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## An Adolescent Boy With *Brucella* Epididymoorchitis

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### Introduction

People are a coincidental host in *Brucella* infection. The disease is transmitted by direct contact with the infected animal or by consumption of infected animal products. Fever, sweating, fatigue, lethargy, loss of appetite and joint pain are among the most common symptoms in childhood brucellosis (1). Genitourinary system involvement is usually unilateral and appears as epididymo-orchitis. Epididymo-orchitis may develop as a complication during systemic infection or the patient may present only with this finding (2).

This case was presented to emphasize that brucellosis should be considered in patients presenting with childhood epididymo-orchitis, especially in endemic areas.

### Case Report

A 17-year-old male patient admitted with fever, dizziness and night sweats for two weeks, redness and pain in the right testicle since last two days and, headache and vomiting since last day. Physical examination was normal except for 38.5 °C fever and right scrotal redness, swelling and tenderness. When questioned, the patient had a history of eating home-made unpasteurized cheese. Laboratory tests were as; white blood cell 14,000/mm<sup>3</sup>, neutrophils 9,280/mm<sup>3</sup>, C-reactive protein 110 mg/L, procalcitonin 3.57 g/L, *Brucella* Rose-Bengal test positive, *Brucella* agglutination test positive at 1/160 titer. Increased vascularity in the right testis and epididymitis were detected on scrotal ultrasound. The patient was consulted with pediatric surgery and elevation and cold hydrotherapy were recommended. Lumbar puncture was performed due to suspected *Brucella* meningitis, routine CSF tests and, *Brucella* agglutination test from CSF were negative. *Brucella* CSF PCR was sent to external center, but has not resulted yet. Doxycycline, rifampicin and ceftriaxone started for *Brucella* epididymo-orchitis and suspected *Brucella* meningitis. *Brucella* spp. was grown on blood culture. Fever was subsiding on 3th day of treatment, headache on 5th day, and epididymo-orchitis on 9th day. The patient discharged with doxycycline and rifampicin and, therapy completed to 8 weeks without complication.

### Discussion

Brucellosis is a widespread and potentially lifethreatening multisystem zoonotic disease caused by intracellular Gram-negative bacteria of the genus *Brucella*, and can affect people at any age, including children. Turkey is an endemic country for brucellosis, and *Brucella* seroprevalence varies from 1.3% to 26.7% in many studies from various regions (3). Signs and symptoms are quite variable and can be confused with many other diseases due to a lack of pathognomonic clinical signs (4). Most pediatric reviews have reported a wide range frequencies of clinical manifestations in children with brucellosis. Fever and constitutional symptoms, including of chills, sweating, fatigue, malaise, anorexia, weight loss, abdominal pain, headaches, myalgias, and arthralgias, are amongst the most common symptoms in children (5). Genitourinary system involvement may develop in 2-20% of patients with brucellosis (6). Epididymo-orchitis is the most common genitourinary complication of brucellosis (7,8). It's reported that 2.86% of cases with epididymo-orchitis caused by *Brucella* infection (9). Epididymo-orchitis may be seen as a

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symptom of relapses during the course of systemic disease or in poorly treated cases, or as a separate clinical picture without signs of systemic disease (10). The most common symptoms are usually unilateral scrotal pain, swelling and fever. Sweating, weight loss, headache, dysuria, arthralgia, hepatosplenomegaly may accompany . Microscopic examination of urine is normal in cases with testicular involvement, and no growth is detected in culture (11). In a patient who presented with acute scrotum, firstly considering the age and history; trauma, hematocele, testicular tumor, epididymitis and testicular torsion should be considered. Physical examination, ultrasonography and / or nuclear testicular screening may be required for differential diagnosis. In cases where it is not possible to rule out malignant disease in the testis, inguinal exploration is mandatory (12). Although the prognosis of brucellosis epididymorchitis is generally good, late diagnosis and incorrect or inappropriate treatment may cause serious complications leading to testicular abscess and orchiectomy (13). In many cases, orchiectomy can be performed because the differential diagnosis cannot be made clearly and this may lead to organ loss (14). Brucellosis was first described by Hardy in 1928 as a cause of granulomatous orchitis (15). In Brucella orchitis, lesions in orchiectomy material can be confused microscopically with Hodgkin's disease or non-Hodgkin's lymphoma, infectious granulomas, Sertoli cell tumor (16). Laboratory diagnosis of brucellosis relies on 3 approaches: 1) culture of Brucella bacteria from blood, bone marrow, tissue samples, or cerebrospinal fluid and other body fluids; 2) a compatible clinical picture, such as arthralgia, fever, sweating, chills, headache, and malaise, which is supported by the detection of specific antibodies at significant titers ( $\geq 1/160$ ); 3) nucleic acid amplification detection methods. An adequate response to anti-brucellosis therapy was also accepted for diagnosis in those who were seronegative and did not have any culture positive for Brucella (17-19). The current gold standard for brucellosis diagnosis depends on isolation of Brucella spp. from samples (20). For the treatment of brucellosis in children, combination treatment regimens that include trimethoprim-sulphamethoxazole, doxycycline, and rifampicin are recommended. Doxycycline is recommended only for children over 8 years old, as children younger than 8 years may be more sensitive to the side effects of doxycycline, especially tooth discoloration. There are 2 effective treatment regimens for different age groups. For children over 8 years old, oral doxycycline (4 mg/kg/day) and rifampicin (20 mg/kg/ day) are typically prescribed, and for children under 8 years old, oral trimethoprim (6-8 mg/kg/day), sulphamethoxazole (30-40 mg/kg/day), and rifampicin (20 mg/kg/day) are typically prescribed. Both are prescribed for 6-8 weeks. Complications and relapse can be successfully treated with triple-drug regimens (21-22). In the treatment of Brucella epididymis-orchitis, planning of appropriate antibiotic combinations for a long time is very important (23,24). World Health Organization (WHO) recommends doxycycline forty-five days and streptomycin 15-day treatment protocol. Alternatively, a 45-day treatment protocol with rifampicin and doxycycline is recommended (24).

## Results

In the differential diagnosis of epididymorchitis, brucellosis should be considered in those living in areas where brucellosis is endemic and in patients with risk factors. In addition, genitourinary system examination of each patient with brucellosis should be performed carefully because late or incorrect diagnosis and treatment may result in testicular abscess, atrophy , infertility. Orchiectomy cases due to misdiagnosis have been reported in cases that cannot be diagnosed and / or delayed in treatment. It should not be forgotten that; The idea that comes to mind about Brucella epididymiorchitis rescues the testis.

**Keywords;** *epididymorchitis, brucella, childhood*

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