

# OPHTHALMIC MANIFESTATIONS IN LYME BORRELIOSIS

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## ABSTRACT

Lyme Borreliosis is a multisystem disorder caused by the spirochete *Borrelia burgdorferi*. Although many ocular manifestations have been attributed to Lyme Borreliosis, they remain a rare clinical feature of the disease. The spirochetes invade the eye early and remain dormant, accounting for both early and late ocular manifestations which range from conjunctivitis and keratitis to intraocular inflammatory syndromes and neuro-ophthalmic manifestations. Especially in endemic areas, ophthalmologists need to be aware of *Borrelia burgdorferi* as a possible causal agent. The aim of this article is to present a short review of ophthalmic disorders resulting from *Borrelia burgdorferi* infections.

## KEY WORDS

*Borrelia burgdorferi*, Lyme Borreliosis, eye, ophthalmic manifestations

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## INTRODUCTION

There has been a growing awareness of Lyme Borreliosis (LB) during recent years. *Borrelia burgdorferi* (*Bb*) infection can be associated with a variety of signs and symptoms including neurologic, dermatologic, cardiac and ophthalmic disorders. The infectious agent causing LB is the spirochete *Bb* which is transmitted by ixodid ticks (1,2). Recently, *Bb* has also been found in mosquitoes and deer flies (3).

The clinical course of LB is divided into three stages (4,5). Stage I directly follows the bite by an infected tick. Patients develop a typical skin lesion, erythema migrans (EM) (6) and, in some cases, non-specific influenza-like symptoms and fever. After several weeks, spirochetes spread throughout the body and patients may develop neurological, skin

and cardiac manifestations (Stage II) (4,7-9). Stage III is mainly characterized by polyarthritis, progressive encephalomyelitis similar to multiple sclerosis (4,5,8) and skin disorders with acrodermatitis chronica atrophicans (10). However, not every patient follows this course (6,11,12). In fact, no clear line can be drawn between the three stages, neither with respect to time of occurrence nor to symptoms.

*Bb* has been isolated from blood, cerebrospinal fluid and various tissues (7,13). Although *Borrelia* has also been identified histologically in the iris, the retina and in the vitreous humour (14-19), little attention has been focused on the ophthalmic manifestations of LB. Since LB can be associated with a number of ophthalmic manifestations, *Bb* should be considered as a possible causal agent. However, strict criteria should be applied to avoid

