

Simultaneous acute deep vein thrombosis and acute brucellosis. A case report

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Abstract

Brucellosis is a zoonotic disease common in developing countries. Vascular complications, including arterial and venous, associated with *Brucella* infection have rarely been reported. A case of deep venous thrombosis (DVT) developing after a diagnosis of acute brucellosis in a young milkman is presented. A 26-year-old man presented with pain in the right leg. The patient's medical history included a diagnosis of brucellosis in our hospital where he had presented with complaints of weakness and fever. Peripheral venous Doppler ultrasound showed DVT, and the patient was treated with anticoagulants. The patient was discharged with warfarin therapy and anti-brucellosis treatment. Although rare, some infectious agents may cause vascular pathologies. Patients presenting with symptoms of DVT or similar vascular pathologies should be assessed for infectious agents, particularly in those coming from *Brucella*-endemic areas.

Key words: brucellosis, venous thromboembolism, pulmonary thromboemboli.

Streszczenie

Bruceloza jest chorobą odzwierzęcą, występującą często w krajach rozwijających się. Niewiele jest doniesień opisujących powikłania naczyniowe (tętnicze i żyłne) związane z infekcją bakterią *Brucella*. W pracy przedstawiono przypadek zakrzepicy żył głębokich, która rozwinęła się po diagnozie ostrej brucelozy u młodego mleczarza. Pacjent w wieku 26 lat zgłosił się z bólem prawej nogi. W badaniu podmiotowym: rozpoznanie brucelozy w naszym szpitalu, do którego pacjent zgłosił się wcześniej z osłabieniem i gorączką. W badaniu USG Doppler żył obwodowych stwierdzono zakrzepicę żył głębokich; pacjent otrzymał leczenie przeciwkrzepliwe. Mężczyznę wypisano z zaleceniem stosowania warfaryny i terapii przeciw brucelozie. Pomimo rzadkości niektóre czynniki infekcyjne mogą powodować patologie naczyniowe. Pacjentów zgłaszających się z objawami zakrzepicy żył głębokich lub podobnych patologii naczyniowych należy ocenić pod kątem czynników infekcyjnych, zwłaszcza jeśli przebywali na obszarach endemicznych dla bakterii *Brucella*.

Słowa kluczowe: bruceloza, żylna choroba zakrzepowo-zatorowa, płucne zmiany zakrzepowo-zatorowe.

Introduction

Brucellosis is a zoonotic disease of worldwide distribution that mainly affects persons working with domestic animals and animal products. Despite being controlled in many developed countries, the disease remains endemic in many parts of the world, including Latin America, the Middle East, parts of Africa, and western Asia. The clinical presentation can vary from asymptomatic infection with seroconversion to a full-blown clinical picture of fever, night sweats and joint manifestations; occasionally, there is hepatic, cardiac, ocular or central nervous system involvement [1]. Vascular complications, including arteries and veins, associated with *Brucella* infection have rarely been reported [2].

In this paper, a case of deep venous thrombosis (DVT) developing after a diagnosis of acute brucellosis in a young

milkman is presented. Apparently, this case report is the second case of DVT due to brucellosis in Turkey.

Case report

A 26-year-old man presented to our hospital with a 1-week history of pain and swelling in the right leg. He had been dealing with milk. Two hour before, his leg had become swollen and purple. The patient's medical history included a diagnosis of brucellosis 1 week previously in our hospital, where he had presented with complaints of weakness and fever. The Rose-Bengal test was positive; the *Brucella* tube agglutination test result was 1/160. He was put on rifampicin and doxycycline therapy.

On physical examination, the patient was in a painful condition. Peripheral pulses were weak in the right leg

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but strong in the other. The right leg was hot, swollen and purple. The Hoffman test was positive on the right leg. His cardiopulmonary and neurological examinations were unremarkable.

Laboratory analyses revealed the following results: white blood cell count 8,000/ μ l, hemoglobin 14.2 g/dl, platelet count 226,000/ μ l, alanine aminotransferase (ALT) 69 U/l, aspartate aminotransferase (AST) 92 U/l. Chest X-ray film disclosed the heart and pulmonary vessels to be of normal size, and electrocardiogram (ECG) showed a sinus rhythm. Color venous Doppler ultrasound of the right lower extremity revealed increased diameter of the right main, deep and superficial femoral veins, the popliteal vein and the cranial segments of the deep crural veins; the lumens of these vessels were occluded with thrombosis. There was no blood flow in the vascular lumen, and there was no response in the veins to compression. The patient was diagnosed with acute deep vein thrombosis. The patient was hospitalized in the Department of Cardiovascular Surgery. Rifampicin 600 mg/day per oral, doxycycline 400 mg/day per oral and heparin sodium 20 000 units/day intravenous in divided doses were administered. He was also given warfarin sodium 5 mg/day per oral simultaneously. Heparin was stopped when the INR values reached a therapeutic level. He was discharged on day seven of hospitalization with regression of complaints and physical examination findings. On discharge, he was prescribed warfarin 5 mg/day, rifampicin 600 mg/day and doxycycline 100 mg/day per oral.

Discussion

Brucellosis is a systemic infection that can involve any organ or organ system of the body, and since many cases go unrecognized, the true incidence of the disease is unknown [3]. The onset may be sudden, over a few days, or gradual over weeks to months, with nonspecific symptoms including fever, lassitude, malaise, headache, backache, and arthralgia [4]. Sometimes, the manifestations of brucellosis are more pronounced in a specific organ system.

Vascular complications, including arteries and veins, are rare in brucellosis. In a review of articles, reported cases included abdominal artery thrombosis, portal vein thrombosis and cerebral vein thrombosis [2, 4-11]. The disease is mainly transmitted to humans through the ingestion of raw milk or non-pasteurized cheese contaminated with one of the four *Brucella* species pathogenic to humans. Species causing vascular complications have been identified as *B. melitensis*, *B. abortus* and *B. suis* [5].

Endothelial damage, hypercoagulability, and stasis have been recognized for over 150 years to be the three elements associated with venous thromboembolism (VTE),

with often two of these three factors needed for its initiation. Therefore, its etiology is multifactorial, with each component having different impacts on different patients. *Brucella* infections may cause DVT due to the following mechanisms: invasion of the surrounding tissue by the infectious agent, inflammation caused by the infectious process in the surrounding tissue, direct damage to the endothelium caused by the infectious agent, and temporary hypercoagulopathy caused by the infectious agent [5, 10]. In our patient, there are no abnormal results for the etiological factors that cause thrombosis such as protein C, protein S and anticardiolipin IgG and IgM. We believe that DVT in our patient was associated with *Brucella* infection, as there were no risk factors for venous thrombosis such as immobilization, history of previous DVT, recent surgical intervention or local tissue trauma.

Conclusions

Early detection and appropriate treatment of brucellosis are crucial measures to prevent complications of the disease. Patients presenting with symptoms of DVT or similar vascular pathologies should be assessed for infectious agents, particularly in those coming from *Brucella*-endemic areas.

Disclosure

Authors report no conflict of interest.

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