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### Brucellosis with lumbar spine involvement-case report

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#### Abstract

Brucellosis is caused by gram-negative, aerobic, non-motile, facultative, intracellular cocco-bacilli belonging to the genus *Brucella*. Brucellosis is spread from animals to humans by direct contact with infected tissue or by ingestion of milk or dairy products. In developed countries, human brucellosis is an occupation-related disease and occurs more commonly among farmers, veterinarians and laboratory. Here we presented a case report of a patient who was diagnosed with brucellosis with lumbar spine involvement. Brucellosis should also be taken as differential diagnosis of spinal infections.

**Keywords:** Brucellosis; spinal infections; *Brucella*; lumbar spine.

#### Introduction

##### Background

Brucellosis is caused by gram-negative, aerobic, non-motile, facultative, intracellular cocco-bacilli belonging to the genus *Brucella*. Brucellosis is spread from animals to humans by direct contact with infected tissue or by ingestion of milk or dairy products. In developed countries, human brucellosis is an occupation-related disease and occurs more commonly among farmers, veterinarians and laboratory workers. Osteo-articular involvement including spondylitis, sacro-iliitis, osteomyelitis, peripheral arthritis, bursitis and tenosynovitis is the most common complication of brucellosis affecting up to 85% of patients<sup>1</sup>. Hence patient with Fever and low backache whose differential diagnosis is being kept as infective etiology of spine clinically, Brucellosis should also be taken into consideration apart from Tuberculosis and Pyogenic. We present a rare case of *Brucella*-related lumbar spine involvement.

##### Case Presentation

A 41 years old male who is a security guard by occupation came to hospital with chief complaints of Pain in the Lower back region radiating to Bilateral Lower limbs since 15 days followed by Fever with chills and rigor since 7 days.

Patient presented with pain in low back region, which was sudden in onset severe in intensity, radiating to bilateral lower limbs, aggravates on forward bending, lifting heavy weight. Pain was so severe that patient was no able to walk. Pain was also associated with fever since 7 days, which was insidious in onset, High grade, associated with chills and rigor. There was evening rise of fever.

There was no History of Trauma, Lifting heavy weight, Burning micturition, Weight loss, night cries and loss of appetite. Patient had no history of Tuberculosis. Patient had reported a significant history of close contact with cattle.

##### On Examination

There was only tenderness present at Right Sacro-iliac joint and no swelling or tenderness present over lumbar region. No deformity was seen, No paravertebral muscle spasm was seen. Neurological examination was normal (No Power loss, Sensory Loss or Bowel bladder involvement).

##### Investigations

Patient was investigated to rule out cause of backache. X-rays showing normal vertebrae or any bony pathology. MRI was done and basic blood investigations were sent.

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**MRI findings** were suggestive of

- Enhancement of L5 Vertebra on right side with enhancement in pre and Para ventral epidural space at L5-S1 and mild right Para ventral enhancement at L5-S1.
- S/o Infective etiology.

TLC was 9.19 Thou/cumm, Neutrophils 58, Lymphocytes 33, Monocytes 8 and Eosinophil 1.

ESR was also raised (39).

CRP was markedly raised (111.76).

**Differential diagnosis**

We first thought about Pott’s disease because the patient lives in endemic areas of tuberculosis. The Chest X-Ray also did not reveal any lesion.

To confirm the diagnosis patient was taken up Percutaneous Trans-pedicular Biopsy from L5 vertebra.

Sample was taken and sent for Gram stain, Culture and Antibiotic sensitivity, ZN stain and Histo-pathological examination.

G/S, C/S, ZN stain was normal and was inconclusive for diagnosis. Histopathology examination of a specimen revealed chronic inflammation without granulomatous inflammation. Since the patient had declared the history of close contact with cattle, our suspicion grew towards brucellosis with spine involvement. *Brucella* antibody titre was sent which came out to be positive with a strong titer of 77.1.

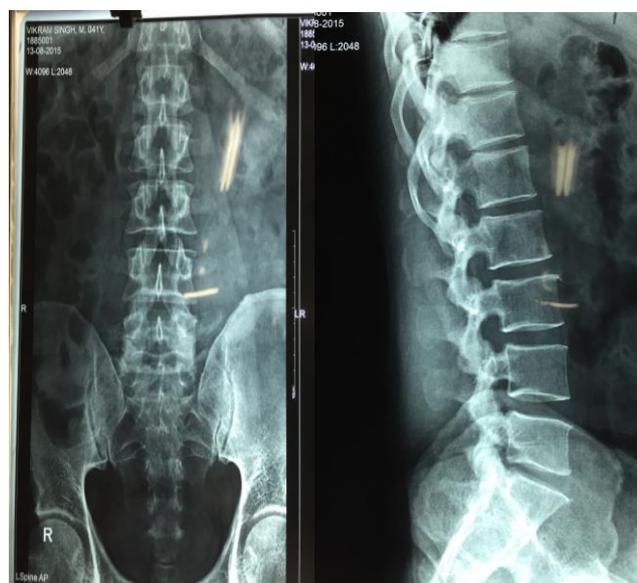
**Treatment**

Patient was started on Rifampicin (900 mg/day) and Tetracycline (1500mg/day). Outcome was favorable. The low-back pain reduced progressively during the course of the medical treatment. The *Brucella* Anti-body titer reduced. No relapse was seen.

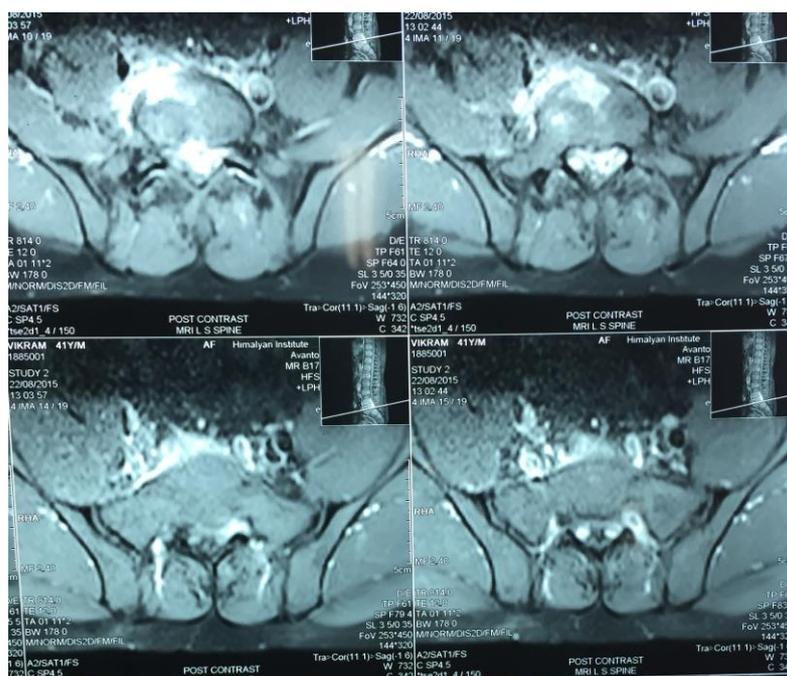
**Discussion**

Brucellosis is a systemic zoonotic infection and still an important public health problem in many geographical parts of the world including the Mediterranean basin, the Arabian

Gulf, South America countries, Mexico, North Africa, and Western and Central Asia<sup>2</sup>. Brucellosis is caused by small, non-motile gram-negative facultative intracellular coccobacilli of the genus *Brucella*: *Brucella melitensis*, *Brucella abortus*, *Brucella suis* or *Brucella canis*<sup>3</sup>. Worldwide, reported incidence of human brucellosis in endemic disease areas varies widely, from <0.01 to >200 per 100,000 population<sup>4</sup>. The true incidence of human brucellosis however, is unknown for most countries and no data are available for India. Brucellosis is an important but neglected disease in India. Differential diagnosis between brucellosis and tuberculosis in spine is difficult clinically and in Indian scenario majority of patient are started on Anti-tubercular treatment empirically. So if patients with empirical ATT do not get relief Brucellosis of spine should also be ruled out. In other case reported X-ray did not show any abnormalities as well but MRI revealed enhancement in Pre and Para-vertebral space. Paraspinal and epidural abscesses has been reported in some cases.<sup>5</sup>



**Fig 1:** Showing no bony pathology



**Fig 2:** Enhancement of L5 Vertebra on right side with enhancement in pre and Para ventral epidural space at L5-S1 and mild right Para ventral enhancement at L5-S1

### Conclusion

A correct early diagnosis of brucellosis is important because it is an aggressive disease, which requires immediate treatment. Both medical history of the patient and results of laboratory tests should be evaluated with detailed clinical information for diagnosis of brucellosis. History such as close contact with cattle and consumption of un-pasteurized milk or dairy products are informative. Brucellosis with Spinal involvement is one of the most serious complications and the reported incidence varies from 2% to 60% out of with Lumbar Involvement is most common in spine. Hence Patient with such presentation should always be considered for evaluation for Brucellosis of spine to avoid wrong diagnosis and treatment.

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