IJMPR 2024, 8(2), 44-47

International Journal of Modern Pharmaceutical Research
www.ijmpronline.com

ISSN: 2319-5878
IJMPR
Case Report
SJIF Impact Factor: 5.273

CASE REPORT- EPIDIDYMO-ORCHITIS AND SPONDYLODISCITIS DUE TO BRUCELLOSIS MELITENSIS

Dr. Nitin Madhav Kedare DNB, FRCR, EDiR.*[1], Dr. Rushikesh Ashok Naik DNB, FRCR, EDiR.[2], Dr. Yoginee Pundlik Sonawane MD.[3], Dr. Venkateshwar Reddy Kesireddy DNB, FRCR, EDiR[4]

[1]Specialist Radiologist Burjeel Hospital Abudhabi.
[2]Consultant Radiologist Burjeel Hospital Abudhabi.
[3]Specialist Radiation Oncologist Burjeel Medical City Abudhabi.
[4]Specialist Radiologist NMC Royal Hospital Abudhabi.

Article Received on: 05/12/2023
Article Revised on: 25/12/2023
Article Accepted on: 15/01/2024

***Corresponding Author**
Dr. Nitin Madhav Kedare
Specialist Radiologist Burjeel Hospital Abudhabi.

INTRODUCTION

Brucellosis is an endemic zoonotic disease caused by Brucella, which are gram-negative coccobacilli. It is endemic in the Arabian Peninsula and the Mediterranean region as well as in India and Central and South America.[1] B. abortus, B. melitensis, B. suis, B. ovis, B. canis, and B. neotomae are the most common Brucella species. These bacteria infect various land and aquatic mammals, including pigs, cows, goats, sheep, dogs, dolphins, whales, seals, and desert grass rats. Humans are accidental hosts of Brucella species.[2] Brucellosis is transmitted to humans via the consumption of infected animals (sheep, goat, and pig meat), direct contact with an infected animal, or via inhalation of infectious aerosols. The disease is frequently manifested by acute symptoms, such as pyrexia, night sweat, arthralgia, myalgia, low back pain, weight loss, fatigue, weakness, headache, dizziness, depression, and anorexia.[2,3] Chronic brucellosis can cause arthritis, orchitis, hepatitis, encephalomyelitis, and endocarditis.[2] Brucellosis is a multi-organ infectious disease and can result in genitourinary issues. The most common genitourinary issues caused by human brucellosis are epididymo-orchitis, prostatitis, cystitis, interstitial nephritis, pyelonephritis, immunoglobulin A nephropathy, exudative glomerulonephritis, and kidney and testicular abscesses.[5] Brucella epididymo-orchitis is not a common clinical situation unless in an endemic area. Herein, we report a patient with brucellosis presenting with epididymo-orchitis initially progressing to spondylodiscitis.

CASE PRESENTATION

A 63-year-old male presented with a 20-day history of fever and night sweats associated with scrotal pain. Physical examination of the testes revealed swelling, redness, and pain with palpation. The patient had a history of travel to endemic region however denied a history of eating raw meat or milk.

Blood testing revealed an elevated erythrocyte sedimentation rate, C-reactive protein and LDH level. Hemography revealed leukocytosis.

Ultrasonography (US) was performed; results revealed heterogeneous echogenicity of the right testis and bilateral epididymis with increased vascularity. No abscess. Mild right reactive hydrocele. (Figure 1).

The patient's blood sample was positive for Brucella IgG & IgM Antibodies.

The patient was started on doxycycline (100 mg twice daily) and ciprofloxacin (500 mg twice daily) based on the recommendation of the Department of Infectious Diseases. The dual antibiotic treatment was continued for six weeks.

During this period the patient started having back pain and X-ray LS spine and MRI of LS spine was done.

MRI revealed spondylodiscitis involving T12 / L1 vertebrae and their intervertebral disc along with spondylitic changes of L3 vertebral body. (Figure 2)

At the end of the sixth week, the patient underwent US; results revealed progression of orchitis with involvement of left testes with bilateral epididymoorchitis (Figure 3). Due to this the patient was started on Gentamycin (5mg/kg IV daily for 14 days), Rifampin (300 mg BID for 12 weeks) and Doxycycline (100 mg BID for 12 weeks) based on the recommendation of the Department of Infectious Diseases.

The patient responded to the treatment with no fever, fatigue, and resolution of scrotal pain and swelling. The erythrocyte sedimentation rate, C-reactive protein level,

and leukocyte level were found to be normal based on control blood testing and hemography results.

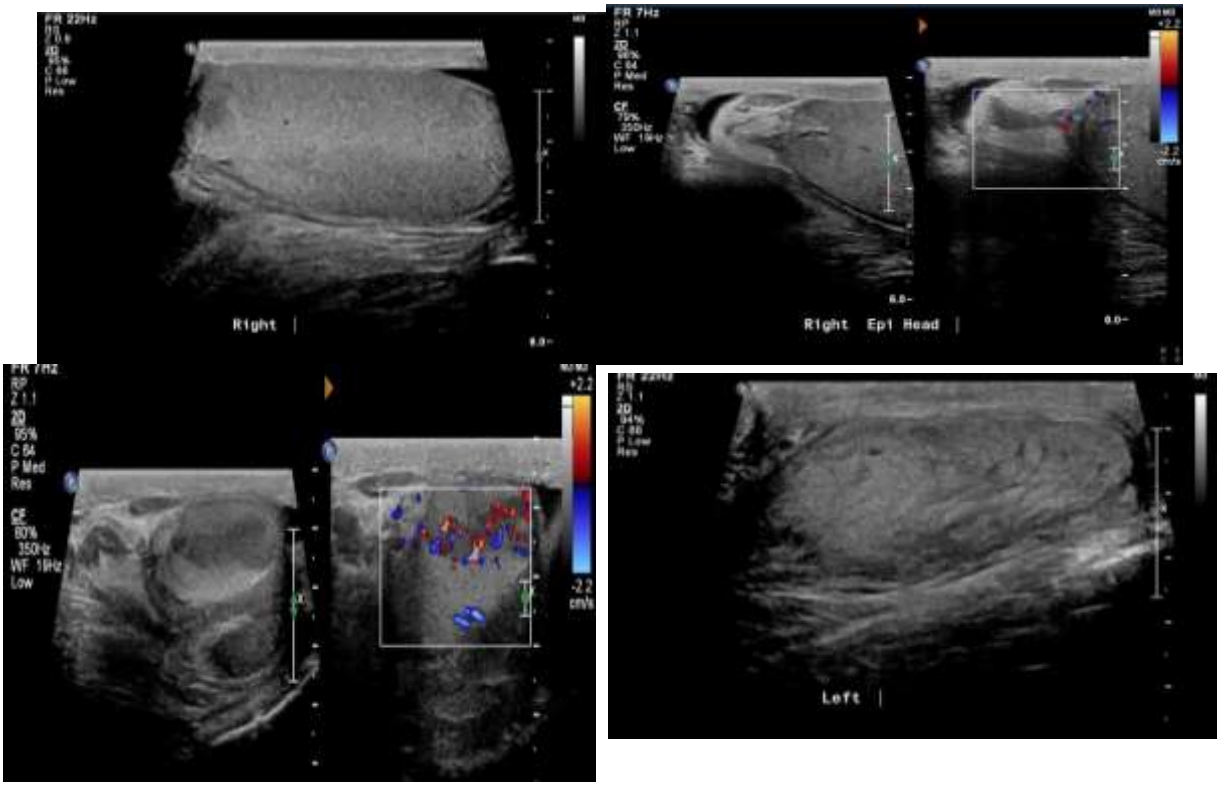

Figure 1: US image demonstrates bulky heterogeneous epididymis with geographically, heterogeneous, hypoechoic areas in right testis with increased vascularity consistent with right epididymo-orchitis.

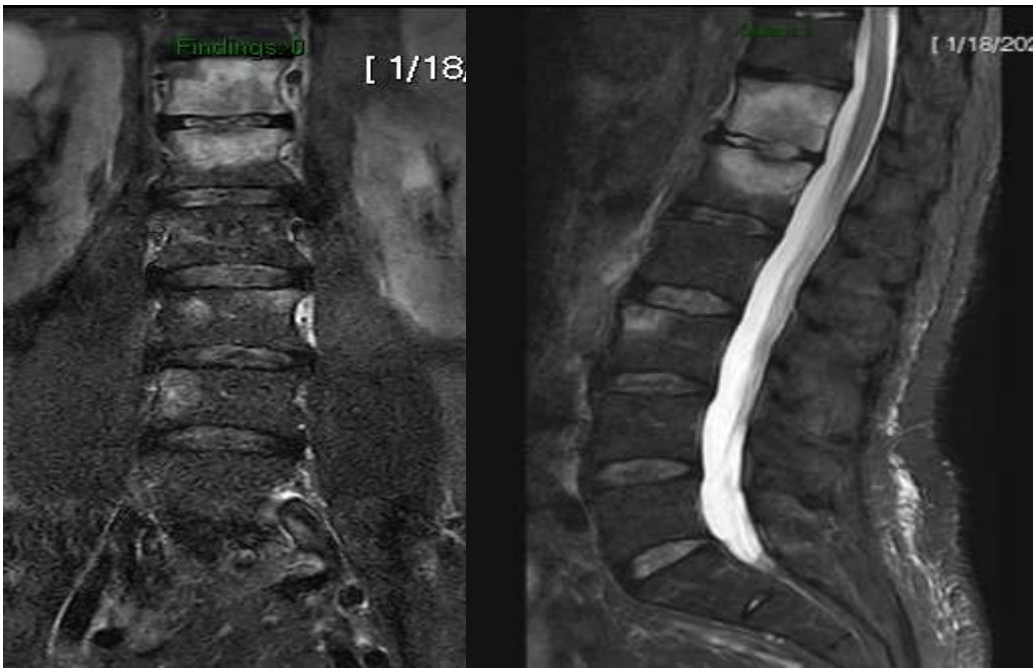

Figure 2: Lumbosacral spine T2, STIR and contrast enhanced T1-weighted magnetic resonance imaging shows abnormal signal change with enhancement in T12 and L1 vertebral body and intervening disc. Abnormal signal change and enhancement is also seen involving the L3 vertebra.

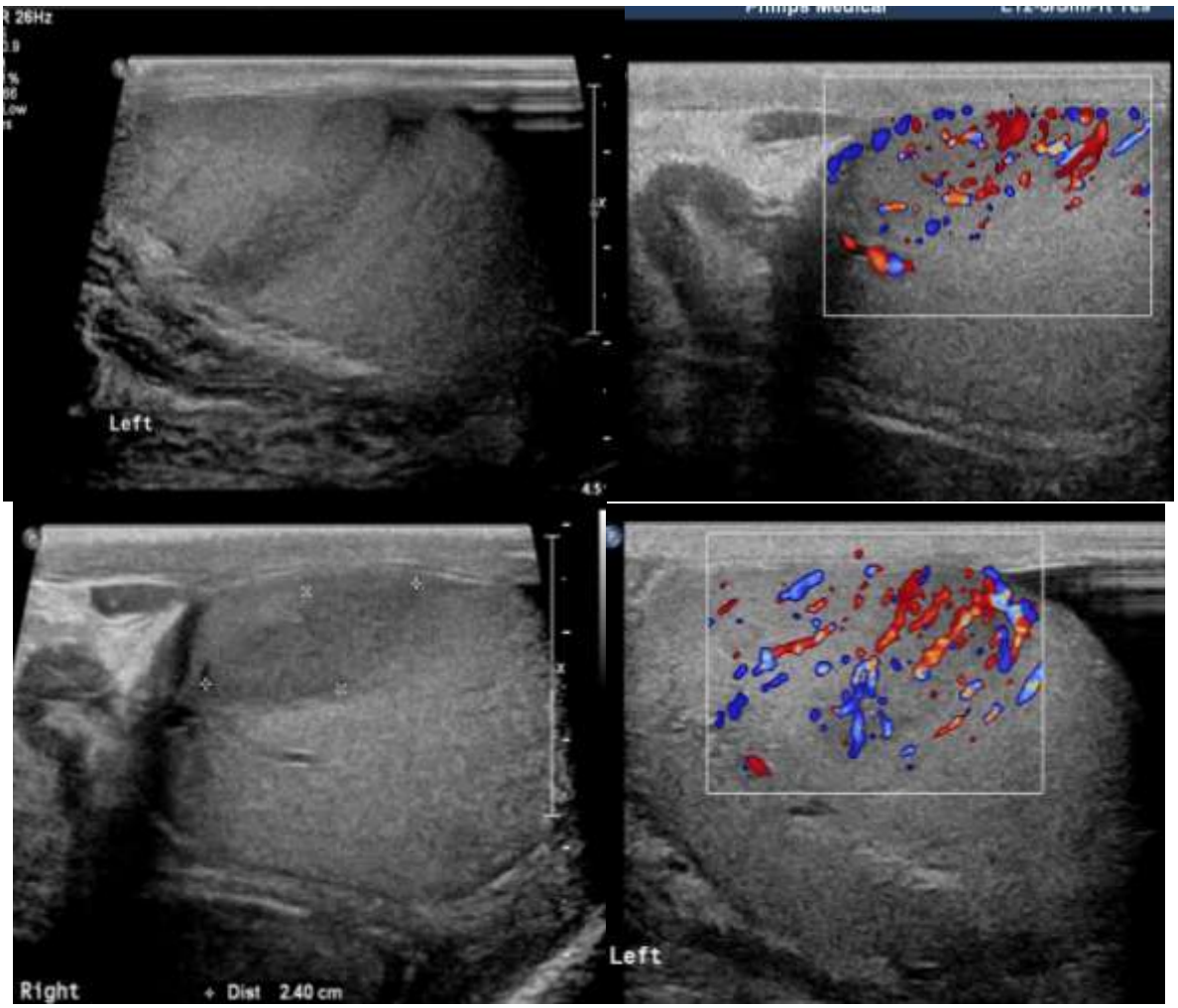

Figure 3: US image demonstrates involvement of left testis with geographically, heterogeneous, hypoechoic areas in both testis with increased vascularity consistent with bilateral epididymo-orchitis.

DISCUSSION

Brucellosis is an infectious multi-organ disease and is endemic in the Mediterranean region and Arabian Gulf as well as in Mexico and Central and South America. Brucellosis is most commonly reported in the slaughterhouse workers, livestock breeders, shepherds, and veterinarians as well as in those who consume raw milk or cheese prepared from raw milk.[1] The most common clinical manifestations of brucellosis include fever, osteoarticular involvement, and night sweat.[2] The genitourinary system is the second most common site of focal brucellosis occurrence. Epididymo-orchitis is observed in 5.7% of the affected patients.[3] Diagnosis is made based on serological test results; US findings; the presence of fever and night sweat; and orchitis symptoms, such as testicular pain, swelling, and redness.[4,5, 6] The positive Brucella serology along with the history of travel to endemic region supported our diagnosis. Multiple samples should always be taken for blood culturing. Persistent bacteremia and positive blood culture are the typical findings of brucellosis.[7] In addition to the patient's history and physical examination findings, some tests, such as the Rose Bengal test, Brucella tube agglutination test, Coombs test, and blood culturing, are required for the diagnosis of brucellosis.[8] Blood culturing is the gold standard for the diagnosis of brucellosis; however, it is difficult to cultivate the bacteria owing to the long incubation period, them being biosafety level 3 organisms, antibiotic susceptibility, the culture medium, and the need for specialized and experienced personnel.[7,8] The World Health Organization recommends a 45-day treatment with oral doxycycline (200 mg daily) and streptomycin (intramuscularly; 1 g daily) for the treatment of brucellosis. As an alternative to this treatment recommendation, oral rifampicin (15 mg/kg daily, i.e., 600–800 mg) and doxycycline (200 mg daily) can reportedly be administered for 45 days.[9,10,11]

CONCLUSION

Although brucellosis epididymo-orchitis (BEO) is rare, it is an important differential diagnosis in patients with high risk features as late recognition leads to less desirable outcomes. Clinicians should be aware of BEO, and when suspected appropriate investigations with blood culture and serology should be performed. The work up for BEO is the same as acute epididymo-orchitis, with the addition of blood culture and brucellosis serology.

BEO is rarely seen in non-endemic areas and brucellosis melitensis is the most virulent worldwide.

B. melitensis exposure is primarily due to overseas travel to endemic areas such as the Mediterranean basin with ingestion of unpasteurized goats/sheep dairy.

Early diagnosis of BEO is important and appropriate antimicrobial treatment can reduce risk of relapse and complications. It is an important differential diagnosis that should not be missed.

DISCLOSURE

The author declares no conflict of interest.

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