



A Rare Case of Brucella Spondylodiscitis Mimicking Lumbar Disc Herniation

Ergenekon Karagoz¹, Asim Ulcay¹, Hakan Simsek², Vedat Turhan¹, Hakan Erdem¹, Ali Acar¹, Oral Oncul¹, Levent Gorennek¹

¹Department of Infectious Diseases and Clinical Microbiology, ²Department of Neurosurgery, Gata Haydarpaşa Training Hospital, Istanbul, Turkey

Abstract

A 77-year-old female patient was admitted to our hospital because of low back pain radiating to the right leg for one month. In her history, her abrupt back pain was started in July 2011 and she had been hospitalized in neurosurgery department and after the magnetic resonance imaging (MRI) of the lumbar region, a lumbar disc herniation (LDH) at the L4-L5 level was observed. Serological tests were also performed and showed high levels of Brucella antigen (1/640). The patient was diagnosed as having Brucella infection and therapy consisting of doxycycline and streptomycin was commenced. After 14 days of this combination therapy, streptomycin was altered with rifampicin. Doxycycline and rifampicin were administered for 3 months. At the end of that therapy the patient was free of pain and his physical and neurological examination was found to be normal. In conclusion, brucellar discitis and spondylitis should also be considered in the differential diagnosis of long standing back pain in suspected cases particularly in regions where brucellosis is endemic.

Keywords: Brucella spondylodiscitis, lumbar disc, herniation

(Rec.Date: Mar 27, 2015)

Accept Date: Jun 21, 2015)

Corresponding Author: Ergenekon Karagöz, Department of Infectious Diseases and Clinical Microbiology, Gata Haydarpaşa Training Hospital, Istanbul, Turkey.

E-mail: ergenekonkaragoz@hotmail.com **Phone:** +90 507 142 59 10

Introduction

Brucellosis is a common zoonotic disease, which is still a major health problem in Mediterranean region and certain parts of the world. Spinal involvement is one of the most important complications of the disease and the lumbar region is the most affected site. We present a case with brucellar spondylodiscitis that was firstly diagnosed as having a lumbar disc herniation and operated in neurosurgery department. Yet after the operation, her low back pain did not reduced and she visited infectious diseases outpatient clinic and diagnosed as Brucellar spondylodiscitis.

Case

A 77-year-old female patient was admitted to our hospital because of low back pain radiating to the right leg for one month. In her history, her abrupt back pain was started in July 2011 and she had been hospitalized in neurosurgery department and after the magnetic resonance imaging (MRI) of the lumbar region, a lumbar disc herniation (LDH) at the L4-L5 level was observed. Laboratory tests were completely normal except for a mild elevation in erythrocyte sedimentation rate (ESR) and the patient was operated upon.

A microdiscectomy was performed at the right L4-L5 level. Intraoperatively, mucoid appearance of the disc material was observed. Interestingly, dark colored fluid is also aspirated under the L5 root. A specimen taken from the disc space was sent to the pathology laboratory for further examination and was reported as inflammatory fibroconnective tissue. Despite the LDH operation, her low back pain was still present. Therefore, control MRI was performed and she was operated in September 2011 due to epidural mass detected in MRI. The biopsy material was sent to pathology service again and reported as inflammatory tissue. In a routine postoperative check-up, the patient's low back pain had worsened and the bed-shaking test was positive. MRI of the lumbar region was performed and revealed spondylodiscitis. Hematological investigations revealed Leukocyte: 6700/mm³; Hb: 11.7 g/dL, Hct: %33.8; thrombocyte: 250.000/mm³; erythrocyte sedimentation rate: 36 mm/hour (0-30); C-reactive protein: 22 mg/L (0-8); prothrombin time: 12 sec (10-14), INR: 1.01; AST: 25 U/L (5-40); ALT: 20 U/L (5-40); BUN: 67 mg/dL, Creatinine: 0.9 mg/dL. A blood sample was taken for culture. No organism was cultured in the blood sample. Serological tests were also performed and showed high levels of Brucella antigen (1/640). The patient was

diagnosed as having Brucella infection and therapy consisting of doxycycline and streptomycin was commenced. After 14 days of this combination therapy, streptomycin was altered with rifampicin. Doxycycline and rifampicin were administered for 3 months. At the end of that therapy the patient was free of pain and his physical and neurological examination was found to be normal.

Discussion

A certain diagnosis of brucellosis is made when this microorganism is isolated from blood, bone marrow or other body fluids or tissues. Most laboratories utilize rapid isolation methods for blood cultures. However, these cultures need to be maintained for up to 30–40 days to isolate *Brucella* spp. successfully. In our microbiology laboratory, the blood culture was resulted after 2 weeks we sent the sample. The negative result of the blood culture could be explained by this reason. If this culture had been maintained for up to one month, it would have produced positive result. Moreover, blood culture positivity rate is not so high in spinal brucellosis. For this reason, the serum agglutination test is still the best standardized and most widely used serologic test in the diagnosis especially in endemic areas.

Spinal brucellosis originates through a haematogenous route and infection usually initiates from the anterior superior endplate of a vertebra corpus due to the rich supply of blood in this area [1,2]. Inflammation can then distribute to the entire vertebral body or to the intervertebral disc, causing spondylodiscitis. Literature regarding nerve root compression in brucellar spondylodiscitis involves complications such as epidural abscess, granuloma or discitis secondary to vertebral body involvement by brucellosis [1-3]. Brucellosis discitis as an infectious etiology of spinal root compression is uncommon. In this patient, the presence of disc degeneration and nerve root comprehension may be associated with *Brucella* infection. The underlying inflammation which may occur in the nucleus pulposus can lead to disc expansion (resulting from neutrophilic enzyme and cytokine mediated matrix protein) which can contribute to a rise in intradiscal pressure. These mechanisms can subsequently cause herniation of the degenerated disc [4-6].

In conclusion, brucellar discitis and spondylitis should also be considered in the differential diagnosis of longstanding back pain in suspected cases particularly in regions where brucellosis is endemic. Such these cases of brucellosis, only antibiotherapy may be sufficient

and may provide cure. In addition, brucellosis has been reported as a cause of LDH only in rare cases. Therefore; before surgical interventions for lumbar discitis and spondylitis, serological tests are the crucial options in the diagnosis of Brucellosis and they should never be overlooked.

References

1. Mousa AM, Bahar RH, Araj GF, Koshy TS, Muhtaseb SA, al-Mudallal DS, Marafie AA. Neurological complications of brucella spondylitis. *Acta Neurol Scand* 1990;81(1):16-23.
2. Turgut M, Turgut AT, Koşar U. Spinal brucellosis: Turkish experience based on 452 cases published during the last century. *Acta Neurochir (Wien)*. 2006;148(10):1033-44.
3. İzci Y. Lumbosacral spinal epidural abscess caused by *Brucella melitensis*. *Acta Neurochir (Wien)*. 2005;147(11):1207-9
4. Kiliç T, Ozer AF, Ozgen S, Pamir MN. Brucellar spondylitis mimicking disc herniation. Case report. *Paraplegia* 1995;33(3):167-9.
5. Alton GG, Forsyth JR. *Brucella*. In: Baron S, ed, *Medical Microbiology*. Galveston: University of Texas Medical Branch. 1996;289-302.
6. Yilmaz C, Akar A, Civelek E, Köksay B, Kabatas S, Cansever T, Caner H. Brucellar discitis as a cause of lumbar disc herniation: a case report. *Neurol Neurochir Pol*. 2010;44(5):516-9.