Int J Clin Exp Med 2018;11(4):4333-4335
www.ijcem.com /ISSN:1940-5901/IJCEM0063853

Case Report

Brucella spondylitis caused by Brucella melitensis: a case report

Shuai Rao, Zhengjun Hu, Jiawei Yang, Qing Wang, Zhanjun Zhang, Dunliang Rao

Department of Orthopedics, Pizhou Dongda Hospital, Pizhou 221300, Jiangsu Province, China

Received August 17, 2017; Accepted December 29, 2017; Epub April 15, 2018; Published April 30, 2018

Abstract: Background: Brucellosis is a common zoonotic disease in many parts of the world. It may involve multiple organs and is often hard to diagnose due to the non-specific symptoms. In this study, we report a case with Brucella spondylitis successfully treated by medical therapy. Case presentation: A 57-year-old female living in a rural area was admitted with progressive osphyalgia, radiative pain of left lower limbs, hyperpyrexia, shiver and weakness. Lumbar magnetic resonance imaging (MRI) displayed decreased signal intensity of the L3-4 vertebrae on T1-weighted images and increased signal intensity on T2-weighted images. A Brucella standard tube agglutination test was positive at a titer of 1:400. Given the test results, the patient was treated with doxycycline (0.1 g, two times daily) and moxifloxacin (0.4 g, one time daily) orally for 3 months and concurrently rifampicin (0.45 g) and isoniazide (0.3 g) orally one time daily for 6 months. Conclusions: Brucella spondylitis should be kept in mind in the differential diagnosis in patients with osphyalgia. The duration of treatments should be prolonged in patients with worse physical condition.

Keywords: Brucella melitensis, osphyalgia, medical treatments

Introduction

Brucellosis is an endemic zoonosis caused by facultative intracellular bacteria of the genus *Brucella*, which spreads to humans by contact with infected animals or unpasteurized dairy products [1, 2]. Human Brucellosis is an infectious disease that can involve various body systems. The non-specific symptoms and signs may present a wide range of clinical manifestations. Brucellar spondylitis, which was first described by Kulowski and Vinke in 1932, is one of the most serious complications of Brucellosis [3, 4].

Brucellosis is widespread across the globe, especially in countries of the Mediterranean region [5]. In China, it is of relatively high prevalence in the western regions, while in the middle and eastern parts of China it is rare to be found in hospitals. In this study, we report the the first case with Brucellar spondylitis in our province within the middle part of China.

Case presentation

A 57-year-old female was admitted to our hospital with complaint of progressive osphyalgia with radiative pain in the left lower limbs, which had developed gradually for 2 months prior to the visit. She also complained of hyperpyrexia and shiver for about 2 h during the afternoon every day during the past half a month. The patient had a long-term history of raising livestock. Physical examination on admission revealed an axillary temperature of 36.4°C, pulse 78 beats/min, blood pressure 140/80 mm/Hg, tenderness and percussion pain of the lumbar spinous process intervals and bilateral groin. The laboratory tests revealed abnormal parameters such as a raised erythrocyte sedimentation rate (ESR) of 62 mm/hr and reduced hemoglobin (HGB) level of 89 g/L (**Table 1**). Computed tomography (CT) imaging demonstrated osteolytic destruction at L3 and L4. Lumbar magnetic resonance imaging (MRI) displayed decreased signal intensity of the L3-4 vertebrae on T1-weighted images, increased signal intensity on T2-weighted images, and laminar inflammatory reactions of L3 and L4 (**Figure 1**). A Brucella standard tube agglutination test was positive at a titer of 1:400.

After the diagnosis of Brucella spondylitis, the patient was started on doxycycline (0.1 g, two

Table 1. Abnormal laboratory parameters in this patient

	First hospital day	Two months after treatments
Neutrophil (%)	80.7	54.3
Lymphocytes (%)	13.8	37.0
Eosnophils (%)	0.1	3.4
CRP (mg/L)	56.1	8
ESR (mg/L)	139	18
Hemoglobin (g/L)	89	119
Hematocrit (%)	0.28	37.6
MCV (fL)	73.7	83.2
MCH (Pg)	23.4	26.3

CRP, C-reactive protein; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin.

times daily) and moxifloxacin (0.4 g, one time daily) orally for 3 months, as well as rifampicin (0.45 g) and isoniazide (0.3 g) orally one time daily for 6 months.

After 2 months of treatment, he became afebrile and improved gradually. The laboratory parameters gradually returned to normal (**Table 1**). The radiative pain of the left lower limbs and osphyalgia disappeared 4th months after treatments. After one year of follow-up, no relapse was observed. Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

Discussion

Human Brucellosis is a systemic infection that can involve any organ or system. Brucellae could be transferred into the circulation through the lymph nodes and gradually spread throughout the body. Osteoarticular involvement is the most common complication which includes spondylitis, sacroiliitis, and arthritis. Spondylitis is the most frequent complication of osteoarticular involvement and it has many nonspecific clinical manifestations such as fever with chills, muscle and joint pain, headache and sweating [1, 6]. However, the radiological diagnoses of spondylitis resemble many diseases that affect the spine such as tuberculosis and pyogenic osteomyelitis. The clinical and radiological diagnoses by the unspecific symptoms are quite challenging. In the present case, the patient with Brucellar spondylitis was misdiagnosed as Tuberculous spondylitis prior to admission at our hospital.

The diagnosis of Brucellar spondylitis primarily depended on the clinical features, history, imaging examination, and laboratory test (Brucella positive serum agglutination with a titer over 1:160 and/or blood culture) [7]. In this case, the clinical manifestations were obvious with sweating, fever, and progressive osphyalgia. The imaging tests showed osteolytic focus and inflammatory reaction at L3 and L4. The positive Brucella agglutination test was at a titer of 1:400. ESR is not a useful indication for confirming Brucellar spondylitis. Since increased ESR was observed in most studies, Lim et al. [8] suggested that the ESR might be a useful indicator for assessing the response to therapy. In our case, the ESR of the patient was obviously increased when admitted to hospital and returned to normal after two months of treatment. The worse physical condition of anemia led to changes of hemoglobin, hematocrit, mean corpuscular volume (MCV), and mean corpuscular hemoglobin (MCH). A previous study [9] demonstrated that microangiopathic hemolytic anemia was observed in a majority of patients with Brucellosis, which is consistent with our report.

The World Health Organization has recommended doxycycline antibiotic therapy and rifampicin for 6 weeks [10]. Many studies advocate that the duration of therapy should be based on the patient's condition and state of illness [7]. The treatment duration varies from 6 weeks to 6 months [11]. In the present case, based on the worse physical condition of the patient, we added moxifloxacin and isoniazide to the therapy regimen. The radiative pain of the left lower limbs and osphyalgia still persisted after 2-months of treatment, indicating that longer durations of treatment were necessary. The 6-month treatment was found to be sufficient to cure the disease.

Conclusions

Brucella spondylitis should be kept in mind in differential diagnosis in patients with osphyalgia. MRI and laboratory tests are effective to diagnose Brucella spondylitis. We report that the duration of treatment should be prolonged in patients with worse physical condition.

Disclosure of conflict of interest

None.

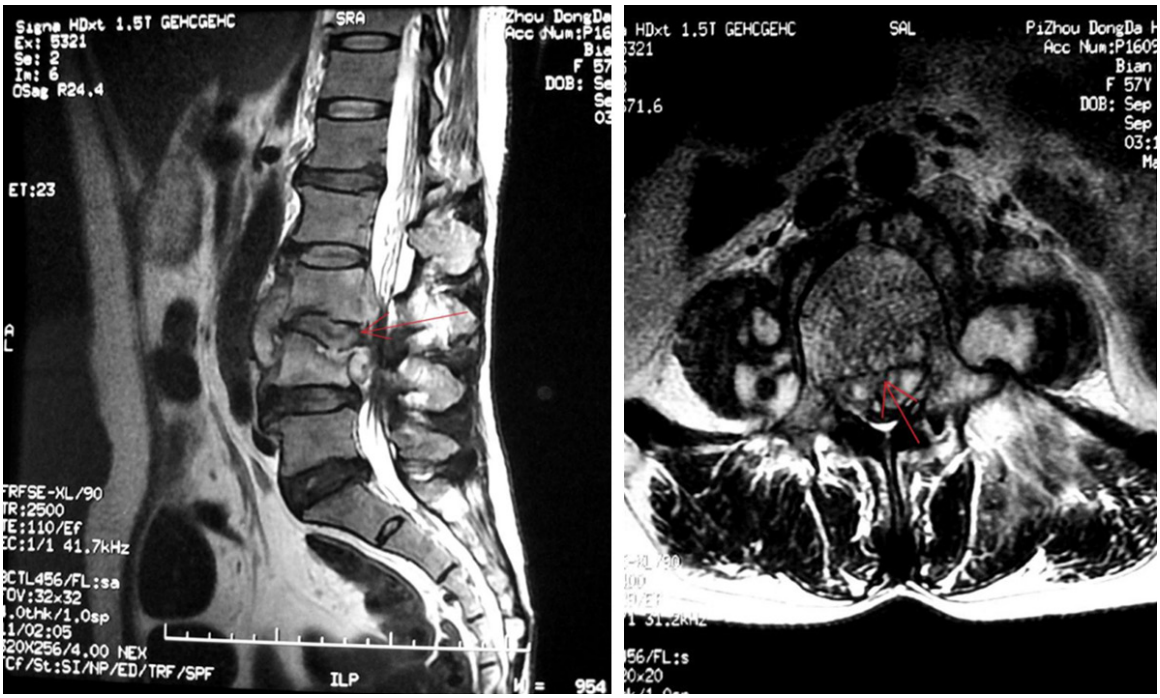

Figure 1. Lumbosacral spine contrast enhanced T2-weighted magnetic resonance imaging shows abnormal signal change with enhancement in L3 and L4 body.

Address correspondence to: Dunliang Rao, Department of Orthopaedics, Pizhou Dongda Hospital, No. 32-1, Construction Road, Pizhou 221300, Jiangsu, China. Tel: +86 13913482087; E-mail: raodunliangdo@yeah.net

References

[1] Aydin G, Tosun A, Keles I, Ayaslioglu E, Tosun O and Orkun S. Brucellar spondylodiscitis: a case report. Int J Clin Pract 2006; 60: 1502-1505.

[2] Lee HJ, Hur JW, Lee JW and Lee SR. Brucellar spondylitis. J Korean Neurosurg Soc 2008; 44: 277-279.

[3] Tekkok IH, Berker M, Ozcan OE, Ozgen T and Akalin E. Brucellosis of the spine. Neurosurgery 1993; 33: 838-844.

[4] Solera J, Lozano E, Martinez-Alfaro E, Espinosa A, Castillejos ML and Abad L. Brucellar spondylitis: review of 35 cases and literature survey. Clin Infect Dis 1999; 29: 1440-1449.

[5] Bodur H, Erbay A, Colpan A and Akinci E. Brucellar spondylitis. Rheumatol Int 2004; 24: 221-226.

[6] Turgut M, Sendur OF and Gurel M. Brucellar spondylodiscitis in the lumbar region. Neurol Med Chir (Tokyo) 2003; 43: 210-212.

[7] Alp E and Doganay M. Current therapeutic strategy in spinal brucellosis. Int J Infect Dis 2008; 12: 573-577.

[8] Lim KB, Kwak YG, Kim DY, Kim YS and Kim JA. Back pain secondary to Brucella spondylitis in the lumbar region. Ann Rehabil Med 2012; 36: 282-286.

[9] Denk A and Ozden M. A case of brucellosis presenting with acute hepatitis and bicytopenia. Infez Med 2015; 23: 178-181.

[10] RA. S. Brucellosis. In: Bennett JC, Plum F (eds). Textbook of Medicine, 20th edn WB Saunders: Philadelphia 1996.

[11] Nas K, Gur A, Kemaloglu MS, Geyik MF, Cevik R, Buke Y, Ceviz A, Sarac AJ and Aksu Y. Management of spinal brucellosis and outcome of rehabilitation. Spinal Cord 2001; 39: 223-227.