

Epidural Abscess Caused by Brucellosis: A Case Report and Review of Literature

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Abstract

Brucellosis is an endemic and systemic disease characterized by a wide spectrum of signs and symptoms in different organs of body. It can be also recurrent and complicated even in patients who had a complete and appropriate antibiotic regimen. One of the rare complications is spinal epidural abscess that can cause annihilating side effects in delayed diagnosed cases. A prompt diagnosis and treatment involving surgical or nonsurgical therapies can save the patients. We reported a 42-year-old case of spinal epidural abscess due to a previous treated brucellosis. The case was treated without any need for surgical treatment including streptomycin, doxycycline and rifampin. We concluded that in those who have not any neurological deficit, it is possible to cure the patients by a prolonged antibiotic regimen without any surgery.

Key words: epidural abscess, brucellosis, case report

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Introduction

Brucellosis is a bacterial zoonosis disease caused by *Brucella* coccobacilli. There are six species of *Brucella* (*B. abortus*, *B. suis*, *B. canis*, *B. melitensis*) which can infect the human population. It can be epidemic in some regions of the world such as Mediterranean countries, India, South America and Arabian Peninsula [1]. It is transmitted by using the infected milk products or direct contact with the infected animals. The patients complain mostly of fever, myalgia and arthralgia [2]. In addition to gastrointestinal, hepatobiliary and cardiovascular complications, there are also some systemic effects in the musculoskeletal system like arthritis, spondylodiscitis, bursitis and osteomyelitis [3]. Totally, the rate of spinal side effects is about 2 to 9.7% [4,5]. The most common part of the spine which involves *Brucella*, is the lumbar area [6]. While the cervical area is involved very rarely it has the worst prognosis [7]. According to many studies, surgery is not mandatory for treating spinal brucellosis, but most of the cervical cases need surgical intervention [6]. We report a case of epidural abscess due to an old Brucellosis which was managed by antibiotic therapy without any need for surgery.

Case Report

A 42 year old man suffering from fatigue and low back pain for 9 months presented to our clinic. One year earlier he had gone to another hospital for a long term fever with malaise and night sweating and a history of fresh sheep cheese consumption. In that time he was treated by Doxycycline 100 mg BD and Rifampin 300 mg BD because of positive tests of brucellosis. But after treatment he had a low back pain without any accompanying signs or symptoms which had not responded to any pain relievers. Vital signs were as follows: temperature: 37.3oC, blood pressure: 130/80 mm Hg, pulse rate: 72/min, respiratory rate: 12/min. A spasm was seen in paravertebral muscles with mild tenderness in palpating the L5-S1 area along with restricted lumbar movements. No neurological deficit was determined. CBC differentiation test was normal.

Figure 1. Sagittal image showing contrast enhancement in L5-S1 vertebral bodies with enhancing abscess formation in epidural part.

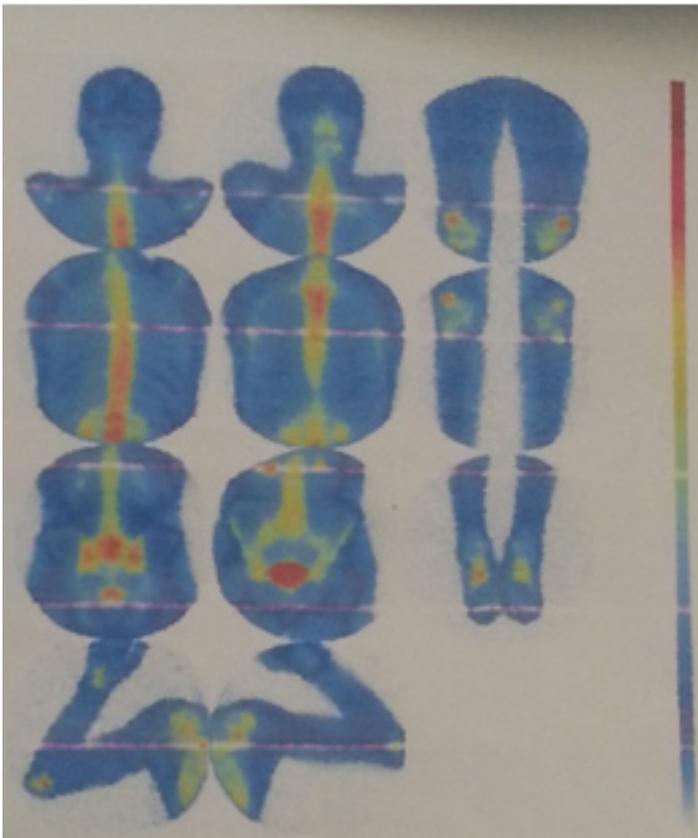


The erythrocyte sedimentation rate was 38 mm/hr and C-reactive protein was 3+. The Wright sero-agglutination titer was over 1/160, 2ME was 1/80 and the Brucella anti-human globulin titer was 1/640. Magnetic resonance imaging (MRI) of the lumbar area demonstrated L5-S1 disc degeneration with paravertebral soft tissue collection and epidural cystic hernia compressing thecal sac suggesting discitis abscess (Figure 1).

The whole body bone scan showed abnormal increased uptake of the sacral body which resulted in osteomyelitis in the sacral body (Figure 2).

A regimen of streptomycin for 20 days was started and then it was substituted with doxycycline 100 mg BD and Rifampin 600mg/day for 12 weeks via the consultation of neurosurgery and infectious diseases services. The symptoms were resolved quickly. MRI was repeated after the 8th week which reported no evidence of abscess and the levels of Wright and 2ME tests were 1/40. But since the body scan still reported the osteomyelitis in the sacral body, the same regimen was continued for 12 weeks more. After this period, all the laboratory tests were in an acceptable level and the bone scan was also normal. 12 months after stopping the treatment, MRI as well as the bone scan did not show any involvement of infection in the spine.

Figure 2. Whole body scan demonstrating abnormal increased uptake in sacral body, knees and feet without any other bone lesion over the skeleton. These findings suggest osteomyelitis in sacral body, degenerative change of knees and posttraumatic changes of the ankles.



Discussion

Most of the patients with spinal brucellosis involvement have a slow onset. The symptoms appear gradually and sometimes worsen very quickly. The physicians usually have a delay in diagnosis because of different and non-specific manifestations [1]. Spinal brucellosis has two forms which involve focal and diffuse [8]. In the first one, the bacterium penetrates to the anterior part of the superior end plate that leads to a little bone destruction. In the second one, the organism goes to the contiguous vertebra through the infected vertebrae. Here, the osteomyelitis makes the end plate and disc mechanically instable [4]. Since there are not any specific signs or symptoms for this disease, the diagnosing spinal brucellosis needs a great conjecture. There are lots of differential diagnoses that can confuse the therapist to treat the patient in the wrong way such as discopathies, muscle spasms, trauma, bone tuberculosis and even malignancies [9,10]. Yet, the incidence of spinal brucellosis in Mediterranean countries is high [6]. As it was mentioned before, the cervical lesions have a worse prognosis than the other lesions. Colmenero et al emphasised on detecting the cervical brucellosis as soon as possible in order to treat any compression on the medulla or roots to prevent disastrous outcomes [7]. Although MRI and bone scan can demonstrate the disc pathologies, the definite diagnosis often occurs by measuring the serum anti-brucella antibody titer in blood. Commonly, the levels more than 1/160 or at least a four-fold increase in a 2 to 3 week duration is diagnostic [11].

At the time of admission, our patient gave us a history of previous brucellosis because of infected milk products consumption in the residential area of his parents which was an epidemic area of brucellosis. So there was a high suspension of spinal brucellosis for him that led us to perform specific evaluations to diagnose the disease.

There are some different treatments for brucella spondylitis which are not definite or standard therapies. Spinal brucellosis takes more time to be treated than systemic brucellosis because it is necessary to prevent the relapses and cure the infected parts of the bone [12]. Several studies have investigated good results in treating with antibiotic alone, even for the patients suffering from intradural granulomas [13,14,15]. Some researchers have established that the necessity for surgical treatment is uncommon [16], and some others showed good results in cases who had undergone surgery in addition to antibiotic therapy [17,18]. In fact, surgery is the last option in spinal brucellosis management. It may be needed in the presence of neurological deficits caused by the compressing effect of the inflammatory mass or abscess as well as the cases of certain complications like spinal instability or progressive collapse [5,9,19]. Usually, it is not essential to debride the infected vertebral body surgically until the patient does not respond to antibiotic therapy [20,21].

We have different antibiotic regimens. Aminoglycosides, rifampicin, trimethoprim sulfamethoxazole, quinolone and tetracycline are used as the therapies for brucellosis, but

there is not any standard combination. The combination of rifampin (600-900 mg/day) and doxycycline (200 mg/day) at least for 6 weeks is the most usual regimen. It depends on the therapist to decide which combination to use [13,22,23]. For treating spinal brucellosis, again we do not have any standard regimen. But commonly it is recommended to keep the treatment for 12 to 24 weeks [24]. In a multicenter, retrospective and comparative study published in 2013, the scientists figured several regimens out on 2 groups of patients involving complicated and uncomplicated types of spinal brucellosis. They evaluated 293 patients with spinal brucellosis via different antibiotic regimens. The authors concluded that there were not any significant therapeutic effects among them. The only point was the duration of treatment which was longer in complicated patients [7].

Conclusion

Epidural abscesses of spine in brucella are an uncommon complication in patients with brucella. Mostly, it spreads haematogenously to the spine structures leading to spondylitis. Since the damage of neurological deficits are very devastating, it is necessary to diagnose it as soon as possible to prevent any permanent complication. Considering the area which is epidemic or not, early diagnosis in patients with fever, joint pain and night sweating is possible so that it can lead to a good outcome of treatment. Depending on the severity of the disease, treatment varies. In cases that have not any cure with antibiotic regimen, surgery can be indicated to prevent permanent damage.

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