

1-1-2002

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Recommended Citation

AYGEN, BİLGEHAN; EŞEL, DUYGU; ERDOĞAN, NURİ; YILDIZ, ORHAN; SÜMERKAN, BÜLENT; and DOĞANAY, MEHMET (2002) "Psoas Abscess Secondary to Brucellar Spondylitis," *Turkish Journal of Medical Sciences*: Vol. 32: No. 1, Article 16. Available at: <https://journals.tubitak.gov.tr/medical/vol32/iss1/16>

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Psoas Abscess Secondary to Brucellar Spondylitis

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Received: May 10, 2001

Human brucellosis is a multisystem disease that may present with a broad spectrum of clinical manifestations. In some patients acute and chronic brucellosis may lead to complications that affect several organ systems. They include a variety of osteoarticular, gastrointestinal, cardiovascular, neurological, genitourinary, pulmonary, hematological and cutaneous manifestations (1,2). The usual clinical features are well known, but reports of strange forms of the disease are being published frequently (3-5).

In this paper, a case of spondylitis and psoas abscess, which are rare complications of *Brucella melitensis*, is presented.

A 31-year-old female patient was admitted to the Infectious Diseases Clinic with a two and a half month history of low back pain, pain and weakness in the lower extremities, gait disturbance, chills, moderate fever and fatigue. Fifteen days before, she had been diagnosed with brucellosis and received irregularly intramuscular streptomycin (1g every 24 hours) and oral doxycycline (100 mg every 12 hours) during this time period. Physical examination revealed restricted lower back motion and pain on hip flexion with the knee extended.

Laboratory findings were as follows: white blood count 6000/mm³ with 54% neutrophils, 40% lymphocytes, 6% monocyte forms; hypochromic and microcytic anemia, hemoglobin level 9.8 g/dL; platelet count 287,000/mm³; erythrocyte sedimentation rate 90 mm/h; and C-reactive protein 63 mg/L (normal level <6 mg/L). The standard tube agglutination test for *Brucella* was positive in a titer of 1/160 in serum. Lateral X-ray of lumbar spine showed lucency in the anterior vertebral end plate and subchondral bone. Disk space was well

preserved. Gadolinium-DTPA enhanced T₁ weighted sagittal short-tau inversion recovery (STIR) images involving the lumbosacral region showed diffuse enhancement in L₃ body with an epidural extension confined within the limits of L₃ body level. There was no evidence of diskitis (Figure 1). On T₁ weighted postcontrast axial images, the left psoas muscle was enlarged with an anteriorly located mass lesion showing the characteristics of abscess formation, i.e., contrast enhanced peripheric capsule and septa with a necrotic central core (Figure 2).

Percutaneous abscess drainage was performed. Microscopic examination of abscess material yielded gram-negative coccobacilli. Abscess material and blood cultures were performed in standard aerob blood culture bottles (BacTec Plus Aerobic/F Becton-Dickinson, USA). Doxycycline was stopped because of gastrointestinal intolerance, and a combination of oral tetracycline (500 mg every 6 hours) and intramuscular streptomycin (1g every 24 hours) was initiated again. The patient also did not tolerate tetracycline. For this reason, we switched to ciprofloxacin. *Brucella melitensis* was isolated from abscess material on the seventh day. Blood cultures were negative. The streptomycin plus ciprofloxacin combination was continued for 3 weeks, but the patient refused intramuscular therapy. Then a doxycycline plus rifampin combination was begun and the therapy continued for 4 months. The patient was followed up for 6 months after the cessation of therapy and no relapse was observed.

Localized involvement may be the principal manifestation of systemic brucellar infection or it may be the only manifestation of chronic infection. Osteoarticular



Figure 1. Contrast enhanced T₁ weighted short-tau inversion recovery sagittal image shows diffuse involvement in L₁ body. Note the biconvex epidural extension posterior to the vertebral body.

manifestations of brucellosis can be seen in about 20-85% of patients (2). The type of skeletal involvement depends in part on the patient's age and the *Brucella* species involved (6). It has been recognized that these manifestations are more frequent in patients infected with *B. melitensis* (7). Spondylitis is the most prevalent and important clinical form of osteoarticular involvement in adults with infection due to *Brucella* species (2,6,8). The frequency of spondylitis in brucellosis ranges from 2% to 53% (6, 8). In our patient, the principal complaint was low back pain and radiological studies demonstrated spondylitis with a left psoas abscess.

Most psoas abscesses are secondary. They are usually the consequence of the spread of infection from an adjacent structure. Rarely, it develops by the hematogenous route and *Staphylococcus aureus* is the most common cause in this setting. Psoas abscess may complicate pyogenic or tuberculous vertebral osteomyelitis (1). Muscle infection and particularly psoas abscess with human brucellosis is extremely rare (9,10). Dudler et al. (9) reported bilateral brucellar psoas abscess without any skeletal, renal or bowel lesion. In our patient,



Figure 2. T₁ weighted postcontrast axial image shows enlarged left psoas muscle and an anteriorly located mass lesion with capsular and septal enhancement.

psoas abscess was secondary to spondylitis and *B. melitensis* was isolated from the abscess material.

In the treatment of brucellar spondylitis, the combination of doxycycline and streptomycin is noted to be more effective than other regimens. The duration of therapy must be individualized. Generally 8 to 12 weeks is recommended but sometimes longer treatment may be required (1,2). In our case, the therapy was given for longer because of late clinical and laboratory improvement.

In conclusion, brucellosis can be seen in all clinical forms and mimics many diseases. Spondylitis is a usual complication of *B. melitensis* infection, but it rarely leads to psoas abscess. Since spondylitis and psoas abscess are frequent complications in tuberculosis, clinical manifestations may be very similar. In the differential diagnosis in spondylitis and psoas abscess, brucellar infection should be considered in countries in which brucellosis is endemic.

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