

Brucellosis and Deep Vein Thrombosis Coinfection: A Case Report and Review of the Literature

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Abstract

Brucellosis is a multisystem disease that can involve all tissues and organs. Vascular involvement of Brucellosis is rarely seen. In the present study, case of acute brucellosis associated with deep vein thrombosis (DVT) is presented. In June 2011, a 55-year-old male who had history of fever, body aches, and increasing pain in the right leg by walking for a duration of one week was admitted to the hospital. Dealing with livestock and consuming fresh cheese and milk were present in the history of the patient. His right leg was swollen compared to the left. On Doppler ultrasonographic examination of the lower right extremity, the right popliteal vein and vein Parva were observed to be thrombosed. Laboratory examination revealed white blood cells 7200/ μ L, platelet count 71.000 / μ L, erythrocyte sedimentation rate 24 mm/h and C-reactive protein 3.91 mg/L; respectively. The other routine biochemical tests were normal. Standard Tube Agglutination test was 1/320 and Brucellacapt was 1/640. The patient was started on rifampicin and doxycyclin and was consulted to Cardiovascular Surgery. Anticoagulants and Brucella treatment were continued for three months. After one-year follow-up, the patient was asymptomatic, and no recurrence was observed. Patients with Brucellosis should be questioned in terms of DVT and in patients with DVT, Brucellosis should not be forgotten as an etiologic agent.

Key words: Brucellosis, deep vein thrombosis

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1. Introduction

Brucellosis caused by intracellular bacteria of the genus *brucella* is one of the most widespread zoonoses worldwide with more than 500,000 new cases annually. It is still a serious and uncontrolled public health problem in many countries, including Turkey. Human brucellosis can involve almost any organ system and may present with a broad spectrum of clinical presentations (1).

Vascular complications of Brucellosis have rarely been reported in the medical literature. By searching medline, you can see only twelve cases (2-10). Demographic and clinical data with the laboratory findings of the patients were presented in **Table1**. We aimed to describe a new case of DVT in the right leg in association with acute brucellosis.

Table 1. Summary of all reported cases of deep vein thrombosis associated with brucellosis

Author	Year	Country	Gender	Age (yr)	Vein thrombosis	Serology	Antibiotic therapy (wk)
Koubaa et al.	2012	Tunus	M	45	Left leg	1/640	R + D (12)
Kocak et al.	2011	Turkey	M	26	Right leg	1/160	R + D (B)
Davoudi et al.	2011	Turkey	M	15	Left leg	1/1280	R + D (B)
Sen et al.	2011	Turkey	W	43	Left leg	1/320	R + D (B)
Gul et al.	2008	Turkey	M	21	Right leg	1/400	R + D (24)
Kokkinis et al.	2006	Yunanistan	M	65	Bilateral (Right and left)	Negative	NM
Memish et al.	2001	Saudi Arabia	M	41	Right leg	1/1280	R + D (6)
Odeh et al.	2000	Israel	M	52	Right leg	1/160	R + D (6)
Romem et al.	1973	Israel	NM	NM	Central retinal vein	NM	NM
Present Case	2011	Turkey	M	55	Right leg	1/320	R + D (12)

NM: Not mentioned, **R:** Rifampicin, **D:** Doxycycline, **T:** Tetracycline, **TS:** Trimethoprim- Sulfamethoxazole. **Wk:** Week, **Yr:** Year, **M:** Male, **F:**Female.

2. Case report

A 55-year-old a man was admitted to our hospital with a 6-day history of fever and increased pain at the right calf while

walking and widespread body aches. His Fever usually was starting in the afternoon and was falling towards morning with profuse sweating.

The patient's fever was 39°C, his pulse rate was 103/min and his blood pressure was 130/90 mmHg. Homan sign was positive on the right. The circumference of his right calf was 5 cm larger than that of the left. The rest of his physical examination was unremarkable.

Laboratory examinations revealed the following results: white blood cell count 7.200/L (neutrophils, 67.8%), platelet count 71.000/ μ L, erythrocyte sedimentation rate 24mm/h, and C-reactive protein 3.91 mg/L. Results of other routine biochemical blood tests were all normal. Protein C, protein S, antithrombin III, and activated protein C resistance activity were within normal ranges, and anticardiolipin Ig M and Ig G were negative.

A doppler ultrasound study showed a thrombosis in the right popliteal vein and vena parva. The chest X-ray and abdominal and pelvic ultrasounds were normal. Rose-Bengal and Standard tube agglutination test were positive. (titer 1/320) Brucellacapt testing of initial samples were positive for antibodies to *Brucella* (titer, 1/640). Based on the history of ingestion raw sheep milk and stockbreeding, fever, common myalgia and arthralgia, a positive rose-bengal and standard tube agglutination, thrombocytopenia and a negative the etiologic factors of DVT, a diagnosis of acute *Brucella* infection associated with a DVT in the right leg was made.

The patient was treated with rifampicin 600 mg/ day and doxycycline 200 mg/day combined with enoxaparin sodyum 1. 2 cc/day, asetilsalisilik asit 100 mg/day and varfarin sodyum 5mg/day. The treatment of anticoagulant and brucellosis were extended to 3 months. After a follow-up period of one year, the patient had not any symptoms and, during this period, no recurrence of brucellosis or DVT was observed.

3. Discussion

Brucellosis is an endemic disease in Turkey and it is possible to see these cases as unusual form such as vascular involvement. Vascular complications of brucellosis are rare; the arteries are more affected than veins. Arterial complications of brucellosis include aneurysm formation in the aorta, brachial, tibioperoneal, and cerebral arteries, with or without underlying endocarditis (3). In 1973, Romem et al. (4) reported the first case of brucellosis complicated with central vein thrombosis. Afterwards, 11 further cases of brucellosis with complicated vein thrombosis have been reported. The demographic data and clinical and laboratory findings of these cases were showed in **table 1**. All the cases except one case were seen in developing countries when the cases were examined and Turkey took first place in terms of cases incidence. In the majority of cases, the vascular involvement was on the leg and was treatment is with rifampicin and doxycycline.

The diagnosis of DVT in the leg was made before the onset of common clinical features of brucellosis in one case (3) and concomitant with the diagnosis of brucellosis in four (5,6). The duration between DVT diagnosis and the occurrence of brucellosis clinical features was one month but only two patients had a history of brucellosis before DVT occurred (7,9). Considered mechanisms for the pathology of vascular Involvement of brucellosis are induction of inflammation by the infectious process in adjacent tissues, direct endothelial damage, granulomatous endophlebitis, compression from a local soft tissue mass or abscess, induction of a transient hypercoagulable state, and an immune reaction in the vessel wall to a *brucella* antigen (7). In the present case, protein C, protein S, and antithrombin III

levels, and activated protein C resistance activity were normal, and antiphospholipid antibodies were negative. Also, local infection features adjacent to his right leg deep veins was not observed during his illness. Therefore, it is possible that granulomatous endophlebitis or a possible immune reaction in the vessel wall to a *brucella* antigen was responsible for the patient's DVT.

Although the vascular involvement of Brucellosis has rarely been observed, it can be fatal. Therefore the patients of brucellosis must be questioned in terms of DVT with a careful history and physical examination, and brucellosis must not forgotten in patients suffering with DVT especially in brucella-endemic areas.

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