

Spondylodiscitis due to *Brucella* spp. case report

Abstract

Brucella is endemic in developing countries and can spread to bone structures and create reservoirs so it is of utmost importance in endemic areas to rule out chronic etiology since they can have an unfavorable outcome without a timely approach. The case of a 73-year-old woman who presents with chronic low back pain, diagnosed as spondylodiscitis due to *Brucella* spp.

Keywords: *Brucella*, Spondylitis, osteoarticular, low back pain, domestic animals

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Introduction

Brucellosis is a zoonosis with worldwide distribution that remains endemic in many regions of Latin America, West Asia, the Middle East, Africa and some areas of Europe. It is an infectious disease whose causative agents are the different species of *Brucella* and demonstrates a preference for the involvement of the reticuloendothelial and musculoskeletal systems, with various manifestations of the condition. It is a pathology that shows an intracellular invasion and whose acquisition is due to direct contact or ingestion of contaminated products of predominance of milk and its derivatives, whether bovine or caprine.¹ Osteoarticular disease is the most common complication of brucellosis and has been described in 10% to 85% of patients. The spectrum of bone and joint injuries include arthritis, bursitis, tenosynovitis and osteomyelitis.² The type of skeletal involvement depends in part on the patient's age and the *Brucella* species involved. Spondylitis is the most frequent and important clinical form of osteoarticular involvement in adults.³ The current case described corresponds to a 73-year-old woman diagnosed with spondylodiscitis due to *Brucella* spp.

Case report

Female of 73 years, from a rural community with a history of consumption of unpasteurized dairy products. She has 2 years of low back pain, with multiple treatments with non-steroidal anti-inflammatory drugs without improvement, so he decides to self-medication with intramuscular dexamethasone (8mg) without a scheme for one year, initially every week, up to three weeks prior to admission on a daily basis. The approach to low back pain in her hospital begins, there is a lack of favorable response and the appearance of symptoms such as fever and attack to the general state, increased root pain with functional limitation and sensitive involvement of the lower limbs, so it was decided its specialization to spine surgery at the Regional Hospital of High Specialty of the Bajío (HRAEB), upon admission an imaging protocol is performed and an osteolytic process with a L3-L4 disc condition is determined by magnetic resonance (Figure 1). Subsequently, a biopsy is taken where the PCR result and positive flare rose for *Brucella* are obtained. A scintigraphy study is also performed with ubiquitin-labeled leukocytes that is positive (Figure 2). It is assessed by infectology and antibiotic management is initiated with ceftriaxone, trimethoprim with sulfamethoxazole and

doxycycline. Specialized management is initiated by algology and spine surgery and is scheduled for instrumentation and spinal fixation three weeks after the antibiotic scheme is completed, pain treatment is adjusted, and the gradual steroid withdrawal scheme is initiated.

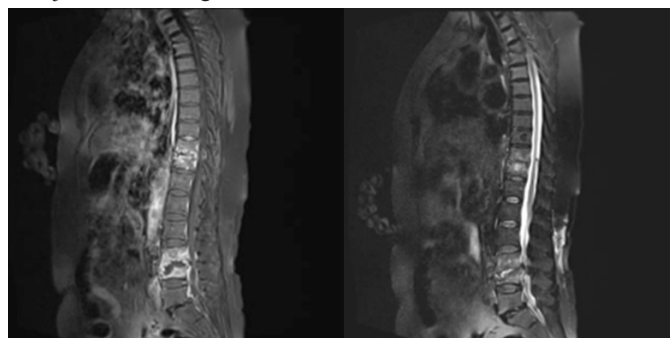


Figure 1 Magnetic Resonance in which disc conditions of T3,T10,T11, L3-4 are observed. In L3 to L4 bone protrusion to the spinal canal with compression of bilateral foraminal roots.



Figure 2 Scintigraphy with ubiquitin-labeled leukocytes, positive at the level of the thoracic, lumbar and sacroiliac spine.

Discussion

Low back pain is defined as a pain between the last rib and the gluteal area that can radiate to the lower extremities. It is a major health problem, especially in industrialized countries, with a prevalence that revolves around 70%.⁴ It is a very frequent cause of medical consultation and the main cause of work disability in Mexico, 80% of the population will have low back pain in At some point in his life.⁵ Among the causes of chronic low back pain are infections such as brucellosis.⁶ *Brucella* spp is a non-sporulating aerobic gram-negative bacillus of the *Brucella-caea* family that is frequently found in domestic animals and is transmitted to humans by direct contact, by ingestion of contaminated products such as unpasteurized dairy products such as milk, fresh cheese, goat cheese, cream, etc. Common variants that spread lymphatically and hematological are *Brucella abortus* (cattle), *B. melitensis* (goats and camels), *B. suis* (pig) and *B. canis* (dogs).^{1,7}

The musculoskeletal presentation is frequent and after the neuropsychological manifestation, it is considered as the second most severe complication, especially when it involves the spine, since in most cases it is painful and disabling. In the spine, the anterior and middle portions are the most frequently affected locations and their preference for metaphyseal bone surfaces has suggested that their invasion could have an arterial hematogenous character. This can produce large vertebral destruction. Osteoarticular complications range from 20 to 60% where the condition most frequently involved is the sacroiliac joint, the spine, hip and knee can also be involved.^{8,9}

The definitive diagnosis is made by isolating the bacteria in a culture, this requires prolonged incubation period in enriched media. In developing countries, the most used serological test for the diagnosis of brucellosis is the serum agglutination test (Rose Bengal); Sensitivity and specificity in patients with bacteremia is 95.6 and 100%, respectively.¹⁰ In non-endemic areas patients with titers of 1: 160 are considered positive and, in endemic countries where infections become chronic, high titers of 1: 360 to 1: 640 are positive.¹¹

Conclusion

Brucellosis is a disease that affects men and women in equal numbers. It is a disease of worldwide distribution that continues to be endemic in developing countries where there is domestic livestock and the intake of unpasteurized dairy products is customary. For this

reason, it is important, in the presence of chronic low back pain in population groups where the quality of food hygiene is doubtful, that *Brucella* spp. It should be considered as differential etiology especially in endemic areas and with a clinical history such as general malaise, fever and spinal pain of axial type, since they have unfavorable outcomes without adequate and timely approach and management.

Acknowledgments

None.

Conflicts of interest

Authors declare that there is no conflict of interest.

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