

CASE REPORT

Acute brucellosis presenting as cutaneous vasculitis

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ABSTRACT

Brucellosis, a worldwide anthroponosis, is an infectious disease caused by bacteria of the genus *Brucella*. Human brucellosis is a disease characterized by high fever, sweating, malaise, anorexia, headache and arthralgia but cutaneous lesions are less common. In this paper we present a 33-year-old woman with cutaneous vasculitis due to brucellosis.

Key words: brucellosis, vasculitis, livedo reticularis, leukocytoclastic vasculitis.

INTRODUCTION

Brucellosis is an infectious disease caused by bacteria of the genus *Brucella* a gram negative, facultative intracellular pathogen affecting animals such as cattle, sheep, swine and dog. The heaviest burden of this disease lies in countries of the Mediterranean basin, Arabian Peninsula, Indian subcontinent, central Asia, in parts of central Africa, Mexico, and central and South America.^{1,2} Human acquire the disease by ingestion of raw milk or dairy products made from unpasteurized milk or by direct contact through contaminated dust, and through the inhalation of contaminated particles.¹ Brucellosis remains an important public health problem in developing countries where animals harboring brucella are raised, adequate control measures are lacking and the population ingests raw milk or dairy products.³ Human brucellosis is a disease characterized by high fever, sweating, malaise, anorexia, headache and arthralgia.⁴ The first description of the cutaneous lesion occurring in brucellosis was made by Hughes in 1897.⁵ The incidence of cutaneous findings related to brucellosis ranges from 5% to nearly 14%.⁴

CASE REPORT

A 33-year-old woman with a 2-weeks history of fever & malaise was admitted to the department of rheumatology of the Beheshti hospital of Kashan, Iran for painful skin lesions on her both legs that developed 10 days prior to her admission. During this period she had headache, arthralgia, arthritis of the left wrist, right knee, left ankle, sweating at night and mechanical low back pain. Her personal and family medical history was unremarkable. In the preceding months she had received no systemic or topical drugs. On admission, the patient appeared well. Her

temperature was 38°C, blood pressure 120/70 mmHg. Arthritis of her left wrist, fourth right proximal interphalangeal joint, right knee, and left ankle were detected. Examination of spinal vertebral was normal. Skin lesions include livedo reticularis, petechia and purpura on the both legs (Fig. 1).



Figure 1, Livedo reticularis in patient with brucellosis.

Blood, urine was sent for cultures and a skin biopsy was done. Laboratory tests showed the followings: Hemoglobin 13g/dl, white blood cell 7,600 cells/mm³ (neutrophil 67%, lymphocyte 30% and monocyte 8%), platelet 537,000 cells /mm³, erythrocyte sedimentation rate (ESR) of 67 mm/h, C-reactive protein 1+, negative rheumatoid factor, FANA, c-ANCA, p-ANCA, antiphospholipid antibodies were negative and except slight increase in alanine aminotransferase (63 u/l; normal 5 - 40 u/l) and alkaline phosphates 404 mg/dl (normal 100 - 290 mg/dl) all other biochemical parameters of liver function tests were normal. Serum C3, C4, CH50 component of complement were normal. Serologic tests for syphilis, HIV, HBs Ag, HCV

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antibody, cytomegalovirus antibody and tuberculin tests were negative. Chest X-ray, electrocardiogram and echocardiograph were unremarkable. Ultrasonography of the abdomen and pelvis revealed no abnormality. Initially an empirical therapeutic regimen comprising oral non-steroidal anti-inflammatory drugs were administered. Oral indomethacin 150 mg/day was lead to a slight clinical improvement in arthritis. On the sixth day of admission, blood culture that incubated on blood agar yielded a coccobacillus identified as *Brucella mellitensis* on the basis of Gram stain and colonial morphology. Additionally brucella agglutinin test (Wright test) was found to be positive with titer of 1/320, Coomb's Wright test 1/640 and 2-mercaptoethanol brucella agglutination test (2ME) titer was 1/160.

Thus the diagnosis of brucellosis was established and ciprofloxacin 400 mg intravenous twice daily combined with oral doxycycline 200 mg/day was initiated and resulted in a rapid and dramatic clinical response. By 7 days after onset of this treatment both the patient's symptoms and her skin lesions had significant improvement. Skin biopsy report was compatible with vasculitis (Fig. 2).

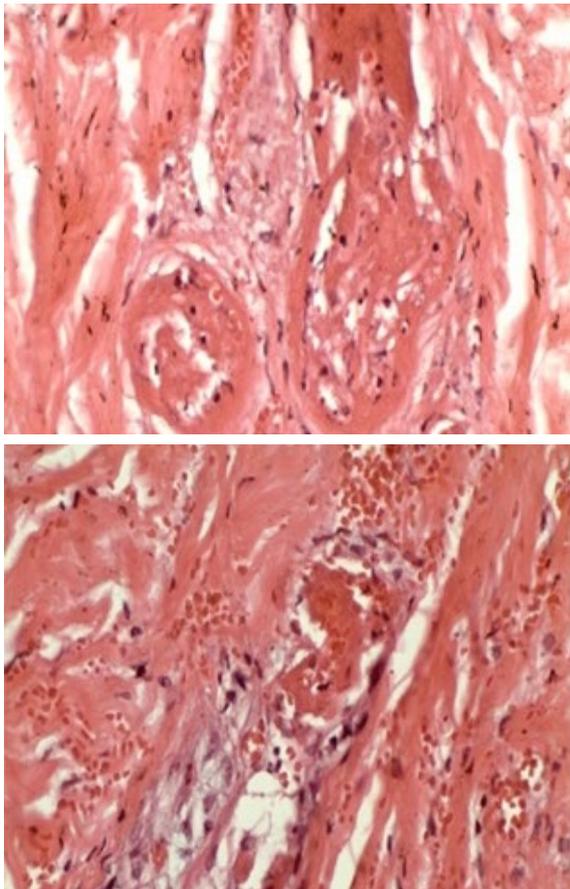


Figure 2, Leukocytoclastic vacuities:

The capillaries show swelling of the endothelial cells and deposition of fibrinoid material around them. A rather severe inflammatory infiltrate is present, especially around the capillaries. It is composed largely of neutrophils, many of which show fragmentation of nuclei. Extravasations of erythrocytes are present, probably as a result of occlusion of the capillaries.

DISCUSSION

Human brucellosis is an infectious disease produced by four of six brucella species (*B. abortus*, *B. Melitensis*, *B. canis*, *B. suis*).¹ *B. Melitensis* which is the commonest cause of symptomatic disease in human and which is usually acquired from cattle or goats and camels. *B. abortus* which is usually acquired from cattle or buffalo, *B. suis* which is usually acquired from swine and *B. canis* which is most often from dogs.⁶ The incubation period varies from one week to several months and the onset of fever and other symptoms may be abrupt or insidious over all. The presentation of brucellosis often fits one of three patterns, acute febrile illness, and subacute fever and monarthrits, and chronic.⁶ Brucellosis is a systemic infection in which any organ or system of the body can be involved.¹ Skin lesion occurs in approximately 5-10% of patients with brucellosis. Many nonspecific, often transient lesions have been reported, including rashes, papules, ulcers, erythema nodosum, petechia, purpura, and vasculitis.⁷ Contact dermatitis was once a common finding among veterinarians exposed to infected animals.⁸ In Akcali study in Turkey from 140 patients with brucellosis cutaneous findings were observed in 8(5.71%) of patients. Maculopapular eruptions were observed in 2 patient (25%) erythema nodosum-like lesion in 1 (12.5%), palmar erythema in 1(12.5%), psoriasiform lesion in 1(12.5%), malar eruption in 1(12.5%) and eczema in 1(12.5%).⁴ Cutaneous vasculitis due to brucellosis has only rarely reported. However, dermal IgA deposits have been rarely described in brucellosis-associated vasculitic rash. Skin lesion is usually sterile^{9,10}, but *B. Mellitensis* has been cultured from skin biopsy in a patient with arthritis and papulonodular rash.⁷ Massasso and Gibson reported one male case immigrant from Syria to Australia with a vasculitis appearing leg rash, asymmetrical polyarthrits, microscopic haematuria and raised inflammatory markers was provisionally diagnosed with Henoch-Schonlein purpura. Skin biopsy showed leukocytoclastic vasculitis. *Brucella abortus* specie was grown from both blood and

synovial fluid aspirates. Triple antibiotic therapy produced a rapid clinical response.¹¹ Cutaneous findings in brucellosis are based on direct inoculation, hypersensitivity phenomenon, and deposition of immune complexes and direct invasion of the skin by microorganism via hematogenous spread.^{3,7,12} Berger *et al.* classified cutaneous findings related to brucellosis as contact brucellosis, common transient cutaneous findings, generalized lesions, systemic manifestation and cutaneous vascular lesions.¹² Ariza *et al* found that the frequency of cutaneous findings of brucellosis was 6% and disseminated papulonodular eruption was the commonest finding.⁷ Artuz *et al* examined 50 patients with brucellosis and found the prevalence of cutaneous findings was 12%. The most frequent was erythema nodosum-like lesion (67%).¹³ In their series of 103 patients Metin *et al.* reported the

prevalence of skin lesions at nearly 14% in cases in which urticarial-like papules (35.7%) were the most frequent finding.³ In the study of Metin et al. 49.5% of patients with brucellosis and 78.6% of those with dermatologic lesions were female. Humoral and cellular immune response are more intense in women than men; this could explain the higher prevalence of cutaneous findings that may be related to immune mechanism in women.³ Brucellosis with its high rate of morbidity for humans and animals remains an important public health problem. Although cutaneous findings encountered in brucellosis are generally not specific to this disease, the presence of these findings may be useful in diagnosis people with brucellosis who live in or have lived in endemic regions.¹

CONCLUSION

The case described here indicated that although cutaneous findings encountered in brucellosis are generally not specific to this disease, brucellosis should be considered in differential diagnosis of skin vasculitis particularly in patients from endemic areas.

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