International Journal of Healthcare Sciences ISSN 2348-5728 (Online)
Vol. 6, Issue 2, pp: (244-247), Month: October 2018 - March 2019, Available at: www.researchpublish.com

BRUCELLOSIS IN SEPTIC KNEE: A CASE REPORT

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Abstract: **Brucellosis is a zoonosis which gram-negative coccobacilli that can be transmitted to a human, and it's least frequently involving monoarthritis or oligoarthritis of the lower extremity. Herein we present 40-year-old, medically free, morbid obese male who had a history of DVT, with right knee septic arthritis caused by Brucella melitensis, with none classical symptoms in which he underwent proper surgical and medical management.**

Keywords: **BRUCELLA, SEPTIC KNEE, KNEE INFECTION, BRUCELLA IN THE KNEE, KNEE JOINT.**

1. INTRODUCTION

Brucellosis is a zoonosis that can be transmitted from infected animals to humans, Brucella is small, gram-negative coccobacilli that can be transmitted through the inspiration of aerosols containing Brucella, ingestion of unpasteurized milk or undercooked meat from infected animals, or close contact with their secretions, baby animals, milk and excrement. [1]

Brucellosis is a systemic infection; the most frequently infected sites are the spleen, liver, and bone marrow, which are rich in reticuloendothelial cells. [2]

Brucellosis is a cause of subacute or chronic arthritis in countries in which their livestock are not vaccinated and their dairy products are unpasteurized. The sacroiliac joint has been most frequently involved in up to 54% of patients, for unclear reasons, Spondylitis occurs in 7%, and the least frequently involved are monoarthritis or oligoarthritis, of the lower extremity. [3]

Herein we present a case of a young immunocompetent male who developed septic monoarthritis caused by the Brucella species. The patient underwent a course of management that will be discussed in this paper. The current case report was written according to recently published SCARE criteria[12]

2. CASE PRESENTATION

A 40-year-old male, medically free, morbid obese with a history of DVT , presented to the ER complaining of right knee pain and swelling for 15 days. There was no history of trauma, no history of fever or any constitutional symptoms.

He gave a history of ingestion of raw non-pasteurized milk.

On examination, the patient was vitally stable looks well.

Local examination of the knee revealed moderate swelling, erythema, no open wounds nor sinus.

There was mild tenderness all over the knee, no hotness with diffuse effusion.

Range of motion of right knee 0-120 degrees with mild pain, distal Neuro-Vascular structures were intact.

Knee aspiration was done in the Emergency department under aseptic technique from the right knee and synovial fluid was sent for analysis and gram stain.

Lab workup showed: WBC 6.80 x10^9/L, ESR 53 mm/hr, CRP 102 mg/L, Blood cultures were negative.

Synovial analysis showing table [1.1]

Table 2.1

Monocyt	**10**
Lymphs	16
WBC	1458
RBC	55
Color	Yellow
Crystal	None Seen
VISC	Normal
Appear	Cloudy

The synovial analysis was suggestive of inflammatory Synovitis; Upon that the patient was educated and discharge with non-steroidal anti-inflammatory medication and close follow up in the clinic.

In the first visit in the clinic, the patient was still complaining of mild pain with no history of fever. He was vitally stable and looks well. Local examination revealed moderate swelling of the knee, the range of motion of the right knee was the same as the previous presentation in the ER. Labs work up repeated and showed WBC 7,87 x10^9/L, ESR 90 mm/hr, CRP 130 mg/L, Brucella melitensis 1:2560 Gram Stain Report came positive of Gram-Negative Coccobacilli, Brucella species.

Emergency admission prepared for the patient from the clinic with a diagnosis of septic arthritis of the right knee caused by Brucella.

The patient was taken to the operating room on the same day, he underwent arthroscopic irrigation and debridement of the right knee with new synovial and tissue culture taken and a drain was inserted.

Then infectious disease department were consulted and they suggested to start the patient on:

- ciprofloxacin 750 mg Oral twice a day for 90 days - Doxycycline 100 Oral twice a day for 90 days. - Gentamicin 5mg/Kg intravenous once daily for 7 days.

In the first day following surgery, the patient was vitally stable, afebrile, a painless full range of motion of the knee with clean and dry dressing. The drain was 60 ml with hemoserous fluid coming out.

The drain was removed 48 hours after surgery which was minimal output. The patient was discharged after he completed his gentamicin course. During his hospitalization he was vitally stable afebrile, painless range of motion, with an improvement of his lab parameters as shown in table [1.2]. 1 month following discharge, during his clinic follow up, the patient shows improvement in clinical and labs parameters as shown in table {1.2}

Table 2.2

Exam. Name	Reference Value	On admission	6 days post op	1month follow up
WBC	4.00-11.00 x10^9/L	7.87	6.97	6.16
ESR	0-15 mm/hr	90	94	49
CRP	<=8 mg/L	130	101	25

3. DISSSCUSION

Septic arthritis can be a challenging diagnosis in a patient with none classical presentation and uncommon pathogens, therefore knee swelling and pain differential must include the different causes of septic arthritis.

Brucella arthritis should be excluded in a monoarthritis presentation.

It is thus advisable not only to send the knee aspirate for culture, including extended cultures for Brucella but also to request Brucella serology in such patients from endemic areas.[4]

Brucellosis usually affects young or middle-aged adults, with low incidence rates in children and the elderly [10]. The incubation period is around 2 to 4 weeks before symptom and signs appear. Usually, the symptoms of brucellosis are non-specific, such as joint pain, fatigue, sweating, fever, and gastrointestinal problems. Pourbager et al. reviewed that osteoarticular complaints were the most common symptoms [11].[1]

The diagnosis of brucellosis is commonly missed or delayed due to its rarity, its variable clinical presentation, and in some chronic cases, microbiological and serological negativity[2]. Although Brucella species are not considered to be a common cause of bacterial septic or reactive arthritides,[5-8] the various types of Brucella arthritis may mimic other diseases and thus have to be differentiated from them, especially in brucella endemic areas.[9]

Due to delayed presentation, none classical symptoms, and delay of obtaining the brucella titer lead to delay the diagnosis and management.

4. CONCLUSION

Most of the none classical monoarthritis presentations are difficult to diagnose even more difficult with Brucella being the causative organism.

The treating physician should keep brucellosis as one of the differential diagnosis in monoarthritis by which it's advisable to send knee aspirate for culture, including extended culture for Brucella, and Brucella serology in such patients from endemic areas.[4]

Combination of proper surgical intervention with prolong course of antibiotics is essential to prevent failure or relapse of Brucella septic arthritis.

CONSENT:

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

ETHICAL APPROVAL:

We have reported a single case and ethical approval is not necessary for reporting single case without showing any characteristic of the patient identity.

SOURSE OF FUNDING:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTREST:

The authors have no conflicts of interest to declare.

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