

Brucella Tubo-Ovarian Abscess: A Case Report

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Abstract

Brucellosis is one of the commonest zoonotic diseases worldwide and is an endemic disease in Saudi Arabia. It can present with a variety of clinical manifestations; fever is the most common presenting symptom. Genitourinary brucellosis is a rare complication of the disease. We report a case of a 42-year-old patient who presented with fever and lower abdominal pain. Imaging identified bilateral tubo-ovarian abscesses. All initial microbiological tests were negative. The patient continued to be febrile despite being on antimicrobial therapy. Brucella serology was requested as well as a fastidious culture of the drain fluid and both confirmed the diagnosis of brucellosis. The patient was treated with a combination of Ceftriaxone, Doxycycline, and Trimethoprim-sulfamethoxazole with a good clinical and serological response. This case highlights a unique and rare presentation of Brucellosis. This is a unique presentation of Brucellosis provides an interesting dilemma regarding the causes of Tubo-ovarian abscesses. Clinical suspicion of such a rare presentation of a common disease should be included while managing patients even in the absence of obvious risk factors especially in endemic areas such as Saudi Arabia.

Keywords

Brucella; Ovarian; Reproductive; Abscess; Infection

Introduction

Brucellosis is one of the commonest zoonotic diseases worldwide. The disease is endemic in the Middle East region [1]. In a study by *Aloufi et al*, the estimated number of cases in Saudi Arabia was 37,477 cases between the period of 2004- 2016 [2]. Brucellosis presents with a variety of clinical manifestations, most commonly fever, fatigue, headache, sweating, and weight loss [3]. The genitourinary manifestations of brucellosis were reviewed in a multicenter study done by *Erdem et al*; the commonest presentation was epididymo-orchitis in males. In females the commonest genitourinary manifestation of brucellosis was pyelonephritis. Only one case of a tubo-ovarian abscess and 2 cases of fallopian tube abscess were reported [4]. Because of the rarity of the presentation of a common disease we hereby report a case of a brucella-related tubo-ovarian abscess.

Case

We report a 42-year-old lady who is not known to have any chronic medical illness. She is Para 1+ 1 her first delivery was in 1997 followed by incomplete abortion requiring dilatation and curettage in 1999. Ever since she was investigated for secondary infertility and underwent laparoscopic cystectomy in 2012 and right ovary cystectomy in 2017.

Three months before her presentation the patient started to have on/off vaginal discharge brown in color, foul-smelling,

not related to her menstruation. Investigations in the referring hospital showed a large left side ovarian mass for which she was referred to King Faisal Specialist Hospital and Research Center (KFSH&RC) for further investigations and management.

Two weeks before her elective admission the patient complained of subjective fever, chills, and rigors associated with lower abdominal pain, stabbing in nature more on the left side radiating to the back. The patient denied any history of Dyspareunia, Intrauterine contraceptive device (IUCD) device insertion, previous ectopic pregnancies, and her systemic review was otherwise unremarkable.

She is a housewife and a mother of a 23-year-old son. Living in an apartment in the Northern region. She denied any extramarital relationship. She has no contact with animals and denied any unpasteurized milk ingestion. She has no previous personal history of Tuberculosis (TB) or history of contact with a known TB case.

Physical examination was positive for a low-grade fever measuring 37.9°C. Abdominal exam was soft and lax with severe tenderness and guarding of the left iliac fossa. Perineal examination showed no erythema and no discharge.

Laboratory investigations showed leukocytosis and reactive thrombocytosis. She had elevated tumor markers Cancer Antigen (CA) 12-5 and CA 19-9. Procalcitonin 0.08 ng/ml and C - reactive protein was 75 mg/L.

Computed tomography (CT) of the abdomen and pelvis showed a large multiloculated collection with peripheral enhancement measuring 8.1 x 6.2 x 7.1 cm involving the right adnexal lesion, in keeping with right tubal ovarian abscess. A left dilated tubular tortuous structure with incomplete septation showing peripheral enhancement without suspicious soft tissue component measures 9 x 3.5 x 6 cm, suggesting bilateral pyosalpinx. Multiple nonspecific reactive intrapelvic and retroperitoneal lymph nodes and a trace amount of intrapelvic free fluid were noted.

Extensive microbiological tests were done. Two sets of blood cultures were negative; a rapid test for *Neisseria* and chlamydia was negative as well as a negative human immunodeficiency virus (HIV) and syphilis serology. The patient was started on Ceftriaxone and Doxycycline and despite 4 days of therapy remained febrile with no other focus of infection and hence it was decided to go for abscess drainage.

The Abscess was drained by interventional radiology and the initial gram stain showed pus cells and no organisms were detected. *Brucella* serology was sent, and the drain fluid culture was sent for fastidious culture. On Day 3 colonies grew on chocolate agar that was later identified as *brucella* species. *Brucella* serology was performed and was positive with a total *brucella* antibody titer 1:2560, *brucella* IgG titer 1:160 suggesting a subacute-chronic infection. A diagnosis of *brucella* tubo-ovarian abscess was made and the patient was started on Doxycycline 100 mg BID and Sulfamethoxazole-Trimethoprim with a plan to continue for 3 months. On follow-up appointment, the patient had complete resolution of her symptoms and the *brucella* serology has decreased to a total antibody titer of 1:640.

Discussion

This case highlights a unique and rare presentation of brucellosis. The atypical presentation and the absence of obvious risk factors contributed to the diagnostic dilemma making it important to investigate for common endemic diseases in the region. Brucellosis remains a common zoonotic disease worldwide and is particularly endemic in Saudi Arabia (SA) with a seroprevalence rate of 15%. The majority of cases in SA are caused by *Brucella melitensis* [5]. In a systematic review by Dean *et al* fever was the commonest presentation of human brucellosis being present in 78% of affected patients. Common abdominal manifestations included abdominal pain, splenomegaly, and hepatomegaly of the genitourinary complication, epididymo-orchitis was the commonest affecting 10% of male patients; Abortion was common among pregnant infected patients (46%) [6]. Apart from fever and abdominal pain, the patient had no other common manifestation of the disease. To our knowledge, there were only two published cases of *brucella* tubo-ovarian abscess. The first case was 57 which further widened the differential diagnoses to include malignant and benign pathologies. Upon exploration, an abscess was found and hence the patient was started on empirical antimicrobial therapy with no benefit. The sent specimen grew *Brucella* spp. after which the patient was started on Streptomycin, Doxycycline, and Rifampicin [7]. The second case was for a young lady who present-

ed with tubo-ovarian abscess and classical risk factors for brucellosis i.e., unpasteurized milk ingestion. Blood culture and serology confirmed the diagnosis of brucellosis. She was managed medically with a combination of Doxycycline, Bactrim, and Rifampicin [8]. The major method of diagnosis of brucellosis is by serology as the yield of positive blood culture is low (24%) of the cases. As SA is an endemic country, higher titers are used for diagnosis 1:640 [9]. *Brucella* can also be isolated from other clinical specimens with the highest yield in reticuloendothelial specimens i.e., bone marrow and lymph nodes biopsies. The isolation of the organism from other clinical specimens from the female genital tract is enhanced when using selective media as Thyer-Martin-Medium [10]. In the case described the microbiology used both chocolate agar and Thayer-Martin medium to enhance the isolation of the organism and further support the diagnosis of *Brucella* tubo-ovarian abscess and colonies grew on both plates. The treatment of Brucellosis should be given for a prolonged period and should be treated with a combination regimen. The suggested World Health Organization (WHO) regimen for uncomplicated brucellosis is a 6 weeks course of doxycycline combined with either 6 weeks of Rifampicin or two weeks of streptomycin [11]. Given the rarity of the presentation, there are no recommended regimens for the treatment of *brucella* tubo-ovarian abscess. In both published cases a combination of Doxycycline and Rifampicin with the addition of a third agent (Streptomycin, Sulfamethoxazole-Trimethoprim) was used with a good response [7, 8]. Treatment of brucellosis is challenging in TB endemic areas as a Rifampicin sparing regimen is usually used to prevent the emergence of drug-resistant TB [12]. In the case presented the patient was treated with triple therapy 2 weeks of Ceftriaxone and a combination of Doxycycline and Sulfamethoxazole-Trimethoprim for 6 weeks and showed a good clinical and serological response.

Conclusion

This is a unique presentation of Brucellosis provides an interesting dilemma regarding the causes of Tubo-ovarian abscesses. Clinical suspicion of such a rare presentation of a common disease should be included while managing patients even in the absence of obvious risk factors especially in endemic areas such as Saudi Arabia.

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