Brucellosis: Haemorrhagic Pleural Effusion
A Case Report

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Introduction

Brucellosis is a worldwide zoonotic disease [1] caused by the genus Brucella. It is estimated that the actual incidence of the disease is much higher than reported, because in many instances, the disease is not recognized or reported [2]. Consumption of raw milk and milk products and contact with animals remain the major sources of infection [3]. Humans are infected mainly by ingestion of raw milk and milk products, inhalation of infected particles, direct contact through abraded skin or mucous membranes with infected meat, liver or bone marrow and exposure to placenta of infected animals [2]. The organism has been isolated from breast milk and nursing mothers may infect their infants through breast-feeding [4]. The organism has also been isolated from human semen and there are case reports of sexual transmission [4]. Recent reports on the isolation of Brucella maris from marine animals can widen the epidemiological aspects of the disease [1]. Any organ system can be infected including bones, joints, heart, lung and central nervous system. A presumptive diagnosis of brucellosis is made by a positive serology test, which is then confirmed by isolation of the organism from blood and/or tissue cultures. We report a case of brucellosis complicated with haemorrhagic pleural effusion.

Key Words
Brucellosis · Haemorrhagic pleural effusion · Lung decortication

Abstract

Objectives: To describe haemorrhagic pleural effusion as a rare complication of brucellosis that finally needed lung decortication. Clinical Presentation and Intervention: A 37-year-old female presented with a 1-week history of fever, dry cough and pleuritic chest pain. Physical examination showed signs of right pleural effusion and hepatosplenomegaly. Complete blood count showed pancytopenia, white blood cells 2.9/mm³, haemoglobin 10 g/dl, platelets 131/mm³. Chest X-ray confirmed a moderate right pleural effusion, that was found to be exudative biochemically. Culture of pleural fluid and blood grew Brucella species. Fever subsided with Brucella chemotherapy, but pleural effusion persisted. Computed tomographic (CT) chest scan showed a large loculated pleural effusion, which failed to resolve despite repeated aspirations under CT guidance. Fluid was always found to be haemorrhagic. Finally, lung decortication was done with successful outcome. Conclusion: This case showed that brucellosis can cause haemorrhagic pleural effusion that needs lung decortication.
**Case Report**

A 37-year-old Saudi housewife presented with a 1-week history of fever, dry cough, right pleuritic chest pain and New York Heart Association class 2 exertional shortness of breath. She gave a history of raw milk ingestion and animal contact. Physical examination showed signs of right pleural effusion and hepatosplenomegaly. CBC showed pancytopenia with WBCs 2.1/mm³, Hb 10 g/dl, platelets 131/mm³ and ESR 62 mm/h. Chest X-ray confirmed a moderate right pleural effusion. A diagnostic pleural tap showed a haemorrhagic pleural fluid with pH 7, protein 50 g/dl, glucose 3.5 mmol/l, WBC 2,000/mm³ (polymorphs 80% and lymphocytes 20%), RBCs >100,000/mm³. Gram stain was negative and no acid-fast bacilli (AFB) were seen with special stain. Pleural fluid and blood cultures grew *Brucella* species. *Brucella* agglutinin antibodies were positive for *Brucella abortus* with a titre of 1:5,120 which increased to 1:10,240 within 1 week. Bone marrow examination revealed a normocellular marrow, no granulomas and did not grow *Brucella* or *Mycobacterium tuberculosis* in culture after incubating for 8 weeks at 37°C with 10% CO₂. Serum antinuclear antibodies were negative.

She was started on doxycycline 100 mg per oral twice daily and cotrimoxazole 960 mg per oral twice daily. Fever subsided after 5 days and she continued to take oral doxycycline and cotrimoxazole for 3 months, but pleural effusion and shortness of breath persisted. Computed tomographic (CT) scan of the chest showed a large loculated pleural effusion which failed to resolve despite repeated aspirations under CT guidance and later, chest intubation failed to clear the pleural cavity. Pleural fluid was found to be haemorrhagic. Finally, lung decortication was done, which made the pleural fluid and shortness of breath disappear. Histopathological examination of the pleural tissue showed non-specific chronic inflammatory cell infiltrate, and was negative for granulomas, malignant cells, or acid-fast bacilli. Tissue culture did not grow any organism including *Mycobacterium tuberculosis* after incubation at 37°C with 10% CO₂ for 8 weeks.

She was followed up in the outpatient clinic for 6 months. There was no pleural collection and the hepatosplenomegaly had regressed. Haematological indices were found to be normal.

**Discussion**

Brucellosis is hyperendemic in Saudi Arabia [4] with more than 8,000 cases reported each year to public health authorities [8]. During 1998, brucellosis was the most reported communicable disease (22.5%) in Saudi Arabian national guard community [4, 5]. The reported incidence varied from 1.1% in administrative personnel to 8.9% in butchers.

Respiratory complications in brucellosis are mostly mild and take the form of a ‘flu-like’ illness with sore throat, tonsillitis and mild dry cough [6]. More serious manifestations are rare [7–9] and may cause pleurisy, pneumonia, lung abscess and hilar lymphadenopathy [8]. Pleural effusion and empyema are even rarer.

**Conclusion**

This case showed that brucellosis can cause haemorrhagic pleural effusion that needed lung decortication.
References