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Reticulate Truncal Erythema in Early Disseminated Cutaneous Borreliosis

Wollina U[1]*, Schönlebe J[2]

[1]*Department of Dermatology and Allergology, Academic Teaching Hospital Dresden-Friedrichstadt, Friedrichstrasse 41, 01067 Dresden, Germany*
[2]*Institute of Pathology Georg Schmorl, Academic Teaching Hospital Dresden-Friedrichstadt, Friedrichstrasse 41, 01067 Dresden, Germany*

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***Corresponding author:** Prof. Dr. U. Wollina, Department of Dermatology and Allergology, Academic Teaching Hospital Dresden-Friedrichstadt, Friedrichstrasse 41, 01067 Dresden, Germany. E-mail: wollina-uw@khdf.de*

Abstract

Cutaneous manifestations of *Borrelia* infection are common with erythema migrans seen most frequently. However, there are rather unusual cutaneous signs associated with borreliosis. We report about a 70-year-old male patient suffering from colitis ulcerosa among other internal diseases who developed an early disseminated disease after tick bite. We observed an asymptomatic reticulated truncal erythema characterized by dermal angiectasias and lymphocytic infiltrate.

Keywords: Tick-borne Disease; Borreliosis; Reticulated Erythema; Histopathology

Introduction

Lyme *Borreliosis* is the most common vector-born disease in Germany. Major acute manifestations include erythema migrans, neuroborreliosis and Lyme arthritis. In 2012 the overall incidence was approximately 20 per 100,000 inhabitants. The incidence has two age peaks, one among children 5 to 9 years old, and a second one in patients between 60 to 69 years [1].

Serologic tests for antibodies against *Borrelia* species show variable results with a specificity ranging from 52% to 100% [2]. Western blot is used as a confirmatory test. Alternatively, polymerase chain reaction can be used to identify the spirochetes in human tissue [3].

Case Report

70-year-old male patient presented with an asymptomatic reticular erythema on the trunk that persisted since 5 weeks (Figure 1). He remembered a tick bite about one week before the erythema developed. The patient had a long medical history. He suffered from coronary heart disease, diabetes mellitus type II a, compensated renal insufficiency, normochromic anemia, and colitis ulcerosa. The latter was treated with mesalazine and budenoside.

Laboratory investigations were remarkable for anemia and lymphopenia with signs of systemic inflammation: Erythrocytes 3.5 Tpt/L (4.2-6.4), lymphocytes 0.5 Gpt/l (20-45), C-reactive protein 29.4 mg/L (normal range < 5), ferritin 779.4 µg/L (30-300), HbA1c 6.4% (4-6), creatinine 175 µmol/L (63.6-110.5), urea 16.8 mmol/L (2.9-8.2). *Borrelia* serology – negative.

Bone marrow cytology and histology: No signs for myelodysplastic syndrome or malignancy.

Skin histology: Upper dermal angiectasias with lymphocytic perivascular infiltrate (Figure 2). Polymerase chain-reaction (PCR) for *Borrelia* species was denied.

We recommended oral doxycycline 2 x 100 mg/d for 2 weeks. The patient was lost from follow-up.

Discussion

Borreliosis infection can be separated into four stages, early localized disease, early disseminated, late disease, and the post-Lyme syndrome. The most common cutaneous symptoms of early localized stage disease are erythema migrans (>95% of all cases) and benign lymphocytoma. Serologic two-tiered tests show a specificity between 29% to 40% for the early stage borreliosis [4]. In our patient, serology was negative. Could his co-morbidity ulcerative colitis be responsible for?

Colitis ulcerosa is a chronic progressive idiopathic inflammatory bowel disease of the colon characterized by diffuse mucosal inflammation, bloody diarrhea and urgency. The mainstay of therapy is the combination of anti-inflammatory drugs like mesalazine, corticosteroids, thiopurines, and tumor necrosis factor-alfa inhibitors [5].

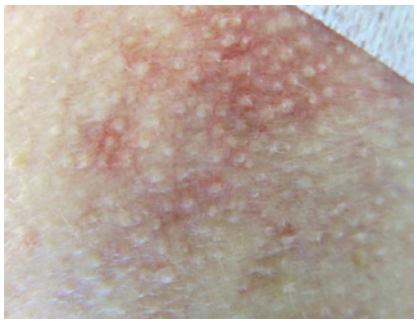
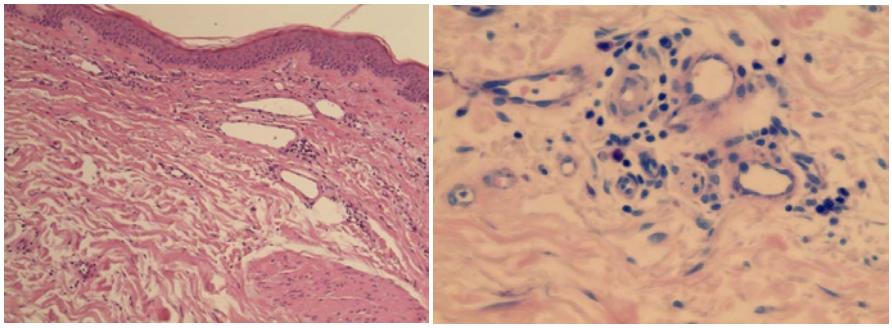


Figure 1: Reticulated erythema on the trunk.



(a) Overview (x 4). (b) Perivascular lymphocytic infiltrate (x 40).

Figure 2: Histopathology of the reticulated erythema (Hematoxylin-eosin).

Mesalazine (*syn.* 5-aminosalicylic acid) is known to inhibit mitogen-stimulated secretion of immunoglobulins A, G, and M by peripheral blood mononuclear cells in a dose-dependent manner [6] while budenoside reduces the number of eosinophils [7].

We observed an unusual reticulate erythema of the trunk in a patient with colitis ulcerosa treated by a combination of budenoside and mesalazine. The early stage of the disease and the effect of his medical drug therapy might both be responsible for the negative *Borrelia* antibody assay. The laboratory signs of inflammation taken together with medical history of a tick bite and histological findings suggested Borrelia-associated reticulate erythema. This is an atypical cutaneous manifestation of *Borrelia* infection. Other rare cutaneous manifestations include morphea, lichen sclerosus, cutaneous B-cell lymphoma, granuloma annulare, interstitial granulomatous dermatitis, cutaneous sarcoid-like reaction, necrobiosis lipoidica, and necrobiotic xanthogranuloma [8]. Multiple erythema migrans or erythema multiforme-like lesions have been occasionally observed and interpreted as a sign of hematological spread of spirochetes [9, 10]. We suggest the same in our patient.

Conclusion

In conclusion, we observed an unusual reticulated erythema of the trunk in early disseminated stage of borreliosis.

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