

CASE REPORT ΕΝΔΙΑΦΕΡΟΥΣΑ ΠΕΡΙΠΤΩΣΗ

Sudden loss of vision due to retinitis following *Bartonella henselae* infection

We describe herein a case of sudden visual loss due to *Bartonella henselae* infection. Immunofluorescence methods, together with PCR and fluorescein angiography were used to identify antibodies against the pathogen, DNA of the pathogen and possible inflammation of the eye. Visual loss was verified together with the existence of an edema and of exudates at the region of the macula. Antibodies against *B. henselae* were detected. The patient was treated with doxycycline, ranibizumab, and cortisone. Specific therapy with systemic antibiotics and anti-angiogenesis factors is important for the treatment of neuroretinitis by *B. henselae*.

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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2013, 30(1):85–87

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Απότομη απώλεια όρασης
λόγω αμφιβληστροειδίτιδας
οφειλόμενης σε λοίμωξη από
Bartonella henselae

Περίληψη στο τέλος του άρθρου

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Ocular manifestations such as neuroretinitis, optic nerve masses, vascular-occlusive events, choroidal masses, retinitis, choroiditis, and intermediate uveitis can be observed in atypical cat-scratch disease (CSD) caused by *Bartonella henselae*.¹ The prevalence of neuroretinitis in patients suffering from atypical CSD is low, about 1% to 2%.² The case is described of an immuno-competent patient infected by *B. henselae* presenting with sudden loss of vision.

CASE REPORT

In September 2008, a 30-year-old woman with a history of bronchocele under medication, presented at the Clinic of Ophthalmology of the University General Hospital of Heraklion, Crete, suffering from sudden curtailment of sight with no other symptoms. She reported that she owned parrots, canaries and cats.

The patient was referred for fluorescein angiography and tomography of the macula. Reduction of visual acuity (1/10) of the left eye was found, along with edema and exudates in the region of the macula (figures 1A, 1B). Following mydriasis, retinal examination of both eyes was performed by electroretinography (ERG) according to the clinical protocol of the International Society for Clinical Electrophysiology of Vision (ISCEV). Initial tests were performed under photopic conditions (Flash ERG, 30 Hz flicker ERG) to determine the response of the cones, following which, the eyes were allowed to adapt to darkness for 30 min. A low intensity stimulus was then applied (a dim flash) to determine the response of the rods, followed by a stimulus of equal intensity to that of photopic conditions (scotopic flash) to test the total response of the rods and cones. Slightly reduced response potentials were recorded under photopic conditions. The results are summarized in table 1.

Full blood count (FBC), erythrocyte sedimentation rate (ESR), and blood levels of C-reactive protein, glucose and thyroid hormones were normal. The serology was negative for *Chlamydia psittaci*, *Toxoplasma* and *Treponema pallidum*. Antibodies against *B. henselae* were checked using a commercial kit (FOCUS Diagnostics, California, USA). Titers of $\geq 1/512$ and $\geq 1/40$ were considered positive for the IgG and IgM antibodies, respectively. Positive antibody titers against *B. henselae* were found (IgM 1/80, IgG 1/256). DNA was extracted from the blood sample by the use of a QIAamp tissue kit (QIAGEN, Hilden, Germany) and was used as a template in a previously described PCR assay targeting a portion of the Bartonella 16S-23S intergenic spacer region (ITS gene).³ The result was negative.

An initial intravitreal injection of 0.5 mg INN-ranibizumab was performed, followed by administration of doxycycline (200 mg/day) for 21 days, together with cortisone (64 mg/

day) for one week followed by a $\frac{1}{4}$ decrease in dosage every week for the next two and a half months.

Fluorescein angiography was repeated at one and three months, each time revealing slow resolution of the edema (figures 1C, 1D). Despite the persistence of antibody titers against *B. henselae* (IgM 1/80, IgG 1/64 at one month and IgM 1/160, IgG 1/128 at three months), the vision returned progressively to optimal levels.

COMMENT

This case was diagnosed as retinitis with sudden loss of vision caused by *B. henselae*, based on serological data and the clinical history. Apart from cats, the patient also had contact with wild exotic birds and her serum was examined for *C. psittaci*, *Toxoplasma*, and *T. pallidum* in order to exclude infectious agents that are commonly transmitted by these birds.

Previous documentation shows that among patients with neuroretinitis, nearly two thirds have serological evidence of past infection by *B. henselae*.⁴ Neuroretinitis is characterized by inflammation of the optic nerve head and the presence of stellate macular exudates.⁵ It occurs most often in children and young adults who experience painless unilateral, or rarely bilateral, loss of vision with central scotoma, optic disc swelling and macular star formation. Spontaneous resolution occurs, with complete recovery of vision, usually within one to three months. Visual loss is primarily due to changes in the optic head and not the macula.⁶

This patient was treated with doxycycline as this drug has good intraocular and central nervous system penetration.² Ranibizumab is used for patients with wet age-related macular degeneration as it binds to and inhibits all subtypes of vascular endothelial growth factor A (VEGF-A) which can trigger the growth of new vessels, and may leak blood and fluid into the eye. Corticosteroids have not been shown to have any measurable effect on the course of disease and their role is unclear. This specific therapy with systemic antibiotics and anti-angiogenesis factors was prescribed to avoid more serious ocular complications and relapse, and the vision progressively returned to optimal levels.

This case shows that the treatment of neuroretinitis due to *B. henselae* should be based on the combination of systemic antibiotics and anti-angiogenesis factors.

Table 1. Response potentials on electroretinography.

Eye	Response potential (μ V)	
	Photopic condition (NR)	Scotopic condition (NR)
Right	57 (85–115)	221 (170–500)
Left	71 (85–115)	275 (170–500)

NR: Normal range

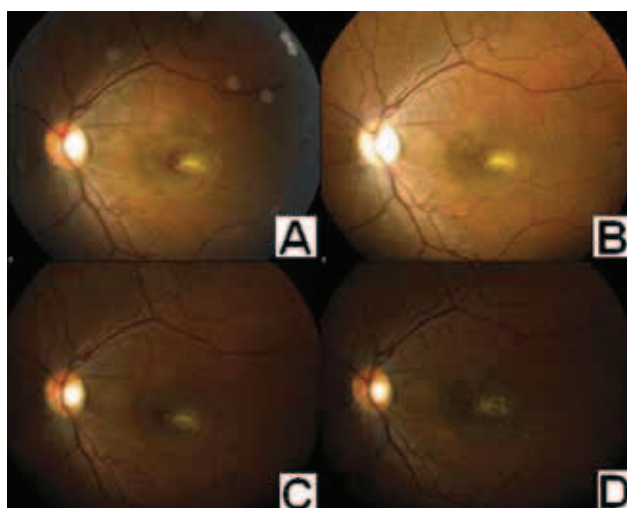


Figure 1. Fluorescein angiography of the left eye in a 30-year-old woman demonstrating edema in the region of the macula. A: At presentation, B: one week later, C: one month later, D: four months later.

ΠΕΡΙΛΗΨΗ

Απότομη απώλεια όρασης λόγω αμφιβληστροειδίτιδας οφειλόμενης σε λοίμωξη από *Bartonella henselae*

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Περιγράφεται μια περίπτωση με αιφνίδια απώλεια όρασης λόγω λοίμωξης από *Bartonella henselae*. Εφαρμόστηκαν οι μέθοδοι του ανοσοφθορισμού, της PCR και της αγγειογραφίας με φλουοροσκεΐνη για τον εντοπισμό αντισωμάτων κατά του παθογόνου, του DNA του παθογόνου και της πιθανής φλεγμονής του οφθαλμού, αντίστοιχα. Επιβεβαιώθηκε η απώλεια όρασης σε συνδυασμό με την ύπαρξη οιδήματος και εκκρίσεων στην περιοχή της ωχράς κηλίδας. Ανιχνεύτηκαν αντισώματα έναντι της *B. henselae*. Η ασθενής υποβλήθηκε σε θεραπεία με δοξκυκλίνη, ρανιβιζουμάμπη και κορτιζόνη. Η αγωγή με συστηματικά αντιβιοτικά και παράγοντες αντι-αγγειογένεσης είναι σημαντική για τη θεραπεία της νευρο-αμφιβληστροειδίτιδας της οφειλόμενης σε *B. henselae*.

Λέξεις ευρητηρίου: Αμφιβληστροειδίτιδα, *Bartonella henselae*, Παράγοντες αντι-αγγειογένεσης, Ρανιβιζουμάμπη

References

1. BASS JW, VINCENT JM, PERSON DA. The expanding spectrum of Bartonella infections: II. Cat-scratch disease. *Pediatr Infect Dis J* 1997, 16:163–179
2. CUNNINGHAM ET, KOEHLER JE. Ocular bartonellosis. *Am J Ophthalmol* 2000, 130:340–349
3. RAOULT D, ROBLOT F, ROLAIN JM, BESNIER JM, LOULERGUE J, BASTIDES F ET AL. First isolation of Bartonella alsatica from a valve of a patient with endocarditis. *J Clin Microbiol* 2006, 44:278–279
4. SUHLER EB, LAUER AK, ROSENBAUM JT. Prevalence of serologic evidence of cat scratch disease in patients with neuroretinitis. *Ophthalmology* 2000, 107:871–876
5. REED JB, SCALES DK, WONG MT, LATTUADA CP Jr, DOLAN MJ, SCHWAB IR. Bartonella henselae neuroretinitis in cat scratch disease. Diagnosis, management, and sequelae. *Ophthalmology* 1998, 105:459–466
6. SWEENEY VP, DRANCE SM. Optic neuritis and compressive neuropathy associated with cat scratch disease. *Can Med Assoc J* 1970, 103:1380–1381

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