

Bartonellosis a Rare Cause of a Splenic Cyst

Mohanned Omer Abass¹, Nassir Alhaboob², SiddigFadul Mohamed³, AM El Hassan⁴ and Elwalid Mohamed Elamin^{5,6}

¹Faculty of Medicine, Shendi university, Shendi, Sudan

²Faculty of Medicine, Omdurman islamic university, Khartoum, Sudan

³Armed forces hospital, Wadi Ad Dawasir, KSA

⁴Institute of Endemic Diseases, University of Khartoum, Sudan

⁵Bioscience Research Institute, IbnSina University, Khartoum, Sudan

⁶Faculty of Medical Lab Sciences, AlzaeimAlazhari University, Khartoum, Sudan

*Corresponding author

Mohanned Omer Abass, Assistant professor of surgery, University in Shendi, Sudan. E-mail: kenzomohnd@hotmail.com

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Abstract

Background: Bartonellosis comprises infections caused by the emerging pathogens in the genus *Bartonella*. *B. henselae* is the cause of cat scratch disease. Most of the cases present with the typical self-limited regional lymphadenitis. Isolated splenic involvement is very rare. Here we present a case of splenic cyst which was found to be due to *Bartonella Henselae*.

The case: A 30 years old, previously healthy female presented with non-specific poorly localized abdominal pain for 2 months. Her condition was not associated with any gastrointestinal symptoms or fever. She had close contact with pets (dogs and cats). Physical examination was only positive for a palpable spleen of about 6 cm below the costal margin.

Abdominal U/S and CT showed a loculated splenic cyst in the lower pole with wall calcification. Blood tests were unremarkable. A provisional diagnosis of Hydatid cyst was made and the patient received albendazole tabs and planned for splenectomy. Splenectomy was done and histopathological examination of the spleen revealed collection of black small filaments that stain positive for *Bartonella Henselae*, associated with marked vascularity. Patient run an uneventful postoperative course and was prescribed oral erythromycin for 3 weeks.

Conclusion: Bartonellosis is rare in immunocompetent patients and isolated splenic involvement is even extremely rare. The case presented here represents this atypical presentation of this rare disease.

Keywords: Bartonellosis, *Bartonella Henselae*, Spleen, Cyst, Hydatid.

Introduction

In recent years, an increasing number of *Bartonella* species have been identified as zoonotic pathogens that are transmitted by animal bites or scratches, needle sticks, blood transfusions, or by arthropods [1].

In Sudan *Bartonella* infection constitutes an emerging neglected zoonotic disease. The disease may be more common than is realized. A high clinical index of suspicion has to be maintained to diagnose cases of *Bartonella*. Scanty previous studies were done before in Sudan [2].

Cat-scratch disease (CSD) is a bacterial infection spread by cats. In 85–90% of patients, the disease caused by the bacterium *Bartonella henselae* usually presents as tender lymphadenopathy. Most cases of cat-scratch disease are self-limited and do not require antibiotic treatment [3].

Clinical presentation of *Bartonella henselae* infection is highly variable; infection with this bacterium depends on the immune status

of the host [4]. Isolated splenic involvement was reported in many series and it was either treated medically or via splenectomy [5-7].

In this report we present a case of a splenic cyst which was clinically and radiologically suspicious of a hydatid cyst of the spleen. Splenectomy was done and histopathological examination revealed *Bartonella henselae* infection of the spleen.

The case

A 30 years old female medical practitioner presented with a vague poorly localized abdominal pain as well as dragging left upper abdominal quadrant discomfort for the last two months.

The condition was not associated with: GIT symptoms and the patient denied any history of fever. Patient was having a good appetite and she had no weight loss. Systemic inquiry revealed no symptoms related to central nervous system, cardiopulmonary, genitourinary, musculoskeletal system and skin.

Past and family history was insignificant. The only positive finding is that she had close contact with pets (dogs and cats) which used to take care of. Patient sought medical advice and an abdominal

ultrasound was done which revealed a splenic cyst.

On examination; she looked fairly well, not pale, jaundiced or cyanosed. Her pulse rate was 80 beats per minute, blood pressure was 120/70 and the respiratory rate was 16 per minute. Temperature was 36.9°C there was no lymphadenopathy. Abdominal examination revealed a palpable spleen about 6 cm below the costal margin. Examination of the other systems was unremarkable.

Blood tests showed; Hb: 13g/dl, TWBC: 4.700/cumm, PLT: 277.000/cumm. Renal and liver function tests were normal. Screening for HBV, HCV & HIV was done and found to be negative. Computed tomography of the abdomen revealed a 10 cm multi loculated splenic cyst with wall calcification. The rest of the abdominal viscera were normal.

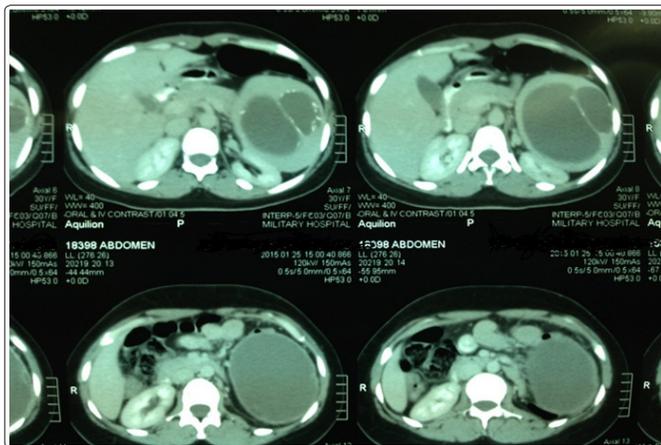


Figure 1: Computed Tomography (CT) of the abdomen showing splenic cyst

After counselling of the patient, the decision was made for performing splenectomy. Preoperatively, patient received Albendazol tabs as well as vaccination against common encapsulated bacteria (Pneumococcal, Hib and Meningococcal vaccines).

Operative findings

- The spleen was found to be enlarged and containing a large cyst at its lower pole, part of the cyst wall was yellowish in color. Examination of the other viscera was unremarkable. Splenectomy was done.



Figure 2: The spleen after it has been removed

Histopathological examination revealed that sections of the spleen and the necrotic material from the cyst showed collection of black small filaments that stain positive for Bartonella Henslae by monoclonal antibodies against this bacterium. As it is usual in this infection, there is marked vascularity in the lesion. Patient run an uneventful postoperative course and was prescribed oral erythromycin for 3 weeks.

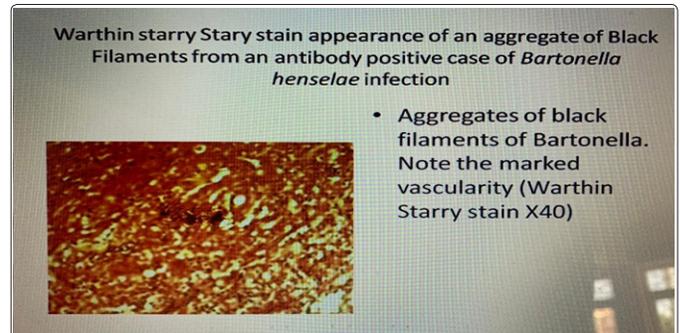


Figure 3: Microscopic examination of the spleen

Discussion

It is important to recognize that human health and animal health are closely linked. An estimated 75 % of emerging infectious diseases are zoonotic and 28 % are vector-borne [8].

The bacterial genus of Bartonella is comprised of Gram-negative, slow growing and facultative intracellular pathogens that infect mainly mammalian hosts and are often transferred via blood sucking arthropod vectors. Bartonella infections of humans and animals are often characterized by an intraerythrocytic bacteremia [9].

To date, at least 15 species have been associated with human infections, with at least eight species also capable of infecting dogs and cats. Several blood-sucking arthropods have been suggested or confirmed as vectors for this genus, including sandflies, body lice, fleas, ticks, and keds [10].

Bartonella species cause chronic and intermittent intra-erythrocytic bacteremia and infect endothelial cells of both incidental and natural reservoir hosts. The establishment of chronic, stealth infection is achieved by evasion of innate immune responses. These include resistance to complement activation, antigenic variation of surface proteins, and inhibition of host cell apoptosis [11].

Bartonella causes various clinical syndromes immunocompetent and immunocompromised hosts. Domestic cats are the natural reservoir, and vectors of B henselae [4].

Clinical presentation of bartonella henselae infection is highly variable thus it needs a high index of suspicion to diagnose this complex & uncommon infection. The clinical presentation of CSD no longer encompasses the original typical description from 1950, but rather presents with a wide spectrum of signs and symptoms, including the absence of a documented cat scratch, fever, primary lesions or peripheral lymphadenopathy. Low density lesions in spleen, liver and lymph nodes are typical findings in ultrasound, MRI, or CT [12]. Hepatosplenic involvement was also reported in the literatur as well as a disseminated disease [13-15].

Isolated splenic involvement is not uncommon, if the diagnosis is objectively suspected it can be treated successfully using medical regimes without the need of splenectomy [5,6]. In some cases medical treatment may fail to alleviate the condition and classical splenectomy may be required [7].

In the case presented here, patient presented with non-specific symptoms and the only positive finding was just splenomegaly as well as positive contact with domestic animals including dogs and cats which our patient used to take care of. The Bartonellosis may have a benign and self-limiting evolution in a host, or potentially fatal infections. Etiological agents can provoke a granulomatous or an angioproliferative histology damages [16].

There is no definitive test for the diagnosis of CSD. Blood cultures should be held for more than 21 days because *Bartonella henselae* is a slow-growing bacterium and there are cases with proven, by PCR, bacteremia with negative blood cultures. It is suggested that at least three of the four following criteria should be present in order to establish the diagnosis of CSD in patients with typical findings: i) cat or flea contact regardless of the identification of an inoculation site lesion, ii) negative serology for other causes of adenopathy; sterile pus aspirated from a node; a positive *Bartonella* polymerase chain reaction (PCR) assay; and/or liver or spleen lesions seen on CT scan, iii) positive serology for *Bartonella henselae* with IgG titer $\geq 1:64$, and iv) biopsy showing granulomatous inflammation [17, 18].

In our case an abdominal ultrasound and computed tomography were performed and revealed a cystic lesion in the spleen with wall calcification that was highly suspicious for a hydatid cyst of spleen. No serological tests were performed since they were not available. Diagnosis of was confirmed following histopathological examination of the removed spleen which constituted a solid base for the diagnosis.

There is no universal therapy for *Bartonella*'s infection, therefore treatment should be chosen individually. In the absence of systematic reviews, treatment decisions for *Bartonella* infections are based on case reports that test a limited number of patients [19,20].

CSD typically does not respond to antibiotic therapy. The clinical manifestations of the disease may be due to an immunological reaction in the lymph nodes, and there are probably few or no viable *Bartonella* bacilli by the time that a biopsy is performed. It is not clear that antibiotic therapy is useful for the treatment of CSD in immunocompetent patients; and because antibiotic therapy adds the risk of adverse drug reactions and the generation of resistant flora, the current recommendation for the mild to moderately ill immunocompetent patient with CSD is no antibiotic treatment. Management consists of treatment with analgesics for pain and prudent follow-up. Treatment with an azithromycin regimen (500 mg orally [p.o.] on day 1 and 250 mg p.o. on days 2 to 5 as single daily doses) could be an alternative for patients with large, bulky lymphadenopathy. The combination of doxycycline (100 mg p.o. or intravenously [i.v.] twice daily) with rifampin (300 mg p.o. twice daily) could also be an alternative [21,22]. The optimum duration of antibiotic therapy for immunocompetent patients with complicated CSD has not been determined. Of note, there is a marked difference between the dramatic clinical response to antibiotics observed in immunocompromised patients with CSD and the minimal response observed in immunocompetent patients [21].

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