CASE REPORT

Splenic abscess owing to brucellosis

Gohar Jamil, Mujgan Jamil, Noura Saif Al Nuaimi, Mazen Taha

Department of Medicine,
Tawam Hospital, Al Ain,
United Arab Emirates

Correspondence to
Dr Gohar Jamil,
goharjamil@gmail.com

SUMMARY

Brucellosis, caused by aerobic Gram-negative coccabacilli, is prevalent worldwide. It occurs mainly because of the consumption of unpasteurised milk and contact with animals. The disease is particularly hyperendemic in the Mediterranean region and Arabian Peninsula. Its high prevalence in the UAE continues to be a major health problem, causing significant morbidity and mortality. According to the Ministry of Health, 119 cases were reported in 2010, and most of those cases were patients aged over 45. Even though an effective treatment is available for this disease, treatment failure frequently occurs owing to delay in diagnosis, relapses and its prolonged clinical course. We present a 33-year-old man who was admitted to our internal medicine teaching unit service with non-specific symptoms. A workup revealed *Brucella* in the blood cultures. An abdominal ultrasound showed multiple splenic abscesses. After treatment with triple therapy, the patient has remained asymptomatic at 2 years follow-up.

BACKGROUND

Although a multisystem disease, isolated abscess formation in the spleen is very rare and has not been reported in Arab countries where the consumption of unpasteurised camel milk is common. Recognition of this type of presentation is very important because a delay in diagnosis can be life threatening. It has a mortality approaching 100% in the absence of adequate treatment.^{1 2} Owing to the rarity of this disease, there are no specific guidelines or management recommendations.

CASE PRESENTATION

A 33-year-old man, who is a road-side cleaner by occupation, presented to the emergency room with a 3-month history of fever, weight loss, haemoptysis, night sweats and generalised malaise. There was no history of recent travel, unpasteurised milk consumption or contact with sick of similar presentation.

A physical examination revealed a lean, young man with malodorous smell. Peripheral pulse was regular at 98 bpm and blood pressure 108/60 mm Hg. He was febrile with body temperature of 39.8°C. His conjunctiva were pale, there were no scleral icterus, lymphadenopathy or peripheral stigmata of septic emboli. His cardiac examination revealed a normal precordium and normal heart sounds without murmurs or rub. His breath sounds were normal without any rhonchi, riles, wheezes or rubs. His abdomen was soft, non-tender and with no hepatosplenomegaly. There was no ankle oedema.

INVESTIGATIONS

Metabolic and biochemical workup revealed normal serum transaminases and kidney function

tests. A relative lymphocytosis of 47% and microcytic anaemia with low serum iron levels were noted; however, there was no evidence of microangiopathic haemolytic anaemia. Blood cultures were positive on *Brucella* on day 3. Tube agglutination titres of *Brucella abortus* and *Brucella melitensis* were elevated at 1:160 and 1:320, respectively.

His chest x-ray was normal. A CT scan of the chest and abdomen did not show any pleural or pulmonary pathology, but revealed splenic lesions (figure 1). This was further assessed by abdominal ultrasound, which showed micro abscesses with central necrosis (figure 2). This type of 'wheel-in-wheel' pattern is common in mycotic infections. A transoesophageal echocardiogram ruled out endocarditis as the aetiology of septic emboli resulting in splenic micro abscesses.

DIFFERENTIAL DIAGNOSES

- ▶ Tuberculosis
- ▶ Malignancy
- ▶ HIV

TREATMENT

The patient was started on oral doxycycline 100 mg and rifampicin 600 mg once daily for 6 weeks and gentamicin 2 mg/kg intravenous for 1 week. The fever defervesced on day 3. He was discharged on day 8 with outpatient follow-up and repeat ultrasound appointment.

After 6 weeks of treatment, the patient, however, returned with fever, generalised body aches and fatigue. Blood cultures and *Brucella* titres were redrawn. Rifampicin and doxycycline were empirically restarted with the view of therapeutic failure. A repeat tube agglutination titres of *B abortus* and *B melitensis* were 1:160 and 1:320, respectively. Both medications were continued for 8 more weeks. A follow-up ultrasound performed after

Figure 1 Ultrasound abdomen showing splenic lesion.

To cite: Jamil G, Jamil M, Saif Al Nuaimi N, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009004

Figure 2 Ultrasound abdomen showing splenic lesion. Lesions showing various degrees of central necrosis constituting microabscesses.

3 months showed regression of the splenic lesions. At 1 year, the *Brucella* titres drawn were 1:80 and 1:80.

OUTCOME AND FOLLOW-UP

Two years after the completion of the treatment, the patient remained asymptomatic without any signs or symptoms of disease recurrence (figure 3).

DISCUSSION

Human brucellosis is a zoonotic infectious disease, caused by *B melitensis*, *B abortus* and *B suis*, and rarely by *B canis*. This disease remains endemic in many Middle Eastern countries. It is prevalent worldwide and is particularly hyperendemic in the Mediterranean region and Arabian Peninsula.³ Splenic abscess is a rare and serious complication of this disease.^{4–6} The mode of transmission is frequently through drinking unpasteurised milk and rarely through inhalation.

Since our patient was a roadside cleaner, the mode of transmission was thought to be related to inhalation. Being a multi-system disease, brucellosis can often be a diagnostic dilemma as the disease is associated with a wide variety of signs and symptoms. The symptoms of this disease usually start 2–4 weeks after exposure.⁷ Common presenting symptoms include fever, night sweats, fatigue, arthralgias and myalgias.

Figure 3 Ultrasound abdomen showing resolution of lesions post-treatment.

The disease can result in a series of complications including spondyloarthritis, sacroiliitis and meningitis. Pulmonary involvement secondary to bacteraemia has also been seen in brucellosis and can rarely manifest as empyema, pleural effusions, pulmonary nodules and mediastinal lymphadenopathy.⁸ Although our patient had a single episode of unwitnessed haemoptysis, there was no evidence of pulmonary involvement on the chest radiography or CT scan. Bone marrow involvement can lead to anaemia, leucopaenia and thrombocytopenia.⁸

Bacteraemia can lead to abscess formation in the liver, spleen and other organs. Three to five per cent of patients with infective endocarditis can proceed to develop splenic abscess.³ Most of these cases involving the spleen have been a part of a multi-system involvement and this has been reported to range from 0.2% to 0.7%.^{9–10} However, another study performed in Turkey has reported a higher incidence of up to 1.6%. The diagnosis can be made by serological tests, blood cultures, culture from the abscess and radiological investigation; CT scan has higher sensitivity than ultrasound.¹¹

We diagnosed our patient on the basis of ultrasound findings, serological test and isolation from blood cultures. *Brucella* organisms owing to their continuous replication and ability to survive in the monocyte macrophage system, make it harder to treat the disease and are one of the bases of antibiotic failure.⁴

Many randomised control trials have assessed several combination treatment regimens; however, the evidence has yet to be summarised. Classically, it is treated with a combination of antibiotics as it is important to prevent recurrence and to avoid the need of surgical intervention.^{2–12}

The disease must be treated for a minimum of 4–6 weeks.

There are several therapeutic options for treating this disease with various antibiotic combinations. However, depending on the site involved and disease severity, guidelines and treatment protocols have yet to be established. In addition, there is no clear consensus on the optimal duration of treatment.¹³

According to WHO, uncomplicated cases can be treated with doxycycline 100 mg twice daily for 6 weeks and streptomycin 1000 mg daily for 2–3 weeks. Alternatively, doxycycline 100 mg twice daily for 6 weeks and rifampicin 600 mg daily for 6 weeks may be given to the patient. Patients with more complicated disease are treated with triple therapy including doxycycline, rifampicin and aminoglycoside.

The disease has a high relapse rate, which can occur in up to 30% of the cases.¹ This disease can progress to have fatal complications, therefore early diagnosis is vital.^{14–15} Surgical treatment is considered in patients in whom there is no response to medical treatment.

Learning points

- ▶ Splenic abscess owing to brucellosis is a rare entity and prompt diagnosis is crucial for initiating therapy and preventing complications.
- ▶ Brucellosis should be considered in the differential diagnosis of splenic abscesses in endemic areas.
- ▶ Regular and frequent physician follow-up appointment should be scheduled. This will ensure treatment compliance and catch early signs of relapse.
- ▶ Comparative outcomes of different antibiotic regimes are unknown. Management of each reported case adds to our pool of knowledge. Prospective studies to establish clinical guidelines for this disease are necessary.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Buzgan T, Karahocagil MK, Irmak H, *et al*. Clinical manifestations and complications in 1028 cases of brucellosis: a retrospective evaluation and review of the literature. *Int J Infect Dis* 2010;14:469–782.
- 2 Sayilir K, Iskender G, Ogan MC, *et al*. Splenic abscess due to brucellosis. *J Infect Dev Countries* 2008;2:394–6.
- 3 Yilmaz MB, Kisacik HL, Korkmaz S. Persisting fever in a patient with brucella endocarditis: occult splenic abscess. *Heart* 2003;89:e20.
- 4 Park SH, Choi YS, Choi YJ, *et al*. Brucella endocarditis with splenic abscess: a report of the first case diagnosed in Korea. *Yonsei Med J* 2009;50:142–6.
- 5 Caliskan AC, Barut D, Koseoglu D, *et al*. Obturatory abscess and pelvic pain caused by Brucella mellitensis. *Mikrobiyoloji Bulteni* 2009;43:325–9.
- 6 Naseem A. Splenic abscess secondary to Brucella melitensis. *J Coll Phys Surg Pak* 2002;12:488–90.
- 7 Sharivker D, Vazan A, Varkel J. Brucella endocarditis complicated by acute glomerulonephritis—early surgical intervention. *Acta Cardiol* 2001;56:399–400.
- 8 Eruz ED, Serhat B, Alpay A, *et al*. A case of brucellosis presenting with multiple hypodense splenic lesions and bilateral pleural effusions. *Case Reports in Medicine* 2011;2011:614546. doi:10.1155/2011/614546.
- 9 Seçmeer G, Ecevit Z, Gülbülak B, *et al*. Splenic abscess due to brucella in childhood. A case report. *Türk J Pediatr* 1995;37:403–6.
- 10 Cózar Olmo JA, Díaz Torres MJ, Cuenca Burgos MJ, *et al*. Brucellosis-induced splenic abscess. *An Esp Pediatr* 2002;57:593–4.
- 11 Pourbagher MA, Pourbagher A, Savas L. Clinical pattern and abdominal sonographic findings in 251 cases of brucellosis in southern Turkey. *AJR* 2006;187:191–4.
- 12 Skalsky K, Yahav D, Bishara J, *et al*. Treatment of human brucellosis: systematic review and meta-analysis of randomised controlled trials. *BMJ* 2008;336:701–4.
- 13 Solís García del Pozo J, Solera J. Systematic review and meta-analysis of randomized clinical trials in the treatment of human brucellosis. *PLoS ONE* 2012;7:e32090.
- 14 Soker M, Cakmak A, Ayyildiz O, *et al*. Non-traumatic subcapsular spleen hematoma in a patient with Brucellosis. *Dicle Tip Dergisi* 2005;32:91–3.
- 15 Corbel MJ Beeching NJ Brucellosis. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J, eds. *Harrison's principles of internal medicine*. Chapter 157. 18th edn. New York: McGraw-Hill, 2012.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow