

# A Rare Cause of Rhabdomyolysis from Brucella: A Case Report

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## ABSTRACT

*Rhabdomyolysis is caused by myocyte necrosis, which results in the release of muscular cell contents into the circulation and extracellular fluid. We present a case of rhabdomyolysis due to brucella infection without any complications. Following the treatment for brucella, creatinine kinase level was significantly reduced. Rhabdomyolysis associated with brucella is rare in children.*

**Keywords:** Brucella, children, rhabdomyolysis, Turkey

# Una Causa Rara de Rbdomiolisis a Partir de Brucella: Un Reporte de Caso

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## RESUMEN

*La rbdomiolisis es causada por necrosis del miocito, que resulta de la liberación de los contenidos de la célula muscular en la circulación y el líquido extracelular. Presentamos un caso de rbdomiolisis debido a infección por brucella sin complicaciones. Tras el tratamiento aplicado por brucella, se redujo significativamente el nivel de creatinina kinasas. La rbdomiolisis asociada a brucella es rara en niños.*

**Palabras claves:** Brucella, niños, rbdomiolisis, Turquía

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## INTRODUCTION

Rhabdomyolysis is caused by myocyte necrosis, which results in the release of muscular cell contents into the circulation and extracellular fluid. Rhabdomyolysis has been described in cases of viral, bacterial and parasitic infections (1). Rhabdomyolysis may cause mild elevations of muscle enzymes in asymptomatic patients, and may range in clinical spectrum to life-threatening disease associated with abnormal enzyme elevations, electrolyte imbalances, and renal failure (2). We present a case of rhabdomyolysis due to brucella infection without any complications.

## CASE REPORT

A 13-year old male patient was admitted to hospital because of fever and pain in the hip joint. In his history, he had been suffering from fever, sweating, and pain in his hip and had lost 10 kg weight in the last one month. No features were recorded in his personal and family history. The family was engaged in farming and had sheep and goats. On physical examination, his body temperature was 39 °C, the liver was

2 cm palpable in the midclavicular line, whereas the spleen was 3 cm palpable. No features were recorded regarding other systemic findings. Abnormal laboratory results were as follows: alanine aminotransferase 381 U/L, aspartate aminotransferase 1138 U/L, lactate dehydrogenase 1637 U/L, creatinine kinase 17 847 U/L, creatinine kinase-MB 582 U/L and erythrocyte sedimentation rate 43 mm/hour. Upon Rose Bengal test being positive, standard tube agglutination test for brucellosis was performed as 1/1280 positive. Abdominal ultrasound showed hepatosplenomegaly and lymph nodes in the portal hilus. Brucella proliferation was detected in bone marrow and blood cultures. Other serological tests for infectious agents and cultures were negative. Rifampicin and doxycycline were initiated. Normal saline of 4000 cc/m<sup>2</sup> was administered to ensure hydration and to decrease the development of renal failure. On the 17<sup>th</sup> day of his follow-up, most of the biochemical tests returned to normal (creatinine kinase 64 U/L, creatinine kinase-MB 25 U/L, alanine aminotransferase 54 U/L, aspartate aminotransferase 73 U/L). Having arranged for him to get antibiotic treatment for six weeks, the patient was discharged.

## DISCUSSION

The most common causes of rhabdomyolysis in children are viral myositis, trauma and connective tissue disease (2). Rhabdomyolysis can be induced by numerous factors,

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including crush injury, skeletal muscle overuse, heat, alcohol abuse, myopathies, drugs, toxins and metabolic derangements including hypokalaemia, hyponatraemia or hypernatraemia, and hypophosphataemia, as well as several types of bacterial and viral infections (1). In children, rhabdomyolysis is usually presented with elevation of muscle enzymes in asymptomatic patients (2). The mechanism of rhabdomyolysis in brucellosis is unknown (3). Very rare cases of rhabdomyolysis have been reported which are caused by brucella and these cases were described in adult patients (4, 5). Wasserheit *et al* reported a case with renal failure due to rhabdomyolysis (4). Toprak *et al* demonstrated brucella as a cause in a recurring case of rhabdomyolysis which developed into acute renal failure in a 39-year old female, and they indicated that she was successfully treated with ciprofloxacin (6).

The index case was the child of a family engaged in farming. He had widespread muscle and joint pain. Since he was in a region endemic for brucella and upon the liver function tests being normal, he was investigated for brucella antigens. Rose Bengal and Wright agglutination tests were positive. Additionally, he had brucella in the bone marrow and blood. Increase in the level of creatinine kinase was associated with brucella infection in our case. Following

treatment for brucella, creatinine kinase level was significantly reduced. No renal failure developed in our case. We wish to emphasize that brucella might cause rhabdomyolysis, though rarely, in addition to other frequently recorded clinical findings, and that brucella should be considered in the presence of unidentifiable increases in creatinine kinase level in brucella endemic regions. In conclusion, brucella infection must be considered as a possible cause of rhabdomyolysis in paediatric patients.

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