

## PULMONARY BRUCELOSIS:Two case reports

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### SUMMARY

Two patients with brucellosis were admitted to the hospital. Diagnosis was based the detection of significantly elevated antibody titter and positive blood culture. The first patient complained of fever, malaise and left sided pleurisy. Chest x-ray revealed a left pleural effusion. All of the laboratory tests were negative. An elevated agglutination titter to brucella antigen and positive culture verified the diagnosis. A treatment regiment of rifampin 900 mgr/day and doxycycline 200 mgr was administered. In the tenth day a regression of symptoms were observed, and radiological scene was subsided to normal. Arthralgia and arthritis resolved in 6 weeks. After 8 weeks serum antibody titers seemed to be at normal levels. Clinical and serologic relapse was not seen in the next six months. The second patient had a recent history of acute brucellosis. The patient had a complaint of right pleurisy and hidrothorax was detected radiographically. Thoracentesis revealed brucella empyema. Brucella antibody agglutination titer, and positive blood cultures revealed pulmonary brucella infection. Tube thoracostomy and underwater drainage was applied. Following medical therapy clinical and radiological improvement occurred in the first month. Following the second month of therapy serum antibody titers returned to normal levels.

### ÖZET

#### Pulmoner Brusellozis:İki vaka nedeniyle

Brusellozisli iki hasta hastaneye yatırıldı. Tanı serolojik olarak ve pozitif kan kültürü ile konuldu. Birinci hastada ateş, halsizlik mevcuttu. Göğüs rontgenogramında sol plevral effüzyon saptandı. Tüm laboratuvar değerleri normaldi. Tanı, yükselmiş brusella antijen aglutinasyon titresi ve pozitif kan kültürü sonucuyla sağlandı. 900 mg/gün rifampin ve 200 mgr/gün doxycycline ile tedavi rejımı uygulandı. 10.günde semptomların gerilediği radyolojik görünümün normalde döndüğü görüldü. Artralji ve artrit 6 haftada düzeldi. 8 hafta sonra serum antibody titreleri normal seviyelerde idi. 6 aylık takiplerde klinik ve serolojik olarak relaps izlenmedi.

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İkinci hastada akut brusellozis öyküsü bulunmakta idi. Sağ plözeri radyolojik olarak saptandı. Torasentezde ampiyem gösterildi. Brusella aglutinasyon titresinin yüksek olması ve pozitif kan kültürü pulmoner brusella enfeksiyonunu belirledi. Tüp torakostomisi ve su altı drenajı uygulandı. Medikal tedaviyi takiben 1. ayda klinik ve radyolojik iyileşme gözlemlendi. Tedavinin ikinci ayında ise serum antibody titreleri normal seviyelere döndü.

Human brucellosis is a multisystem disease that presents with nonspecific symptoms, the most frequent which is fever, chills and sweating. The disease is caused by the microorganisms of the genus brucella. The most common portal entry for brucella organisms is gastrointestinal(1). Respiratory involvement of the disease is reported to be approximately 23-25 % of the patients. Respiratory symptoms are reported to occur more often during the first two weeks of the illness. Symptoms may include dry cough, dyspnea and pleurisy. Radiologically, findings may be localized or general haziness, pneumonia or solitary granuloma the most characteristic changes are reported to be perihilar thickening, peribronchial infiltrates and sometimes pleural empyema(2).

A definitive diagnosis of brucella is made by recovering the micro-organism in blood, fluid or tissue specimens. Blood cultures are often positive in acute phases. The specimen may need up to six weeks to grow the organisms on appropriate media. A serology with the standard agglutination tube test of 1/160 or greater, or a fourfold rise in titer is considered presumptive evidence of past or recent infection with brucella.

### CASE I:

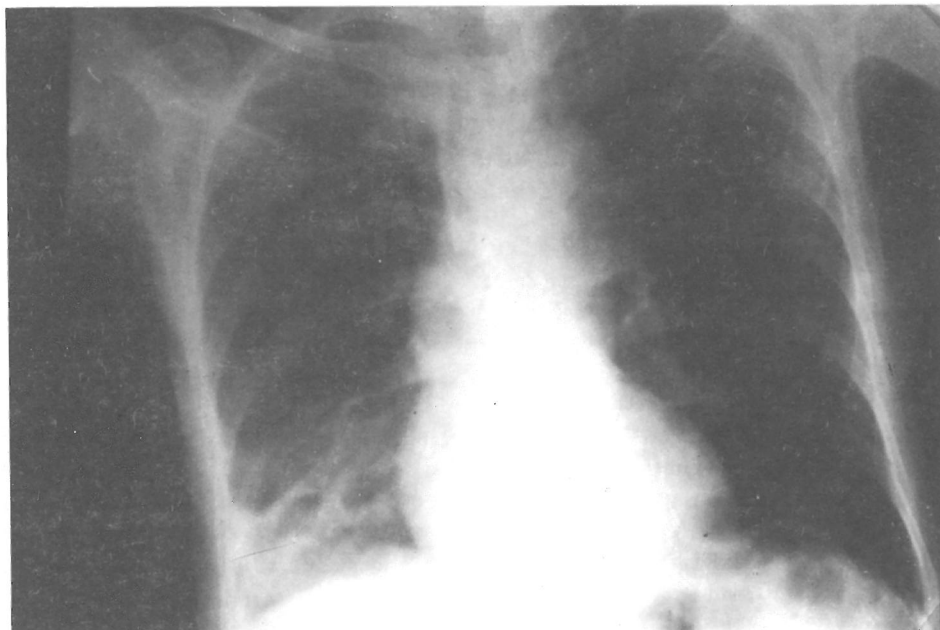
A 44 year old male patient was admitted to the Gaziantep University Hospital with a two week history of fever, pain, malaise, dry cough and left side pain. Physical examination revealed a body temperature of 38.5 C, decrease of inspiration at the left side, and rales with an increasing dullness at the left side base. A chest roentgenogram revealed left sided minimal pleural effusion. A diagnosis of acute brucellosis was confirmed by the isolation of brucella melitensis from blood cultures at the 12th day and the demonstration of an elevated agglutination titer to brucella antigen (over 1/160). Standard therapy regime (rifampin 900 mgr/day and doxycycline 200 mgr/day) was started. Combined treatment for these drugs lasted for six weeks. At the tenth day of treatment radiological and symptomatic resolution was observed. At the second month of treatment the serologic test is negative. Sixth month control revealed clinically and laboratory symptom showing free of infection.

### CASE II:

62 year old male patient was admitted to our hospital with complaints fever, chilling, arthralgia and right side pain. The patient had treated for brucellosis a

year ago. The patient had fever of 39.7 C, with mild dullness on the right side with crackles. There was a painless hepatomegaly 2-3 cm palpable. On the chest roentgenogram right side free pleural fluid was detectable. The hematocrit value was 43 %, WBC 9.300/cu mm, with 62 % neutrophills, 5 % monocytes, and 27 % lymphocytes. Sedimentation rate was 52 mm/hour. C Reactive Protein(+++), a right pleural puncture revealed a hemorrhagic exudate with RBC of  $3.1 \times 10^6$  cu/mm, WBC of 5200/cu mm, with a neutrophill majority of 92 %, 7 % lymphocytes, and % macrophage's. The glucose value was 62 mMol/L, LDH 3.76 U/L and protein 6.7 g/L. There was no growth on agarphates. Brucellar antibody tests were performed by tube agglutination(TAT) and titration values over 1/320 was obtained. A positive blood culture was obtained 14 Th day. Pleural biopsy revealed chronic pleural thickening. Atypical cells were not encountered in microscopic studies of sputum and pleural fluid samples. Broncoscopic studies were normal. The strain was identified as brucella melitensis. A closed basal thoracostomie was performed and brucella empyema diagnosis was declared. For a week mechanical with serum sale was done. Tube thoracostomy was left to open drainage at the 12th day. Medical treatment consisted of seftriakson (2 gr/day IV) for ten days, trimetroprim+sulfamethaxazole (160 mgr+day) and doxycycline(200mgr/day) for 8 weeks. Right lung was expanded and tube drainage was abandoned one month later, and the patient was discharged(Fig I-II). Eight months follow up revealed; an uneventful and symptom free status.





## DISCUSSION

Human brucellosis is still a major health problem world-wide. Although pulmonary brucellosis is not encountered very frequently, pulmonary involvement is reported, especially in complicated cases showing bacteremia. In experimental models, the microorganism is shown in lung tissue(3).

There are few reports in the literature about radiographic abnormalities in lungs or pleura in brucellosis(4). Early diagnosis and prolonged therapy could be reasons suggested for the absence of pulmonary complications. Perihilar and peribronchial infiltration's are the most common radiographic findings(5). Other findings include; pulmonary nodules, consolidation, lung abscess and pleural effusion. Brucellosis also can produce bilateral lymphadenopathy(6). Pleural involvement should be verified with isolation of the micro-organism in pleural fluid or with serologic antibody titers. The amount of pleural fluid accumulation could be minimal, or could be complicated with pleural empyema(7). The pathophysiology of pulmonary brucellosis has not been understood clearly(1). Pleural involvement of brucellosis has been encountered in our both cases. Especially the regression of pleural manifestations due to specific brucellosis therapy makes us think that the infection was the main etiologic cause of the clinical picture.

The reason for the relapse and unusual pleural involvement, which was seen in the second case may be related to the persistence of intracellular microorganisms in lymph nodes and failure of the antibiotics to eradicate the intracellular source of infection(8,9).

Brucellosis should be always kept in mind in patients with fever, malaise, dry cough and unidentified micro-organism. Human brucellosis still continues to be an important health problem in south eastern and mid western portions of Turkey, which causes an important burden on the health services. Recognition of the clinical picture and education of medical and nonmedical population should be main goal in controlling the disease.

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