

Brucellar Epididymo-orchitis: Report of Fifteen Cases

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Abstract

Aim: To discuss brucellar epididymo-orchitis cases in our clinic in terms of clinical and laboratory findings, treatment, and prognosis.

Materials and methods: Our diagnostic criteria for the patients having epididymo-orchitis clinical findings are Standard Tube Agglutination (STA) or STA with Coombs test $\geq 1/160$ titer or increase of STA titers four times and more in their serum samples in two weeks.

Results: Ten of our cases (66%) had herb cheese eating history and five of them (33%) were dealing with animal husbandry. The most frequently observed symptom in our cases was testicular pain, and the most frequent clinical and laboratory finding was scrotal swelling and the alteration of the C-reactive protein (CRP). The diagnosis was made with STA test in 14 cases (93%), STA with Coombs test in one case (7%). Epididymo-orchitis was diagnosed on the right side in nine cases, on the left in five cases and bilateral in one case on physical examination. The patients were treated with rifampicin+doxycycline. Orchiectomy was done in one case who applied late to our clinic.

Conclusion: Brucellar epididymo-orchitis should be thought first in patients applied with orchitis in brucellosis endemic regions, and should not be ignored in nonendemic regions also. It was shown that with early and appropriate medical treatment cases could be cured without surgery.

Key words: *Brucella spp., epididymo-orchitis, orchiectomy.*

Introduction

Brucellosis is the most common worldwide zoonosis, which affects more than half a million new patients each year (1). Although the disease is seen in all regions of the world, it is hyperendemic in Portugal, Spain, South France, Italy, Greece, Turkey and North African countries which are located in the Mediterranean Basin and the Arabian Peninsula and India, Mexico, Central

and South America (1, 2). Brucellosis is mostly seen in people who live in the central, eastern and southeastern regions of Turkey than other regions (3, 4).

While brucellosis causes localized disease with the symptoms of abortion and sterility in animals, it can occur with fever, septicemia, tissue and organ involvements in humans (2, 3). Focal forms of brucellosis can involve almost all organs and systems. Additionally, while focal involvement of the urogenital system is 2-10%, epididymo-orchitis is the most common genitourinary system involvement at a rate of 2-20% in male patients with brucellosis (2, 3, 5).

The inflammation of orchitis which caused by brucellosis is granulomatous type and usually appears with unilateral swelling (6, 7). Hardy (1928) and Wainwright (1929) reported that the types of brucellosis were one of the causes of granulomatous orchitis (8).

In this study, we aimed to present the clinical and laboratory findings and treatment outcomes of brucellosis epididymo-orchitis cases which were followed up and treated in our clinics.

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Materials and methods

The cases followed up with the diagnosis of brucellosis epididymo-orchitis in our clinics

between February 2002 and August 2009 were discussed in terms of clinical and laboratory findings, their treatment and prognosis. Our diagnostic criteria for the patients which have

Table 1. Clinical and laboratory findings of brucellar epididymo-orchitis cases

Symptoms and Physical Examination	Number (%)	Laboratory Findings	Number(%)
Fever	14 (93)	Leukocytosis	6 (40)
Fatigue	14 (93)	Leukopenia	0 (0)
Scrotal pain	15 (100)	Anemia	1 (7)
Sweating	12 (80)	Thrombocytopenia	1 (7)
Arthralgia	8 (53)	ESR rise	10 (63)
Shiver-Chills	3 (20)	CRP rise	15 (100)
Scrotal swelling	15 (100)	ALT rise	7 (47)
Fever	5 (33)	AST rise	8 (53)
Hepatomegaly	2 (13)	SAT positivity	14 (93)
Splenomegaly	3 (20)	Coomb's SAT positivity	1 (7)
Arthritis	2 (13)		

epididymo-orchitis clinical findings are Standard Tube Agglutination (STA) or STA with Coombs test was $\geq 1/160$ titer or increase of STA titers four times and more in their serum samples in two weeks. *Brucella abortus* M101 antigens (Cromatest, Linear Chemicals, Barcelona, Spain) or *Brucella abortus* S99 antigens (Pendik Veterinary Control and Research Institution, Istanbul) were used for STA test. Blood cultures were taken from patients with fever. Epididymo-orchitis was diagnosed with clinical signs and symptoms such as scrotal swelling, erythema, tenderness and pain without any other particular cause. Scrotal ultrasonography was performed in cases which were suspicious or had insufficient response to treatment. All of our patients were followed as outpatients for six months.

Results

The mean age of the patients was 27 ± 3.5 (15-51) year. The duration of symptoms were less than two weeks in eight patients (53%) and more than six weeks in two patients (13%). Ten of our cases (66%) had herb cheese eating history and five of them (33%) were dealing with animal husbandry. Epididymo-orchitis was present unilaterally in 14 patients and bilaterally in one patient. Symptoms, physical examination and laboratory findings of the cases were shown in Table 1. The symptom which is the most frequently seen in the cases was testicular pain, the most frequently established finding was scrotal swelling and the most frequently seen laboratory finding was the elevation of the C-reactive protein (CRP). There was no growth observed in the blood cultures. The diagnosis was made with STA test in 14 cases (93%), STA with

Coombs test in one case (7%). Epididymo-orchitis was diagnosed in the right testis and epididymis in nine cases, in the left in five cases and bilateral in one case at physical examination.

As the treatment protocol, three cases received rifampicin 600 mg/day + doxycycline 200 mg/day + streptomycin 1 gr/day. 11 cases received rifampicin 600 mg/day + doxycycline 200 mg/day and one case received rifampicin 600 mg/day + doxycycline 200 mg/day + ciprofloxacin 1000 mg/day. The patients were hospitalized for about two weeks and later they were discharged to complete the treatment to six weeks with rifampicin 600 mg/day + doxycycline 200 mg/day. The treatment was prolonged to two months in three cases according to their clinical and laboratory findings during their follow up.

Orchiectomy was done in one case which applied late to our clinic (Figure 1-2).

Discussion

Brucellosis is a zoonotic infectious disease which affects several tissues and organs. Organ infections can be described as focal infection or focal complication. Although almost every system could be infected, the mostly infected systems are locomotor, gastrointestinal, urogenital, hematologic, cardiovascular, respiratory and central nervous systems (1,2). Colmonero et al. (9) reported 5.1% of 372 male brucellosis patients had genitourinary complication and majority of those were epididymo-orchitis. In their another study they determined the incidence of epididymo-orchitis 7.6% in 631 male brucellosis patients(5). In our unpublished clinical study we determined 3.7% genitourinary infection and 3.4% epididymo-

orchitis in 1028 brucellosis occasion, the ratio of epididymo-orchitis was 7.2% in 489 male brucellosis patients (unpublished data).

In the study of Colmenero et al., all of the 372 patients had fever, 82.4% had cold, shiver and plenty of sweating, 47.1% had artralgia and 35.3% had myalgia (9); and in their other study most common symptoms and signs were fever, scrotal swelling and pain (5). Scrotal pain and swelling (100%), fever (88%) and sweating were the most common symptoms in another study (11). In our study, pain was observed in all of the 15 patients, fever and constitutional findings (anorexia, fatigue, weakness) in 93%, artralgia in 53%, cold and shiver in 20% of the cases. The most observed findings in our patients were scrotal swelling, pain and fever similar to the findings reported in the literature.

Brucellar epididymo-orchitis occurs mostly in young males (7, 10). In the study of Martinez et al. (11) average age was determined to be 34. Average age was 27 ± 3.5 in our patients. Calmenero et al.(5) reported that delay in the diagnosis of brucella is higher in the patients which had epididymo-orchitis complication than the others. This could be attributed to the fact that patients primarily apply to urology clinics. In urology clinics first treatment is nonspecific epididymo-orchitis treatment without considering the brucellosis in diagnosis of epididymo-orchitis and therefore diagnosis and appropriate treatment might delay in these cases. Unfortunately, although we live in a brucellosis endemic region, a delay occurred in diagnosis and treatment in seven incidents delivered from our urology clinics, and orchiectomy had to be performed for

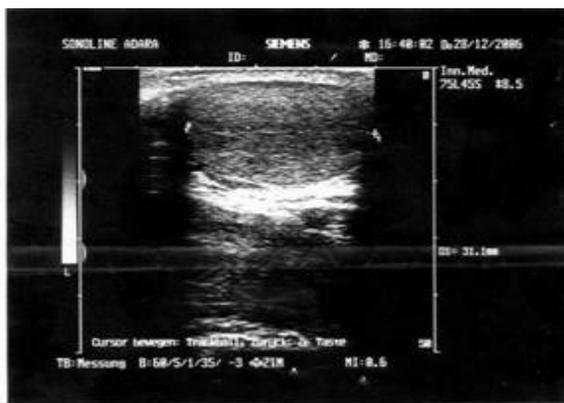


Figure 1. Right testis size increased (4.5x3 cm), echogenicity of parenchyma is heterogeneous (findings supporting orchitis). Right epididymis size considerably increased (6,5x3 cm), echogenicity of parenchyma is heterogeneous and occasional cystic areas are present (findings supporting epididymitis). Result: right epididymo-orchitis.

one of these patients (Figure 1-2). Thus, brucellosis should be considered in differential diagnosis of epididymo-orchitis in male patients, especially for young adults and in endemic regions.

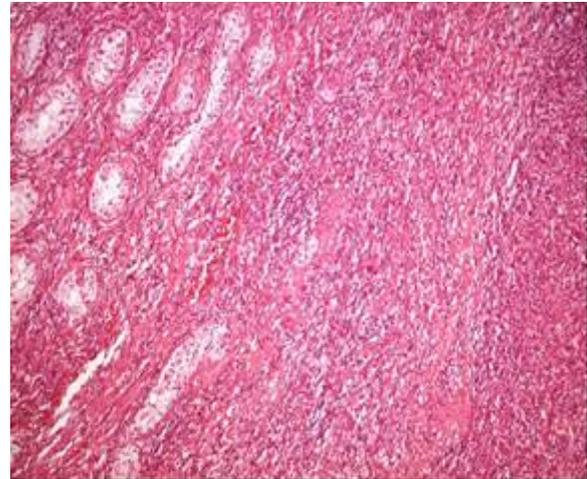


Figure 2. Non-specific epididymo-orchitis: Non-specific active chronic inflammation characterized with neutrophils, plasmacytes, macrophage and lymphocyte infiltration, a testicular tissue having abscess formation on the right, (tubal remnants belong to ductus epididymis on the left).

Epididymo-orchitis usually appears in acute phase of the brucellosis (11). However, epididymo-orchitis could be seen in subacute phase, relapse occurrences and insufficiently treated patients during the brucellosis. Additionally, it was reported that there could be admissions to the hospital with clinical findings of brucellar epididymo-orchitis without observing focal or systemic infection findings of brucellosis (12). Thirteen of our patients (87%) admitted in acute phase of brucellosis, and since brucellosis symptoms lasted more than 6 weeks, 2 (13%) were accepted in subacute phase. However, none of the our incidents applied as relapsing brucellosis or isolated epididymo-orchitis findings. Four incidents applied initially to urology clinics at different centers and received insufficient treatment. One of them resulted in orchiectomy. Brucellar epididymo-orchitis could be cured without development of complication if the treatment is in time and appropriately.

Brucella epididymo-orchitis appears with signs and symptoms of testicular pain and scrotal sensitivity like nonspecific epididymo-orchitis patients. In the mean time there are reports indicating that clinical differences such as initiation of symptoms to be subacute, occurrence of fever to begin after days, even weeks before scrotal symptoms arised and appearance of

occasional lower urinary system symptoms might be present as well (5). In all of our cases clinical findings happened apparently and vigorously, testicular pain and scrotal swelling were seen in all cases. In brucellar epididymo-orchitis there is usually lack of leucocytosis, relatively a low level of increase in ESR, and high levels of ALT and AST serum levels can be observed (5,13). In our patients, leucocytosis, high ESR, high AST and high ALT were seen in 6 (40%), 8 (53%), 8 (53%), and 6 (40%) cases respectively, which was similar to literature.

Brucellosis is relatively one of the most widespread causes of epididymo-orchitis in endemic regions (14). Hasanjani et al. (7) and Kadıköylü et al. (15) reported that cause of 10-20% of epididymo-orchitis cases was brucellosis. When this was considered, brucellosis should be thought first in epididymo-orchitis patients in endemic regions for early diagnosis and treatment. In developed countries delays happen in diagnoses of brucellosis related epididymo-orchitis because brucellosis is rarely seen in these countries. Delay of diagnosis was reported to cause increase in complication rates (5). Therefore brucellosis should not be ignored in differential diagnosis of epididymo-orchitis in developed countries too. Martinez et al. (11) indicated that brucellar epididymo-orchitis could be differentiated from nonspecific epididymo-orchitis with gradual beginning, long lasting epididymo-orchitis, history of contact with animals or consumption of nonpasteurized dairy products and presence of typical undulant fever. For the patients applied to our clinics diagnosis was made with brucellosis related history and presence of fever, scrotal swelling and pain, as reported in the literature.

Ultrasonography (USG) has an important role in diagnosis of epididymo-orchitis (16). Particularly, doppler USG test was reported to be very useful in investigating brucella related epididymo-orchitis complications (17). Rather than clinical diagnosis, USG is more useful in differentiation of abscesses and tumors (11). In our cases, seven unilateral, one bilateral orchitis diagnosis and one further complication resulted in orchiectomy were confirmed with scrotal USG.

Colmenero et al. (5) suggested that the treatment of brucellar epididymo-orchitis should last at least 2 months and doxycycline + streptomycin should be used in treatment and if aminoglycosides were not used, the treatment should be arranged as use of doxycycline + rifampicin. Cesur et al (14) reported that doxycycline + rifampicin treatment was successful in 4 cases. Similarly, in our 11 cases

receiving doxycycline + rifampicin, treatment was successful.

Some former investigators suggested that orchiectomy was required after the standard antimicrobial treatment (18). Contrary to this, Comenero et al. (5) report that positive responses were taken to medical treatment in brucellar epididymo-orchitis cases and orchiectomy was not required, however relapse rate was 8.8%. In 13 epididymo-orchitis cases of Afşar et al. (8) 10 cases responded well to medical treatment (doxycycline + rifampicin), orchiectomy was performed in 2 of 3 patients who did not respond to medical treatment. In the study of Martinez et al. (11), orchiectomy was performed in 9 (15%) patients who responded inadequately to medical treatment, in 15 (25%) patients who had relapse and in 3 (5%) necrotizing orchitis patients who did not respond to antibiotics. Usually classical brucella treatment works in brucellar epididymo-orchitis (11). In 14 of our cases response to medical treatment was obtained well, orchiectomy was required in a late applied case and relapse was not observed in none of the cases who were followed up for six months.

As a result, brucellar epididymo-orchitis should be thought first in the patients applied with orchitis in brucellosis endemic regions, and should not be ignored in nonendemic regions also. It was shown that with early and appropriate medical treatment cases could be cured without surgery.

Brusellar Epididimo-orşit: Onbeş Olgu Sunumu

Özet

Amaç: *Brusella epididimo-orşitli olgularımız klinik ve laboratuvar bulguları, tedavi ve prognozları yönünden tartışıldı.*

Yöntem: *Tanı kriterlerimiz epididimo-orşit klinik bulguları olan hastalarda serum örneklerinin Standart Tüp Aglutinasyon (STA) veya Coombslu STA testinde $\geq 1/160$ bulunması veya STA titrelerinin iki hafta içinde dört kat veya daha fazla artmasıydı.*

Bulgular: *Vakalarımızın 10'unda (%66) otlu peynir yeme öyküsü, beşinde hayvancılık öyküsü mevcuttu.*

Ölgularda görülen en sık semptom testiküler ağrı, en sık görülen klinik ve laboratuvar bulgu ise skrotal şişlik ve C-reaktif protein (CRP) artışı idi. Tanı 14 hastada STA test ile (%93), bir hastada Coombs'lu STA ile kondu (%7). Fizik muayenede epididimo-orşit dokuz hastada sağda, beş hastada solda, bir hastada bilateral tespit edildi. Hastalar rifampisin + doksisisiklin ile tedavi edildi. Geç başvuran bir olguda orkiektomi uygulandı.

Sonuç: *Brusella'nın endemik olduğu bölgelerde orşitli hastalarda brusellar epididimo-orşit ilk olarak akla gelmelidir ve brusella'nın endemik olmadığı*

bölgelerde de ihmal edilmemelidir. Erken ve uygun medikal tedavi ile vakaların cerrahiye ihtiyacı duymadan iyileşebileceği gösterilmiştir.

Anahtar kelimeler: *Brusella, epididimo-orşit, orkiektomi.*

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