SHORT REPORT

Rupture of a Non-dilated Abdominal Aorta due to *Brucella melitensis*

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Cardiovascular complications of brucellosis are rare, but account for most deaths of this disease. Only a few case reports describe infected aortic aneurysms caused by *Brucella melitensis*. In this report we present a patient with rupture of a non-dilated abdominal aorta due to *Brucella melitensis* infection.

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Introduction

Brucellosis is a potentially life-threatening multisystem disease of bacterial origin, which presents with fever accompanied by a wide array of non-specific symptoms. The clinical spectrum ranges from asymptomatic to severe cases causing death. Cardiovascular complications are rare, occurring in 0 to 2% of cases. Although the overall mortality from brucellosis is low, cardiovascular complications account for about 80% of deaths.¹ We present a patient with a rare cardiovascular complication.

Case Report

A 66-year-old male with no previous illnesses was admitted to our hospital with severe lumbar back pain, fever, sweats and weight loss. The patient described a history of fever and lumbar back pain starting two months ago, after returning from holiday in Syria. Physical examination revealed no abnormalities except for a temperature of 39 °C. Laboratory data revealed a WBC count of $8.9 \times 10^9/l$ and a CRP of 235 mg/l.

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Radionuclide bone scan and transesophageal echo showed no evidence for spondylitis or endocarditis respectively. A CT-scan was performed for further investigation. The scan demonstrated a non-dilated aorta (widest diameter 22 mm) with extensive atherosclerosis and a contained rupture (Fig. 1). The serum agglutination test for Brucella was positive ($>1:640$) and *Brucella melitensis* was identified on blood cultures.

An emergency operation was performed and a contained rupture in the ventral wall of the infrarenal aorta was found. The abdominal aorta showed extensive atherosclerosis and several protrusions (Fig. 2). Complete resection of the infrarenal aorta was performed. A prosthetic graft impregnated in rifampin was interposed between the aorta and the common iliac arteries. The retroperitoneum was closed after leaving gentamicin impregnated collagen sponges. Histological examination showed destructive inflammation of aortic tissue. Cultures of the tissue yielded *Brucella melitensis*. Intravenous treatment with doxycycline and rifampin was given. Two weeks postoperatively the patient was discharged in a good condition on oral antibiotics. One week later the patient developed fever and experienced abdominal discomfort. A CT-scan revealed extensive soft tissue mass at the side of the graft and gas formation, indicating a graft infection. The patient was referred to an academic medical center, where the infected graft was resected. The new bioprosthesis got
infected too and an extra-anatomical bypass was placed. Despite this treatment the patient died of MOF a few days later.

**Discussion**

Transmission of brucellosis predominantly occurs through the consumption of unpasteurised dairy products. In this case the infection was caused by *Brucella melitensis*, which is the species that most commonly infects humans and is found in goats and sheep. In several parts of the world brucellosis is still endemic, especially in the Middle East, southern Europe and South America.\(^2\) The incubation period varies from 7 days to over 3 months.\(^1\)

In the majority of cases reporting on infection of the abdominal aorta due to *Brucella melitensis*, an infective focus elsewhere in the body is found. Rupture of the abdominal aorta in the absence of an aneurysm was never before published. In this case no other infectious source was found and the mechanism of aortic involvement seems to be a consequence of direct bacterial seeding on atheromatous plaques of the arterial wall. Thus leading to inflammation, destruction and rupture of the aorta.

Treatment of aortic complications of brucellosis is largely surgical, typically involving resection of the infected part and replacement with a graft. After surgery, antibiotic therapy is indicated. The World Health Organization guidelines recommend two regimens; doxycycline for 6 weeks and streptomycine for 2 weeks, or doxycycline and rifampin for 6 weeks.\(^3\)

In conclusion, we report a patient with a ruptured, non-dilated abdominal aorta due to infection with *Brucella melitensis*, caused by direct bacterial seeding on the aortic wall.

**References**


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