

SCLEROSING AND GRANULOMATOUS SKIN LESIONS IN BORRELIA BURGDORFERI INFECTION

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ABSTRACT

The pathogenetic linkage between *Borrelia burgdorferi* and the cutaneous manifestations of Lyme Borreliosis, i.e. erythema migrans, borreliolymphocytoma and acrodermatitis chronica atrophicans is well established. Moreover, in three other dermatoses - circumscribed scleroderma, lichen sclerosus et atrophicus and granuloma annulare - laboratory findings indicated that these diseases might be associated with a *Borrelia burgdorferi* infection. In particular, cellular or humoral immune responses to *Borrelia burgdorferi*, as measured by lymphocyte proliferation tests or by immunoblot investigations, respectively, were detected in some circumscribed scleroderma patients. In sporadic cases *Borrelia burgdorferi* was even isolated from lesional skin of patients with circumscribed scleroderma or granuloma annulare. Recently developed molecular biological techniques provide tools to detect *Borrelia burgdorferi*-DNA in several tissues and body fluids. Particularly the excretion of *borrelia*-DNA in the urine, detected by PCR, was proven to be a useful and reliable laboratory parameter for the clinical correlation of disease activity in erythema migrans and acrodermatitis chronica atrophicans. Therefore, we investigated the excretion of *Borrelia burgdorferi*-DNA in the urine of patients with circumscribed scleroderma, lichen sclerosus et atrophicus and granuloma annulare by amplification of a 276 bp flagellin gene segment using a nested PCR technique. Surprisingly, PCR was positive in 61% of patients with circumscribed scleroderma, 68% of patients with lichen sclerosus et atrophicus and 61% of patients with granuloma annulare. These data provide evidence for the presence of a systemic *Borrelia burgdorferi* infection in a subset of patients with these dermatoses and open up a field to develop new concepts in the treatment of these patients.

KEY WORDS

Borrelia burgdorferi, circumscribed scleroderma, lichen sclerosus et atrophicus, granuloma annulare, immunoblot-investigation, cellular immune response, polymerase chain reaction, urine

INTRODUCTION

The clinical spectrum of systemic and localized manifestations of Lyme Borreliosis (LB) increases steadily but has not yet been defined precisely.

Beside the classical cutaneous manifestations of LB, erythema migrans (EM), borreliolymphocytoma (BL) and acrodermatitis chronica atrophicans (ACA), further dermatoses, such as circumscribed scleroderma (morphea) (CS), lichen sclerosus et atrophicus (LSA)

