

Brucella pleuritis in a 12-year old child; a case report

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ABSTRACT

Background: Brucellosis is a zoonotic disease involving several organs. Pulmonary involvement especially pleuritis is extremely rare.

Patient: We report a 12-year old boy presented with a 3-week history of fever, chills, and profuse sweating, especially at night. He complained of fatigue, lack of appetite, weight loss, exertional dyspnea, nonproductive cough and mild pleuritic chest pain. Diagnosis of brucella pleuritis was verified by positive blood and pleural fluid culture and serology. Having completed a combined therapy (doxycycline/rifampin) for 3 months, no relapse occurred. Almost all radiological findings disappeared at the end of the therapy.

Conclusion: Pulmonary involvement is a rare manifestation of brucellosis, however, it responds well to a combination therapy of rifampin and doxycycline.

Keywords: *Brucella, Pleuritis, Zoonotic diseases.*

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INTRODUCTION

Brucellosis is an endemic zoonotic disease, especially in the Middle East and Mediterranean regions. Since it affects several organs and tissues, it may present in a variety of forms (1-3). Brucellae are facultative intracellular, small, noncapsulated, aerobic, non-spore-forming, immotile gram-negative coccobacilli (1-3). Brucellosis affects all age groups and both genders. Signs and symptoms include fever, arthralgia and arthritis, sweating, headache, malaise, nausea and vomiting, lymphadenopathy, hepatosplenomegaly, anorexia and weight loss (1-4).

Pulmonary involvement especially pleuritis is extremely rare (5-8). Positive blood or bone marrow culture is advised for definite diagnosis, however, serologic tests (Wright and 2 MeraptoEthanol=2ME) are the commonest diagnostic approaches (1,3). Although classic descriptions refer to a high rate of pulmonary complications, they are in fact exceptional in the antibiotic era.

The route of contagion does not influence the development of pulmonary involvement. The presence of a dry or scarcely productive cough is a frequent symptom in patients with brucellosis but does not imply the existence of a focal complication (3,9).

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PATIENT

A 12-year-old child was admitted to our hospital with a 3-week history of fever, chills, and profuse sweating, especially at night. He complained of fatigue, lack of appetite, weight loss, exertional dyspnea, nonproductive cough and mild pleuritic chest pain. He also had a positive history of brucellosis in his parents and consumption of unpasteurized dairy products. On physical examination, his body temperature was 38.5°C. He had decreasing left breath sound and mild hepatomegaly. The patient's laboratory tests were as follow: white blood cell count: 6700/mm³, hemoglobin: 11.5 g/dl, hematocrit:33.7%, erythrocyte sedimentation rate (ESR): 49 mm/h, C-reactive protein (CRP): 3+, and a normal blood biochemistry profile. The Rose Bengal test was positive. The Wright agglutination test and 2-MercaptoEthanol test (2ME) for brucella were both positive at titers of 1/160 and 1/80, respectively. Pleural fluid analysis results was as follow: sugar: 25mg/dl, protein:1.6mg/dl, LDH:880mg/dl, and white blood cell count:5300/mm³ (60% lymphocyte and 40% neutrophil). The pleural fluid Wright agglutination test was positive at titer of 1/160. *Brucella melitensis* was isolated from the blood and pleural fluid culture. Chest radiography showed left massive pleural effusion and CT scanning of the thorax confirmed massive pleural effusion and also collapsed lower lobe. Cytology of pleural fluid was negative. Therefore, a diagnosis of brucellosis with pleuropulmonary involvement was verified. The patient was prescribed 450mg/d rifampin and 200mg/d doxycycline for 3 months, during which his condition improved gradually.

At the end of the 3rd month constitutional symptoms disappeared and laboratory tests demonstrated a low ESR (5mm/h), negative CRP, negative 2ME and Wright agglutination of 1/40. All other blood values were within normal limit. Meanwhile, chest x-ray abnormalities were disappeared.

DISCUSSION

Pulmonary involvement is a rare manifestation of brucellosis (5-7). The spectrum of pulmonary complications of brucellosis is wide, including cases of unilateral or bilateral bronchopneumonia, cavitated pneumonia, pulmonary nodules, hilar lymphadenopathy, and empyema (4).

In Colmenero et al study, of 530 cases only 1 had a definite pulmonary complication (4). Cokca has reported a case of disseminated brucellosis with pulmonary symptoms (8). Singh described a child with brucellosis, who presented with predominant pulmonary involvement. It was an eight-year-old child who had non-resolving pneumonia and responded to a combination of doxycycline and rifampicin (7).

Our patient presented with constitutional signs and symptoms, non productive cough and dyspnea. Vagueness of the symptoms of brucellosis in this case is in accordance with prior reports (1,2,4,8), however, bear in mind his residence in endemic region and past history of brucellosis in his parents makes the diagnosis more probable. Nevertheless, many infectious and noninfectious diseases are listed in brucellosis differential diagnosis. Initial presentation of fever, generalized pain, cough, dyspnea, elevated ESR, positive CRP, exudative pleural effusion are associated with many other diseases such as tuberculosis, complicated pneumonia, connective tissue disorders, malignancies and etc. Definite diagnosis of brucellosis could be achieved with positive blood or other body fluid culture (9).

Tetracycline or doxycycline in combination with streptomycin, or gentamicin with either doxycycline or tetracycline are recommended therapy in older children or adults (1,3). Because of the untoward side effects of tetracycline and doxycycline in children younger than 10 years of age, alternate regimens have been considered and a variety of drugs can be used safely for example a

combination of rifampin and trimethoprim-sulfamethoxazole (1-3,10).

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