

Brucellar discitis as a cause of lumbar disc herniation: a case report

Brucelozowe zapalenie krążka międzykręgowego jako przyczyna wypadnięcia krążka w odcinku lędźwiowym – opis przypadku

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Abstract

Brucellosis is an infectious disease spread by consumption of non-pasteurized milk products or through contact with infected animals. Spinal involvement is one of the most important complications and the lumbar area is the most frequently affected site. Among the neurological consequences, nerve root compression can be a result of epidural abscess, granuloma or discitis secondary to vertebral body involvement.

In this case report we present a 50-year-old male patient with brucellar discitis without spondylitis which caused lumbar disc herniation.

We want to emphasize that discitis should also be considered in differential diagnosis of nerve root compression in suspected cases.

Key words: brucellar discitis, lumbar disc herniation, spondylodiscitis.

Streszczenie

Bruceloza to choroba zakaźna przenoszona przez spożycie niepasteryzowanych produktów mlecznych lub przez kontakt z zakażonym zwierzęciem. Zażycie kręgosłupa jest jednym z najistotniejszych jej powikłań, a odcinek lędźwiowy to okolica najczęściej objęta zmianami chorobowymi. Uciśnięcie korzenia nerwowego jest jednym z neurologicznych następstw choroby i może być spowodowane ropniem nadtwardówkowym, ziarniniakiem lub zapaleniem krążka międzykręgowego wtórnym do zajęcia trzonu kręgu.

Przedstawiono przypadek 50-letniego mężczyzny, u którego brucelozowe zapalenie krążka międzykręgowego bez zapalenia kręgu spowodowało wypadnięcie krążka międzykręgowego w odcinku lędźwiowym.

Autorzy podkreślają, że zapalenie krążka międzykręgowego należy brać pod uwagę w rozpoznaniu różnicowym przyczyn uciśnięcia korzenia nerwowego.

Słowa kluczowe: brucelozowe zapalenie krążka międzykręgowego, wypadnięcie krążka międzykręgowego w odcinku lędźwiowym, zapalenie trzonu kręgu i krążka międzykręgowego.

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Introduction

Brucellosis is a major health problem affecting mainly the Mediterranean region, the Middle East and Central and South America [1,2]. It is a common zoonosis caused by the Gram-negative coccobacillus *Brucella* and transmitted to humans by consumption of non-pasteurized milk dairy products or through direct contact with infected animals.

Brucellosis tends to affect organs rich in mononuclear phagocytes, i.e. liver, spleen, lymph nodes and bone marrow [1]. Osteoarticular manifestations, including sacroiliitis, peripheral arthritis, spondylitis, osteomyelitis and bursitis, are possible complications of brucellosis. According to different estimates they can occur in 0-80% of infected patients [3-6]. Among these complications, spondylodiscitis is the most important one, as it occurs in 2-60% of cases and may cause some neurological consequences. Within the spinal column, the lumbar region runs the most risk of getting infected, followed by thoracic and cervical regions [6].

Spinal brucellosis usually starts from the vertebral body and then spreads to the disc space. Brucellar discitis without spondylitis is extremely rare. We present a case of a 50-year-old man with brucellar discitis without spondylitis which resulted in disc herniation.

Case report

A 50-year-old male patient was admitted to our clinic because of low back pain radiating to the right leg for one month. He had received conservative treatment including strict bed rest for two weeks together with anti-inflammatory drugs and he reported improvement of his complaints in spite of the medical treatment. Neurological examination revealed a motor deficit in the extensor hallucis longus muscle and a Lasegue test was positive on the right side. Magnetic resonance imaging (MRI) of the lumbar region revealed a sequestered disc herniation at the L5-S1 level (Fig. 1). 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 L5-S1 level. Intraoperatively, mucoid appearance of the disc material was observed. A specimen taken from the disc space was sent to the microbiology laboratory for further examination but both the microscopic examination and the culture results were normal. Just after the surgery, the patient's complaints related to sciatica sub-



Fig. 1. T2-weighted MRI images in sagittal (A) and axial (B) plane reveal sequestered disc herniation at L5-S1 level



Fig. 2. T1-weighted MRI images in sagittal (A) and axial (B) plane after contrast injection show brucellar spondylodiscitis at L5-S1 level

sided completely but the low back pain was still present. In a routine postoperative check-up 10 days after the operation, 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 (Fig. 2). Serological tests were also performed and showed high levels of *Brucella* antigen (1/160). The patient was diagnosed as having harboured *Brucella* infection and therapy consisting of doxycycline and rifampicin was applied for 3 months. At the end of that therapy the patient was free of pain and his neurological examination was normal.

Discussion

Spinal brucellosis arises through a haematogenous route and infection usually starts from the anterior superior endplate of a vertebra corpus due to the rich supply of blood in this area [1,7]. Inflammation can then spread to the entire vertebral body or to the intervertebral disc, causing spondylodiscitis.

Literature concerning nerve root compression in brucellar spondylodiscitis implies complications such as epidural abscess, granuloma or discitis secondary to vertebral body involvement by brucellosis [8-13]. Spinal root compression secondary to brucellar discitis without any vertebral spondylitis is extremely rare and has been published in only one case [14].

In our case, brucellar discitis could not be diagnosed preoperatively either clinically and/or radiologically. Preoperatively, MRI revealed a sequestered disc fragment at L5-S1 and there was no feature suggesting discitis. This condition was then suspected only because of the mucoid appearance of the disc material. The diagnosis of spondylodiscitis was confirmed with MRI that was performed because of the worsening of the patient's low back pain 10 days after the operation. Serological tests confirmed the diagnosis.

A possible explanation of the disc degeneration and nerve root compression in this patient may be the early effects of *Brucella* infection on the disc. An inflammatory process in the nucleus pulposus of the infected disc can cause expansion of the disc (as a result of degeneration of the matrix proteins secondary to neutrophilic enzymes and cytokines) and this can cause an increase in intradiscal pressure which may eventually cause herniation of the degenerated disc [15-18].

There are two possible explanations for the appearance of spondylodiscitis in the control MRI. One is

the possibility of our patient being in the early stage of infection at the time of first admission so that spondylitis could not be diagnosed in the preoperative MRI. But we think that this was actually not the case as disc material was in a mucoid state at the time of surgery, showing that the disc had already been infected and at that stage MRI would be expected to also show the spondylodiscitis. Additionally, the patient's symptoms began one month earlier, which is enough time for radiological changes in brucellar spondylodiscitis. Another explanation can be the spread of infection to the vertebral body from the infected disc as a result of surgery and we think that this explanation is more logical. Nevertheless, we think that our case is unique as it will be the second case in the literature demonstrating brucellar discitis without spondylitis leading to herniation of the nucleus pulposus.

We conclude that the spinal form of brucellosis with no specific findings or symptoms at an early stage needs a great deal of suspicion for a correct diagnosis. We recommend that in suspected cases and especially in risky groups, brucellar discitis should also be taken into consideration for differential diagnosis and necessary serological tests concerning brucellosis should be performed.

Disclosure

Authors report no conflict of interest.

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