

When Brucellosis and Sacroiliitis Occur Together: An Unprecedented Pathogen to Consider

Mohammed Reda Sewilam^{1*}, Naser Alhadhood²

¹Department of Acute Medicine, Norfolk and Norwich University Hospital, United Kingdom

²Department of Rheumatology and Internal Medicine, Farwaniya Hospital, Kuwait

Abstract

Brucella sacroiliitis is an uncommon but serious infection of the sacroiliac joint, which joins the sacrum bone to the iliac bone in the pelvis. Brucella sacroiliitis is a rare condition that may be challenging to identify and manage. Early diagnosis and treatment are crucial for a positive outcome because delayed or insufficient care can lead to persistent infection, joint damage, and other serious problems. Today we report a case of sacroiliitis secondary to *Brucella melitensis* in a 43-year-old Middle Eastern gentleman.

Keywords: Brucella; Brucellosis; Sacroiliitis; Joint; Sacroiliac joint

Introduction

Brucellosis is a bacterial infection that can be transmitted from animals to people, i.e., a zoonotic infection, especially from livestock including cattle, sheep, goats, and camels. By interacting with the diseased animals or their byproducts, such as milk, cheese, or meat, people might become infected. Although this disease can be found anywhere throughout the world, it is more common in some regions, including the Middle East, Africa, and Central and South America. With about 50,000 cases recorded each year, it is a significant public health concern in the Middle East. In contrast to that, it's uncommon in the UK, though. Small and resilient, the brucellosis-causing bacteria may endure for a long time in severe conditions in soil, water, and food. They can also cultivate in both animal and human cells. The signs and symptoms of brucellosis might be mild, such as fever, exhaustion, headache, muscular aches, and joint pain, or they may be quite severe, such as chills, sweating, nausea, vomiting, appetite loss, and cough. In some cases, it can affect the heart, causing endocarditis or pericarditis, or the central nervous system, causing meningitis or encephalitis. Bones and joints, the genitourinary tract, the central nervous system, the heart, the liver, and the spleen are among the organs that are frequently implicated.

Case Presentation

Mr. N.A is a 43 year old Middle Eastern male, who presented with a one week history of left buttock pain, back pain, and tenderness. It all started insidiously within the week prior to admission. The pain was aggravated by movements; it was severe and had limited him markedly. The patient was barely ambulating, and when done it was severely painful, the pain was not relieved by any analgesics. It was localized to the left buttock and the lower back.

There was a history of fever, intermittent and low grade. He denied any change in his weight, no night sweats, no lumps or bumps or gastrointestinal symptoms. On examination, the patient was lying down in severe pain, almost avoiding any movement. He had pain on the back and left buttock with active and passive movements. Left FABER test was positive, the left Gaenslen's test was also positive. Compression test and direct

sacroiliac joint (SIJ) palpation were tender. Other examinations of his joints didn't reveal any abnormalities. His cardiovascular examination showed normal heart sounds, no murmurs and no rub. Additionally, his respiratory examination revealed normal air entry bilaterally and no added sounds. On abdominal examination, there were no palpable lymph nodes and no hepatomegaly or splenomegaly. There was no evidence of the presence of rashes or ulcers. Laboratory investigations showed (Table 1).

Table 1: Laboratory investigation results

CBC	investigation	investigation
WBC	7.2	3.7-11 × 10 ⁹
Hb	138	130-170 g/L
Platelets	191	150-440 × 10 ⁹
Renal function test and electrolytes		
eGFR	94	
Urea	5.8	2.5-6.4 mmol/L
Creatinine	86	74-115 umol/L
Sodium	133	136-146 mmol/L
Potassium	3.2	3.5-5.2 mmol/L
Bicarbonate	22.4	22-30 mmol/L
Adjusted Calcium	2.36	2.2-2.6 mmol/L
Anion Gap	13	
Liver function test		

***Corresponding author:** Mohammed Reda Sewilam, Department of Acute Medicine, Norfolk and Norwich University Hospital, United Kingdom, Tel: 07495570596; E-mail: dr.mr.sewilam@gmail.com

Received: 07-September-2023, Manuscript No. jcmhe-23-113023; **Editor assigned:** 11-September-2023, PreQC No. jcmhe-23-113023 (PQ); **Reviewed:** 25-September-2023, QC No. jcmhe-23-113023; **Revised:** 02-October-2023, Manuscript No. jcmhe-23-113023 (R); **Published:** 09-October-2023, DOI: 10.4172/2161-0711.1000826

Citation: Sewilam MR, Alhadhood N (2023) When Brucellosis and Sacroiliitis Occur Together: An Unprecedented Pathogen to Consider. J Community Med Health Educ 13:826.

Copyright: © 2023 Sewilam MR. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

ALT	93	10-60 IU/L
Albumin	29	35-48 g/L
Total protein	61	64-83 g/L
Alkaline Phosphatase	163	53-128 IU/L
Total Bilirubin	27	3-20 umol/L
Inflammatory markers		
CRP (C-reactive protein)	217	0-8 mg/L
ESR (erythrocyte sedimentation rate)	44	0-20 mm/hr

The patient's investigations showed normal complete blood count, evidence of mild transaminitis and elevated alkaline phosphatase. As well as raised inflammatory markers. Radiological investigations showed as seen in (Figure 1). Normal sacroiliac joint in the X-ray as seen in (Figure 2).



Figure 1: Radiological investigations shown

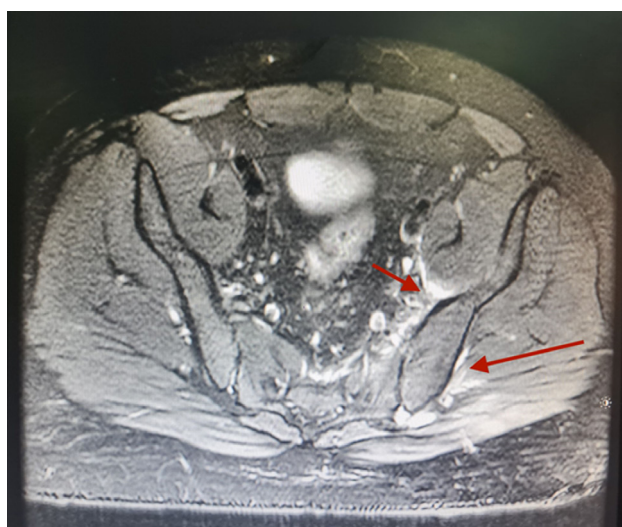


Figure 2: Normal sacroiliac joint in the X-ray

MRI Hip showed:

- The left sacroiliac joint shows the rim of joint fluid as compared to the right side. associated few patchy areas of abnormal bone marrow signal intensity are seen involving left iliac bone and left sacral bone, eliciting hyperintense signal in STIR, and T2.
- The left side of the pelvis shows patchy areas of intramuscular abnormal signal intensity, seen involving left iliopsoas, pyriformis, erector spinae, obturator and glutei muscles, eliciting hyper intense signal intensity in T2 and STIR images with mild post contrast enhancement.
- Small multilocular cystic lesion with fluid signal intensity is seen with connection to the posterior inferior aspect of left sacroiliac joint, it shows subtle peripheral post contrast enhancement, suggestive of microabscess formation.
- Bilateral hip joints show normal joint space and acetabular margins.
- No hip joint effusion is noted at both sides.
- The femoral heads show normal height and contour. No abnormal signal intensity seen.
- No evidence of osteonecrosis or marrow infiltration processes.
- No iliopsoas or trochanteric bursal effusion.

Features suggestive of left sacroiliitis likely septic; associated with reactive myositis of the regional left pelvic muscle planes and with tiny periarticular cysts with the possibility of Microabscess formation.

Based on the imaging findings a synovial fluid tapping was done and further investigations were sent that showed:

Mr. N was started on Ceftriaxone for 7 days with Doxycycline and Rifampin orally for 3 months. His symptoms started to improve after the initiation of treatment and he was discharged with the plan to be followed up in the outpatient department (Table 2).

Table 2: Imaging findings a synovial fluid tapping was done and further investigations

Investigations	Findings
Blood culture and sensitivity	<i>Brucella melitensis</i>
Synovial fluid culture and sensitivity	<i>Brucella melitensis</i>
Brucella agglutination test	Positive
Hepatitis B, Hepatitis C and HIV	Negative

Results and Discussion

Brucella is a genus of Gram-negative bacteria that bears David Bruce's name (1855-1931) [1,2]. They are non-encapsulated, non-motile, facultatively intracellular coccobacilli that are tiny (0.5 µm to 0.7 µm by 0.6 µm to 1.5 µm) [3]. The zoonosis brucellosis, which is caused by *Brucella spp.*, is spread through the consumption of contaminated food (such raw milk products), close contact with an infected animal, or inhalation of aerosols. Transfer from one human to another by sexual contact

or from mother to kid is extremely unlikely but not impossible. Between 10 and 100 organisms is the minimum infectious exposure level [4]. Even though each species of *Brucella* has somewhat distinct host specificity, genetically speaking, they are all fairly similar. Hence, the majority of *Brucella* species are classified as *B. melitensis* in the taxonomy maintained by the National Center for Biotechnology Information. British troops who died in Malta from Malta fever were isolated from *B. melitensis* by Sir David Bruce. Humans often have symptoms two to four weeks after being exposed to *Brucella*. These symptoms include acute undulating fever (>90% of cases), headache, arthralgia (>50%), night sweats, lethargy, and anorexia [5]. Epididymo-orchitis, spondylitis, neurobrucellosis, the development of liver abscesses, and endocarditis-the latter of which may be fatal-are possible later problems [6]. Globally, an estimated 500,000 cases of brucellosis occur each year [5]. *Brucella sacroiliitis* is a rare but serious infection of the sacroiliac joint, which connects the sacrum bone to the iliac bone in the pelvis. It is caused by the bacteria *Brucella* with its vast species, which is typically contracted through contact with infected animals or their products, such as unpasteurized milk or meat, or through exposure to contaminated soil or water. The symptoms of *Brucella sacroiliitis* may include pain and stiffness in the lower back and buttocks, which may be worse with movement, as well as fever and chills. The infection may also spread to other parts of the body, causing more serious complications such as sepsis or abscess formation. Diagnosis of *Brucella sacroiliitis* may involve blood tests, imaging studies such as X-rays or MRI, and biopsy of the affected joint. Treatment typically involves a combination of antibiotics for a prolonged period of time, often lasting several months or more. Due to its rarity, *Brucella sacroiliitis* may be difficult to diagnose and treat. Early recognition and treatment are essential for a good prognosis, as delayed or inadequate treatment may result in chronic infection, joint destruction, and other serious complications. Prevention of *Brucella sacroiliitis* involves avoiding contact with infected animals or their products, practicing good hygiene, and taking appropriate precautions when working with animals or in environments where the bacteria may be present.

Conclusion

We have reported a case of *Brucella abortus sacroiliitis* that was successfully treated with rifampin and doxycycline and was most likely brought on by the ingestion of unpasteurized camel milk. The most typical symptom of brucellosis is Osteoarticular involvement of the axial spine along with fever. *Sacroiliitis* caused by *Brucella melitensis* is a significant clinical condition that is still prevalent throughout the globe. Serology and cultures are needed for diagnosis, and an extensive antibiotic regimen should be part of the therapy. The clinical appearance, diagnosis, and management of *Brucella* species should be considered by doctors.

Acknowledgement

None.

Conflict of Interest

None.

References

1. Ryan KJ, Ray CG (2004) Sherris Medical Microbiology (4th ed.). McGraw Hill.
2. Lopez-Goni I, O'Callaghan D (2012) *Brucella*: Molecular microbiology and genomics. Caister Academic Press.
3. Ferooz J, Letesson JJ (2010) Morphological analysis of the sheathed flagellum of *Brucella melitensis*. BMC Research Notes 3:333.
4. Diagnosis management of acute brucellosis in primary care (PDF). Department of Health for Northern Ireland. *Brucella* Subgroup of the Northern Ireland Regional Zoonoses Group.
5. Atluri VL, Xavier MN, de Jong MF, den Hartigh AB, Tsolis RM (2011) Interactions of the human pathogenic *Brucella* species with their hosts. Annu Rev Microbiol 65:523-541.
6. Gorvel JP (2008) *Brucella*: A Mr Hide converted into Dr Jekyll. Microbes Infect 10(9):1010-1013.