



Brucellar epididymo-orchitis: A retrospective multicenter study of 28 cases and review of the literature

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Summary Objective: To review retrospectively the clinical symptoms, laboratory findings and treatment outcomes of patients with Brucellar epididymo-orchitis.

Material and method: Retrospective data of 28 patients with Brucellar epididymo-orchitis who admitted to four medical centers between 2005 and 2013 were retrospectively reviewed. Positive blood culture, positive Rose Bengal test results or high agglutination titres of $\geq 1/160$ with the positive clinical and ultrasonographic findings of orchitis were accepted as the main criteria for Brucellar epididymo-orchitis.

Results: The mean patient age was 31 ± 16.9 years. Testicular involvement was on the left side in 16 patients and on the right side in 11 patients, one had bilateral disease. Testicular pain

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and swelling were the most common symptoms and elevation of C-reactive protein (CRP), erythrocyte sedimentation rate (ESR) and leucocytosis were the most common laboratory findings. Initial treatment was orchidectomy in six patients due to malignancy suspicion. All but three patients were successfully treated with antibiotic combinations of rifampicin, doxycycline and streptomycin. Two of three treatment resistant patients underwent orchidectomy. *Conclusion:* Brucellosis is a common cause of epididymo-orchitis in endemic regions. Early diagnosis and treatment is crucial in the management and thus it must be kept in mind in endemic and non-endemic regions.

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1. Introduction

Brucellosis is an endemic zoonotic disease caused by *Brucella* spp., gram negative coccobacilli [1]. It is hyperendemic in Arabian peninsula, Mediterranean region, India, Central and South America. In Turkey central, eastern and south eastern regions are more affected [2]. *Brucella* is transmitted through the direct contact with infected tissues or through gastrointestinal tract after consumption of the contaminated products. It also can be transmitted through respiratory system after inhalation and through the conjunctiva [3].

Human brucellosis is a multisystemic disease with a wide clinical spectrum. Undifferentiated febrile disease, arthritis with hepatosplenomegaly and lymphadenopathy are the usual presentation types, however, the symptoms are usually nonspecific. Focal complications and single organ involvement can involve almost all organ systems and can occur 20–40% of cases [4]. While genitourinary system involvement is the second most common complication after locomotor system involvement, epididymo-orchitis is the most frequent type of genitourinary complication and affects 2–20% of men [5]. It causes a granulomatous type of orchitis [6].

In this retrospective multicenter study, we analyzed epidemiologic, clinical, laboratory data and the treatment and outcome characteristics of 26 cases with brucellar epididymo-orchitis (BEO).

2. Material and methods

The retrospective study was conducted after approval by the local committee of our Medical Academy. From 2005 to 2013, data of 28 patients with BEO who admitted to four medical centers (urology and infectious diseases and clinical microbiology departments) were retrospectively reviewed. Blood culture, standard tube agglutination testing and Rose Bengal test were used as diagnostic tools. Positive blood culture, positive Rose Bengal test results or high agglutination titres of $\geq 1/160$ with the positive clinical (e.g. fewer, testicular pain or tenderness and scrotal swelling) and ultrasonographic findings of orchitis were accepted as the main criteria for BEO diagnosis. Testicular enlargement, non-homogenous echotexture, hypoechoic or heterogeneous echogenicity and testicular hyper-vascularity on Doppler are determined as the sonographic

criteria for orchitis. Scrotal ultrasonography was also used to determine if there was an additional complication such as abscess formation. Blood samples were taken from patients with fewer.

3. Results

A total of 28 patients with BEO during 8 years period were analyzed. The mean patient age was 31 ± 16.9 (8–79) years. Most of the patients were in their late 20s (33%). Epididymo-orchitis was unilateral in all cases except a 9 year old child. Of these 27 unilateral epididymo-orchitis patients left and right testicle involvement was seen in 16 and 11 patients, respectively. However, testicular pain and swelling were the most common symptoms, sweating, fever, chilling, fatigue, dysuria and anorexia were also commonly seen (Table 1). Cutaneous fistulisation were seen in two patients. Arthralgia was seen in one and hepatosplenomegaly was seen in four patients.

Rose Bengal test positivity was seen in all patients. Serum tube agglutination was performed 14 of 28 patients and high titres of $\geq 1/160$ were detected in 11 of 14 patients (78.5%). Blood cultures were sampled in 9 patients with fewer and of these 5 were positive for *Brucella* species. On the other hand the most common laboratory finding was the elevation of C-reactive protein (CRP). The following

Table 1 Clinical symptoms of the patients with brucellar epididymo-orchitis.

Symptoms	No.	(%)
Testicular pain and swelling	28	(100)
Sweating	10	(36)
Fewer	9	(32)
Scrotal redness	7	(25)
Chilling	8	(29)
Fatigue	8	(29)
Dysuria	8	(29)
Anorexia	8	(29)
Weight loss	1	(3)
Vomiting	1	(3)
Cutaneous fistulisation	2	(7)
Hepatosplenomegaly	4	(14)
Arthralgia	1	(3)

Note. Some patients had >1 signs and symptoms.

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