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Case Report

Acute Brucellosis Presenting as Splenic Infarction: A Case Report from Qatar

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ABSTRACT

Splenic infarction is a very rare presentation of Brucellosis, very few cases were reported, especially that Brucellosis is one of the most common infectious diseases worldwide, a 33-year-old man presented with 3 days severe abdominal pain with previous history of indolent fever for a month, an abdominal Computed Tomography (CT) scanning showed splenomegaly with hypodense lesion that confirmed by to represent a splenic infraction by Magnetic Resonance Imaging (MRI). Serology and blood cultures came positive for Brucella, the patient was started on Gentamicin, Rifampicin and Doxycycline, with significant clinical improvement, the patient was discharged after one week of inpatient management with no complications during hospital stay or follow up.

INTRODUCTION

Brucellosis is the clinical spectrum of systemic involvement caused by Brucella infection, it is a zoonosis organism it is mainly transmitted through ingestion of unpasteurized milk products and direct contact with infected animal organs like placenta [1]. Brucella is an intracellular bacterium that spread via the reticuloendothelial system causing an alteration in host immune response [2]. It leads a course of chronic granulomatosis disease, Brucellosis's manifestations are diverse ranging from constitutional symptoms (fever, malaise, sweats) to organomegaly (hepatomegaly, splenomegaly and lymphadenopathy) to systems – specific involvements [1,3]. Herein we report a case of Brucellosis that presented by splenic infarction.

CASE PRESENTATION

A 33-year-old Djiboutian male with unremarkable past medical history, resident in Qatar for more than 4 years, recent travel to his country before 5 months. Presented with fever, vomiting, and night sweating for the last 4 weeks, and left upper abdominal pain extending to left lumber region started 3 days before admission. Fever was intermittent, occurs every two to three days, relived partially by antipyretics, there was no specific pattern for fever, but it was more frequent during nights. patient denied any cough, or sputum production or chest pain, no change in bowel habits, dysuria, change in urine color, skin rash or joint pain. He has no trauma or surgery. He went to a local clinic when the fever started, he received Amoxicillin/Clavulanic acid course for 7 days, but he continued to have fever, upon further questioning patient mentioned history of drinking raw milk of sheep, camels, and cows from time to time when he used to live in Djibouti.

On clinical examination the patient was conscious, alert, and oriented, he looked in pain, Temperature: 39.2, pulse rate: 86 beats per minutes, blood pressure: 128\74 mmHg, respiratory rate: 19 breath\minutes, peripheral oxygen saturation: 99%, abdominal examination revealed soft abdomen, with moderate to severe tenderness, mainly in left lumber area, normal bowel sound, because of the pain was unable to assess for organomegaly. Meningeal signs were all negative. Other systems examinations were unremarkable.

Laboratory investigation showed white blood cell count 3.3 × 10^9/L with Neutrophils were 32.3% and lymphocytes 59.9%, hemoglobin 13.5 g/dL, platelet count 112 × 10^9/L, CRP 84 mg/L, ESR: 36 mm\hr, alanine transaminase 61 U/l, aspartate transaminase 97 U/l, alkaline phosphatase 105 U/l, total bilirubin5 umol\L, albumin 26 g/L, creatinine 64 umol\L, urea 2.4 mmol/L, and lactate dehydrogenase:629 U/l, Autoimmune work-up: rheumatoid factor, anti-CCP antibody, ANCA, ANA, C3,C4 were negative. Hepatitis virus screen, HIV Ag/Ab combo, CMV PCR (Polymerase Chain Reaction), Adenovirus PCR, EBV PCR, Dengue PCR, *QuantiFERON*-TB Gold and Malaria smear were all negative. Peripheral smear showed leukopenia, and thrombocytopenia.

Chest X-ray showed prominent broncho-vascular markings, otherwise unremarkable, Electrocardiogram showed sinus rhythm. The patient had Computed tomography (CT) without contrast of abdomen showed: liver enlargement 18.7 cm, spleen also large around 18.3 cm in span with splenic lesion measures 3.5 x 2.5 cm in the context of splenic abscess or infiltrative cause like lymphoma. In the light of these findings, we proceeded with PAN (neck, chest abdomen and pelvis) Computed tomography scan that illustrated Liver enlargement measuring 19.5 cm in craniocaudal span, Spleen is measuring 19 cm in its long diameter with demonstration of at least 3 hypodense lesions in the spleen. The largest seen in the lower pole measuring 3.1 x 2.8 cm. (Figure 1) No significant enlarged lymph nodes in the hilar, mediastinal, axillary, abdominal or pelvic regions. Magnetic Resonance Imaging (MRI) of abdomen was done for further evaluation of splenic lesions which showed Splenomegaly around 19 cm in length with Two wedge shaped non-enhancing high T2, low T1 signal lesions are seen. The larger one shows central liquefaction with facilitation of diffusion (DW), these findings are consistent with multiple splenic infarcts (Figure 2).

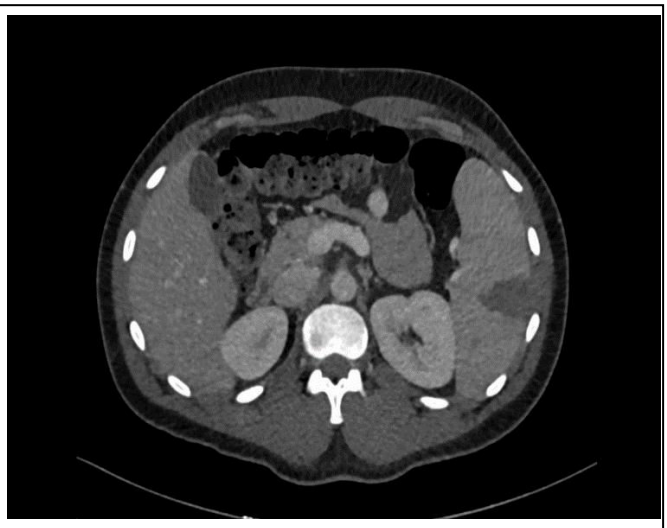

Figure 1: Abdominal CT with contrast showing hypodense splenic lesion 3.1 x 2.8 cm.

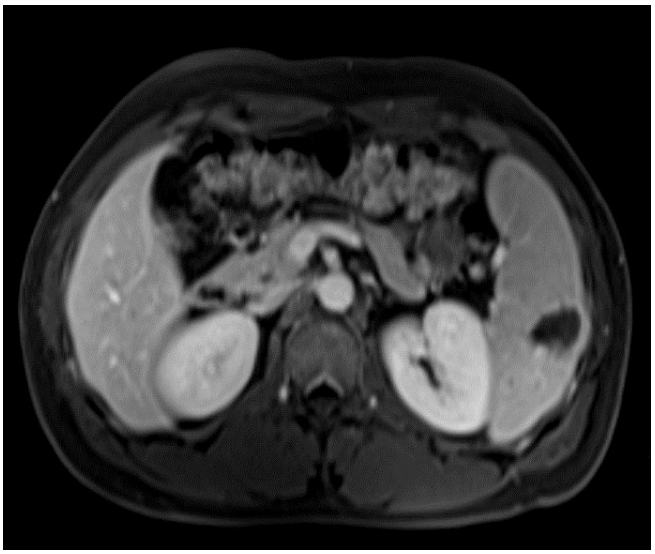

Figure 2: Abdominal MRI T1 showing hypo-intense splenic lesion.

Blood culture grew *Brucella* species after 110 hours of incubation. *Brucella* serology using enzyme-linked immunosorbent assay IgM and IgG were positive, positive brucella meletensis anti-body (titer 1:1280), and positive brucella abortus anti-body (titer 1:1280). Transthoracic echocardiography was negative for infective endocarditis.

After culture result started on oral doxycycline 100 mg twice per day (for 6 weeks), rifampicin 600 mg once daily (for 6 weeks) and IV gentamycin 5mg / kg for 7 days. Rifampicin stopped after 3 days as labs showed mild increase in liver function tests, fever resolved after 48 hours of starting

antibiotics, abdominal pain also improved, liver enzymes were trending to normal after Rifampicin stopped, the patient was sent home in a good condition, he completed 7 days of gentamicin at hospital, and discharged on Doxycycline only to complete 6 weeks course.

The patient was seen in the infectious diseases out-patient clinic for follow-up at one month and four months intervals, the patient remained well with no fever, or and no localized signs reported by him, repeated blood cultures were negative, liver function test were back to normal and inflammatory markers were settled. Follow up of antibodies tests and imaging is planned at the 6-month interval clinic appointment.

DISCUSSION

Brucellosis is an endemic disease in certain parts of the world particularly in the middle east [3]. In Qatar the prevalence of Brucellosis was found to be less than 4.2 cases per 100,000 lower than neighboring countries [4]. Brucellosis is an indolent systemic infection that can virtually affect any organ. However, fever and constitutional symptoms are the most common symptoms [1]. Splenomegaly is a well-known complication of Brucellosis (14%-16%) [1,3] but Splenic infraction is a rare complication. There were a handful of cases reporting Brucellosis with splenic infraction [5,6], to the best of our knowledge this is the first case of Brucellosis presenting as splenic infection in Qatar.

Splenic infarction presents mainly with moderate to severe abdominal pain, often localizing to Left Upper Quadrant (LUQ) [7], our patient presented with 3 days history of sever LUQ abdominal pain although he had been suffering from fever and night sweats for more than a month. Imaging modalities are the preferable method of diagnosis, Computed Topography (CT) scanning usually shows a low-density lesion, further evaluation with Magnetic Resonance Imaging (MRI) may be needed [7,8], in our case the patient had non contrast abdominal CT scanning that yielded only a hypodense lesion, re assessment with CT scan with contrast was better at visualization and pattern of vascularization of the lesions but did not conclude a diagnosis. MRI abdomen confirmed splenic infraction.

The exact mechanism of splenic infarction is not well understood. However, the inflammatory response to bacteremia favoring hypercoagulable state, presumptive endothelial injury or septic emboli were proposed as an underlying pathophysiology [6,7]. Splenic infraction as a complication of infection was described before, bacterial, viral, and parasitical organism were identified, not necessarily with splenomegaly [9,10]. In our case, the patient had only bacteremia, Echocardiography was negative for infective endocarditis, no other focal loci were found upon imaging.

Conservative approach is the management of choice in splenic infarction [5,7], with adequate hydration and analgesia along with appropriate antibiotic therapy (dual or triple agents). Our patient was started on Gentamicin, Rifampicin and Doxycycline, Rifampicin was later withdrawn due to mild asymptomatic transient transaminitis, his analgesic requirement decreased markedly after initiation of antibiotics, he did not require any painkillers by the 4th day after starting antibiotics. The use of anticoagulation is an area of controversy especially if no signs of thrombophilia were present [6,11]. Surgical intervention is needed if complications developed like hemorrhage or abscesses [11]. Our patient did not have any signs of complication, fever resolved, and pain subsided, he remained stable during his hospital stay (7 days after antibiotic administration) and at one month and four months intervals follow up he did not have any symptoms or complaints.

CONCLUSION

Brucellosis is a widely prevalent disease, diverse array of systemic manifestations is well known and described. However, special attention is needed if the patient developed non resolving abdominal pain, as splenic infarction is still a rare possibility and tends to have a benign course and subside spontaneously, but some serious complication can happen like abscess formation, hemorrhage, or splenic rupture.

AUTHORS CONTRIBUTION

Dr. Mouhammad J Alawad and Dr. Mustafa Almayoof wrote the manuscript, Dr. Madiha Khalid was responsible for the literature review and supervised the writing, Dr. Abazar Saeed provided mentorship and edited the manuscript.

ETHICAL APPROVAL

This case was approved by the Medical Research Center of Hamad Medical Corporation MRC-04-21-913, and the patient consented to the publication of his case.

DATA AVAILABILITY STATEMENT

Data and materials are available upon request.

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