-L5 were seen on T1 weighted images hyperintense (Figure 2) signal feature was also available on T2. After intravenous injection of contrast material, contrast enhancement was detected corpus vertebrae and intervertebral disc of L4-5, and radiological findings were

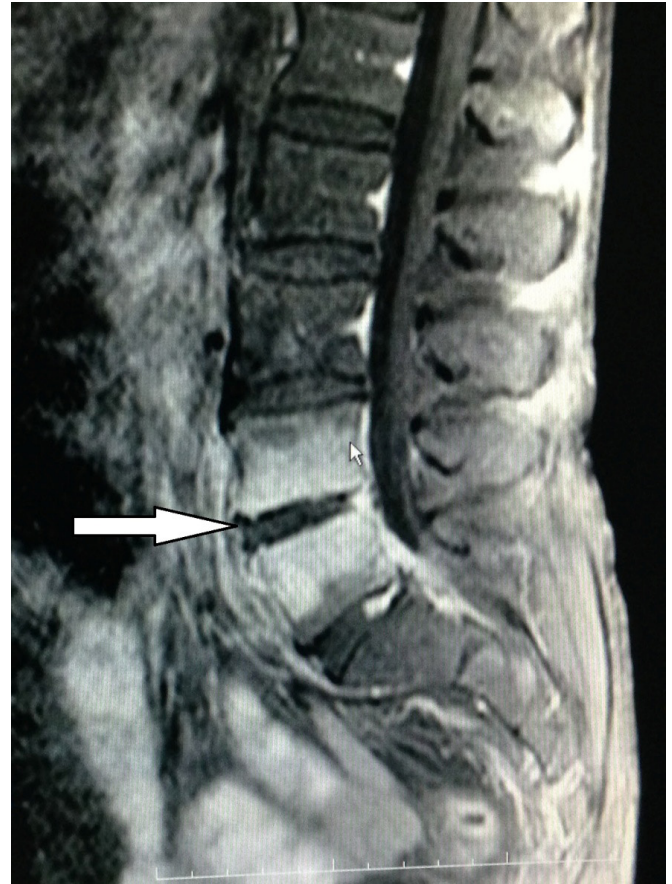
evaluated as spondylodiscitis . Assuming that the patient had brucellar spondylodiscitis, doxycycline, gentamicin and rifampicin were given to the patient. Two months later, an obvious improvement on the radiological MRI findings in the L4-5 vertebral bodies and disc were identified (Figure 3).



**Figure 1.** Hypointense in corpus vertebrae L4-L5 and discs between L4-L5 were seen on T1 weighted sequences.

### Discussion

The most commonly seen complication of brucellosis is musculoskeletal system involvement, often accompanied by spondylodiscitis. Most often, lumbar regions are affected. In recent years, the disease's prevalence has risen rapidly worldwide, particularly in endemic areas. However, there are few studies on this issue (3). Brucellar spondylodiscitis is often seen between the ages of 50 and 60. Age tends to increase bone involvement after the closure of bone metaphysis especially after age of 60. The resulting axial vascularization in the bone marrow of the long bones changes the bones' distribution (4). We think our case is affected by changes in bone seen in the 58-year-old patient. Osteoarticular brucellosis, peripheral arthritis, sacroiliitis, spondylitis, tenosynovitis and bursitis may occur in the form of osteomyelitis (5). First vertebral involvement is observed, and then it spreads to adjacent vertebrae; with the addition of disc involvement, spondylitis changes to spondylodiscitis. Brucellar spondylodiscitis can look like any other disease involving the spine. Differential diagnosis of brucellosis can include tuberculous spondylitis, pyogenic spondylitis, intervertebral disc herniation, metastatic lesions and spondylosis. Despite the most common cause of vertebral osteomyelitis being pyogenic factors, in endemic



**Figure 2.** After contrast media injection, hyperintense signal feature was also seen L4-5 corpus vertebrae and intervertebral disc on T2 weighted sequences



**Figure 3.** Two months later, MRI improvement of the lesion was observed



areas, brucellosis can cause it (6). Risk factors such as food exposure or animal contact were not part of the patient's history, but because brucellosis is endemic, the infection was considered to be brucellosis. Serological tests are very important for diagnosis of brucellosis. The rose bengal screening test is simple and cheap. Clinically, in the most commonly used brucellosis serum agglutination test (SAT) higher titers are seen (1/160) in cases in which the support is significant for clinical acute infection (1). In our case, the rose bengal test and the SAT test (1/320) were positive.

Direct images can be asymptomatic in the early stages of brucellosis, and computed topography is insufficient to show soft tissue details. For that reason, the preferred method is MRI (1,7); many of the basic techniques used in MRI sequences, such as T1 and T2 weighted spin echo and gradient echo sequences, are used. Hypointense regions resulted in black images, and hyperintense regions were close to white. Disease-specific MRI findings revealed lumbar region localization, adjacent soft tissue involvement without abscess and vertebral osteomyelitis without deterioration in vertebral structures (8). Lumbar spine involvement due to brucellosis is often seen in the L4-L5 vertebrae (1). In our case, corpuces and discs of L4-5 were seen hypointensity on T1 weighted images. (Figure 1). After injection of contrast material hyperintensity was seen in corpuces of vertebrae and disc, and radiological findings were compatible (Figure 2). Assuming that the patient had brucellar spondylodiscitis doxycycline, gentamicin and rifampicin were given to the patient. After 6 weeks, an obvious improvement was observed in the lesion. In our case, MRI examination was repeated two months later. Improvement of the lesion was observed (Figure 3). After treatment, the patient's CRP was 1.7, and his ESR was 22 mm/hour.

Brucellosis is a disease that can be prevented with early diagnosis and treatment. Musculoskeletal involvement is the most frequent complication of brucellosis, and it is often seen in the lumbar area. Spondylodiscitis connected to neurological complications, spinal surgery requirement is common and permanent sequelae. Especially for people living in endemic areas, symptoms of fever and back pain should be considered potential signs of brucellosis in the differential diagnosis.

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### Legends

(Figure 1) Hypointense in corpus vertebrae L4-L5 and discs between L4-L5 were seen in 'T1 sequences'

(Figure 2) A hyperintense signal feature was also available in 'T2 sequences'

(Figure 3) Two months later, repeated MRI improvement of the lesion was observed

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