Presumed choroidal neovascularization secondary to *Bartonella henselae*

*Bartonella henselae* was identified as the causative pathogen in cat-scratch disease in 1993. Between 5% and 10% of patients with cat-scratch disease develop ocular manifestations, such as Parinaud oculoglandular syndrome or posterior segment disease.

We report a unique case of unilateral choroidal neovascularization (CNV) in a patient with positive *B. henselae* serology who was successfully treated with bevacizumab and doxycycline.

A 37-year-old woman presented with sudden loss of vision in her right eye. Visual acuity was 20/30. Fundus examination revealed a small extrafoveal serous retinal detachment with yellow-white exudation (Fig. 1). Optical coherence tomography and fluorescein angiography confirmed the presence of CNV (Fig. 1). Examination of the left eye showed it to be normal. Medical history and review of systems were negative. In the absence of other signs or risk factors, a diagnosis of idiopathic CNV was made and treatment with intravitreal bevacizumab was initiated.

Suspecting an inflammatory infiltrate, the referring ophthalmologist requested an extensive uveitis workup prior to referral to our retina service. The results of indirect immunofluorescence (IIFT) (EuroImmun kit, Euroimmune, Lubeck, Germany) for *B. henselae* IgG showed a positive titer of 1/1280. This was confirmed on repeat testing. A titer of 1/320 is considered positive, whereas a titer of 1/1280 is consistent with a recent infection. The patient denied any recent systemic illness, travel, or contact with animals, including cats.

The patient received 3 intravitreal injections of bevacizumab at 6-week intervals. Doxycycline 100 mg bid for 2 weeks was given after the second injection. The institution of antibiotics coincided with a significant anatomic improvement and decrease in macular exudation. Seven months later and 3 months after the last bevacizumab injection, her visual acuity was 20/20. Posterior pole imaging demonstrated resolution of the CNV (Fig. 2).

*B. henselae* is a facultative intracellular, fastidious Gram-negative rod with a high affinity for the vascular endothelium. In vitro, it colonizes and invades endothelial cells and produces an angioproliferative response. Infected macrophages have been shown to release vascular endothelial growth factor. Correspondingly, *B. henselae* is associated with local vasoproliferative responses in immunocompromised hosts. These responses include bacillary angiomatosis, peliosis, and angiomatous mass lesions of the conjunctiva and subretinal space.

The diagnosis of ocular bartonellosis relies on pattern recognition of clinical findings and positive serology. With the advent of reliable serologic testing, it is possible to diagnose *B. henselae* infection in the absence of a typical presentation. The EuroImmun IIFT has a sensitivity of 80% and a specificity of 84%. Regional studies from the Quebec Public Health Laboratory reveal an even higher sensitivity of 94% and a specificity of 97% for this test.

![Fig. 1—Initial clinical presentation of a 37-year-old female with choroidal neovascularization of the right eye and positive *Bartonella henselae* serology. (A) Color fundus photograph showing yellow-white elevated lesion within the papillomacular bundle. (B) Optical coherence tomography of the macula demonstrating intraretinal and subretinal thickening and exudation. (C and D) Early- and late-phase fluorescein angiogram showing early lacy hyperfluorescence and late leakage from the lesion.](image-url)
The recent developments in our understanding of *Bartonella* pathogenesis imply that the complete spectra of its ocular manifestations have not been discovered thus far. The relationship between *Bartonella* and CNV has not been proven in our case, but we suggest that infection by *B. henselae* should be considered in the differential diagnosis of otherwise “idiopathic” CNV.

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**REFERENCES**


**Delayed retrobulbar hemorrhage following Baerveldt glaucoma drainage implant surgery**

A 60-year-old female presented to the emergency eye clinic on the third day after an uneventful 350 mm² Baerveldt glaucoma drainage implant (GDI) insertion in the inferonasal quadrant of the right eye. Surgery had been performed with topical lidocaine gel and subconjunctival lidocaine, without retrobulbar injection of anesthetic. The patient complained of sudden onset of bleeding from the right eye, as well as ecchymosis of the right upper and lower eyelids. She had neither recent exposure to drugs or alternative therapies with anticoagulant properties, nor had she experienced any trauma since surgery. She did not have a history of hypertension or medical conditions associated with an increased risk of bleeding. Her past ocular history included right Ahmed GDI surgery 8 months previous, and left Ahmed and Baerveldt GDI surgeries in 2009.

On postoperative (postop) day 1, right eye intraocular pressure (IOP) measured 7 mm Hg. The implant was stable, and there were no signs of periorbital or subconjunctival hemorrhage. At presentation (postop day 3), visual