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Short Communication

Ocular Bartonellosis

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Bartonella henselae is a gram negative aerobic bacillus and is the etiologic agent of cat-scratch disease. The infection is present around the world and may affect patients of all ages, including immunocompetent individuals. Humans are usually infected through a cat's scratch or bite, but a bite by cat fleas may also be the origin of infection. More common in children and young adults, it usually presents with a wide range of systemic and ocular symptoms. Other Bartonella species have been described as causing ocular lesions, as shown in Table 1.

Systemic signs and symptoms usually precede ocular involvement and are constituted by the appearance, 3 to 10 days after inoculation of bartonella by scratch or bite, of an erythematous papule on the skin on the site of inoculation. Seven to 14 days after the exposure a follicular conjunctivitis may appear. Fourteen to 21 days after the inoculation regional lymphoadenopathy may occur which is usually associated with myalgias, fatigue and low-grade fever. The association of conjunctivits and regional lymphoadenopathy is well known as Parinaud's oculoglandular syndrome (POGS).

Ocular signs

The most frequent ocular manifestation is neuroretinitis which is usually unilateral. If neuroretinitis is bilateral, it is quite asymmetric. Rarely, posterior pole involvement may be characterized by the presence of a focal inflammatory mass, either of the retina or of the optic disk. Central or paracentral scotoma or physiologic blind spot enlargement are the main alterations of the visual field, while fluorescein angiography usually presents a diffuse leakage from the optic nerve head along with the retinal vessels. Sometimes vascular occlusion with intraretinal haemorrhages and cotton-wool spots are present at the posterior pole. Anterior uveitis, intermediate uveitis and orbital abscess may also be observed in bartonellosis. In HIV-seropositive patients, some cases of bacillary angiomatosis and subretinal neovascular granuloma have been reported.

Diagnosis and Differential diagnosis

Enzyme immunoassay and Western Blot, along with PCR analysis, are usually used for diagnosis, although past history of contact with cats should lead to suspect the proper diagnosis. Serologic tests show a specificity and sensitivity of 90% in immunocompetent patients and only 70% in immunodeficient subjects.

Parinaud's syndrome is a clinical entity that may be due to numerous infections, including tularaemia, sporotrichosis, tuberculosis, syphilis, mononucleosis, coccidioidomycosis, while neuroretinitis with macular star may be observed in vascular disorders, toxoplasmosis, syphilis, tuberculosis, Lyme disease, and viral infection.

Table 1. Bartonella species pathogens for the eye

Bartonella Species	Reservoir Host	Acute Bacteremic Syndromes	Ocular Syndromes	Chronic Vascular Lesions
Henselae	Cats	Relapsing fever, endocarditis	POGS, neuroretinitis, retinochoroiditis, vascular occlusion, intermediate vasculitis	Bacillary angiomatosis
Quintana	Human	Trench fever, endocarditis	Neuroretinis, POGS	Bacillary angiomatosis
Elizabethae	Rodent	Endocarditis	Neuroretinis	
Grahamii	Rodent		Neuroretinis	

Treatment

Cat scratch disease is usually a self-limited disease in immunocompetent patients. Bartonella henselae is sensitive to many antibiotics in vitro, but only aminoglycosides have bactericidal activity. In immunocompetent patients doxycicline 200 mg/day is usually administered because of its property to cross the blood-brain and blood-ocular barrier. Caution should be made if administered to children, because it may cause dental changes. Ciprofloxacin (1,5 gr/day), gentamicin (3-5 mg/kg/day), erythromycin (2 gr/day), trimethoprim-sulphamethoxazole (Bactrim ® 2 tablets/day) are good alternatives and, like doxycicline, are usually given for 14 to 28 days. Azythromicin may also be given to patients affected by cat scratch disease at 500 mg/day for 3 to 5 days. Immunodeficient patients need a more prolonged course of treatment, usually up to 4 months.

Ocular lesions are treated with antibiotics and with topical steroids for conjunctival lesion, topical steroids and mydriatics for anterior segment involvement and with peribulbar (sub-tenon) steroid injection and/or systemic steroids for retinal and optic nerve involvement. In this last case it is important to start steroid therapy after at least 48 hours from starting specific antibiotic treatment, especially if given locally in a depot preparation.