DERMATOPATHOLOGIC DIAGNOSIS OF LYME BORRELIOSIS

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ABSTRACT

The goal of this study was to determine the general light microscopic findings which lend support to the histopathologic diagnosis of the main cutaneous manifestations of Lyme Borreliosis. Their diagnostic criteria are delineated and illustrated.

In culminating lesions of erythema migrans and acrodermatitis chronica atrophicans, a peculiar connective tissue reaction includes an increase in the number of fibroblasts, proliferation of collagen fibers, and interstitial mucinous edema. The cellular infiltrates are patchy perivascular in erythema migrans and either patchy and/or band-like in acrodermatitis chronica atrophicans. They consist of lymphohistiocytic cells with a variable admixture of plasma cells. The damage to elastic (and even collagen) fibers occurs in early acrodermatitis chronica atrophicans and is reflected by the phenomenon of elastophagocytosis. Reduction or lack of pilosebaceous units is a constant finding. In advanced lesions of acrodermatitis chronica atrophicans, a thinning of the dermal breadth is noticed, resulting from a decrease in collagen and elastic fibers.

Fibrous nodules and morphea-like conditions are characterized by excessive formation of collagen. Borrelial lymphocytoma exhibits two different patterns of infiltration, accompanied by dermal fibrosis and increased numbers of fibroblasts. Recent tick bites show a predominantly neutrophilic infiltrate.

By applying the results of this synoptic study, histopathologic diagnosis of dermatoborrelioses should be possible without the absolute necessity of clinical correlation.

KEY WORDS

Lyme borreliosis, synoptic dermatopathologic diagnosis, recent tick bite, erythema migrans, borrelial lymphocytoma, acrodermatitis chronica atrophicans, elastophagocytosis, fibrous nodules, morphea-like conditions

INTRODUCTION

Notwithstanding the various laboratory techniques (e.g. ELISA, immunofluorescence assay, immunoblot, PCR (1)) for diagnosing cutaneous borrelial disorders, the correlation of clinical and pathological findings remains the first step towards the diagnosis of these endemic dermatoses. Apart from atypical forms, the gross appearance of the major dermatoborrelioses allows for a spot diagnosis in most instances. It has been stated that the histopathologic features are of little diagnostic value without the demonstration of