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Retinal Arterial Occlusive Disease in a Young Patient with Cat Scratch Disease

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Key Words
Cat scratch disease · Retinal arterial occlusion · Multifocal retinitis

Abstract
Purpose: To report an unusual case of a branch retinal arterial occlusion and bilateral multifocal retinitis in a young woman with cat scratch disease. ***Methods:*** A 23-year-old woman was referred to our clinic complaining of a sudden scotoma in the upper part of the visual field of her left eye. Fundoscopy revealed occlusion of an inferior temporal branch of the retinal artery in the left eye and bilateral multifocal retinitis, which was confirmed by fluorescein angiography. Subsequent indocyanine angiography did not reveal choroidal involvement. Laboratory analysis showed rising IgG titers for *Bartonella henselae*. ***Results:*** Cat scratch disease was diagnosed, and a 4-week course of doxycycline was initiated. The patient responded well to the antibiotics. Both retinitis and arterial occlusion were resolved, the visual field was regained and the patient reported elimination of her symptoms. ***Conclusions:*** Cat scratch disease should be considered in the differential diagnosis in young patients with retinal occlusive disease.

Introduction

Cat scratch disease is a worldwide zoonotic infection caused by *Bartonella henselae*. The primary reservoir for these Gram-negative rods is the domestic cat. Humans can be infected by cat scratches, bites or contamination of open surface wounds with cat saliva and feces of the cat flea [1]. Cat scratch disease is usually a benign, self-limited condition. It normally manifests as a localized papule, macule or pustule at the inoculation site followed several

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weeks to months later by a regional, tender lymphadenopathy. General symptoms, such as headache, anorexia, sore throat, nausea and vomiting, are commonly present as well. In about 5–10% of cases, cat scratch disease may present with a wide spectrum of ocular symptoms, ranging from the most common primary oculoglandular syndrome, to neuroretinitis and rarely to vascular (arterial/venous) occlusions. We describe here the occurrence of a branch retinal arterial occlusion in a young woman diagnosed with cat scratch disease.

Case Report

A 23-year-old woman was referred to our clinic with a 2-day history of scotoma in the left upper visual field of her left eye. The patient's past medical and ocular histories were unremarkable. At presentation, her Snellen best-corrected visual acuity was 10/10 in both eyes. Examination of the anterior segment did not reveal any abnormal findings, while a mild vitritis was noted in both eyes. Fundoscopy revealed an occlusion of the inferior temporal branch of the left retinal artery (fig. 1) and multiple foci of retinitis in the posterior pole of both eyes, more prominently in the left. Fluorescein angiography was subsequently performed, which confirmed the diagnosis of arterial occlusion and the presence of vasculitis (fig. 2). Leakage of the inferonasal part of the left optic disc was also noted. Laboratory investigations were undertaken for all possible causes of anterior and posterior uveitis. The patient had not received any treatment before the laboratory tests were performed.

Two weeks after presentation her clinical symptoms started to improve, while fundoscopy and fluorescein angiography showed resolution of the retinal arterial occlusion. Indocyanine angiography did not reveal choroidal involvement. Laboratory analysis showed a positive IgG titer for *B. henselae* (IgG = 512, positive >128, indirect immunofluorescence) that continued to rise during the second month of the disease (IgG = 1,024) and declined afterwards. The IgM titers were notably negative throughout the course of the disease. Based on the elevated serum IgG titers, the diagnosis of cat scratch disease was established. Clinical examination did not reveal lymphadenopathy or skin lesions. The patient could not remember any incidents of being scratched or bitten by a cat despite the presence of 2 kittens in a nearby premise. The patient was advised to take oral doxycycline 100 mg BD for 4 weeks, but discontinued the treatment 3 weeks later. At follow-up, 2 months after the initiation of treatment, there was complete resolution of both the arterial occlusion and retinitis. By that time, some hard exudates had started to appear in the left macular region, without forming the typical ring of a macular star (fig. 3).

Discussion

Branch retinal arterial or venous occlusions have been previously reported in patients with cat scratch disease [2]. *Bartonella*'s propensity to colonize and cause direct damage to the vessel wall, leading to vascular thrombosis and occlusion, has been reported as well [2, 3]. Moreover, the inflammatory process from an adjacent or even distant area of inflammation may further incite edema and thickening of the vessel wall, expediting the occlusion of the vessel [4]. Vasculitis alone can cause vascular obstruction [5, 6]. The case presented here stresses the importance of a high index of suspicion for the possibility of *Bartonella* infection whenever a young patient appears with occlusion of the retinal vessels (arterial/venous), since vascular occlusions of atherosclerotic origin are relatively rare [7] in this specific age group. Cat scratch disease may occur in individuals who do not own a cat, and a history of an

animal scratch or bite is not necessary [8]. The disease can be transmitted by arthropod vectors, ticks, fleas or biting flies [9].

Disclosure Statement

The authors have no proprietary interest and there was no financial support for this study.

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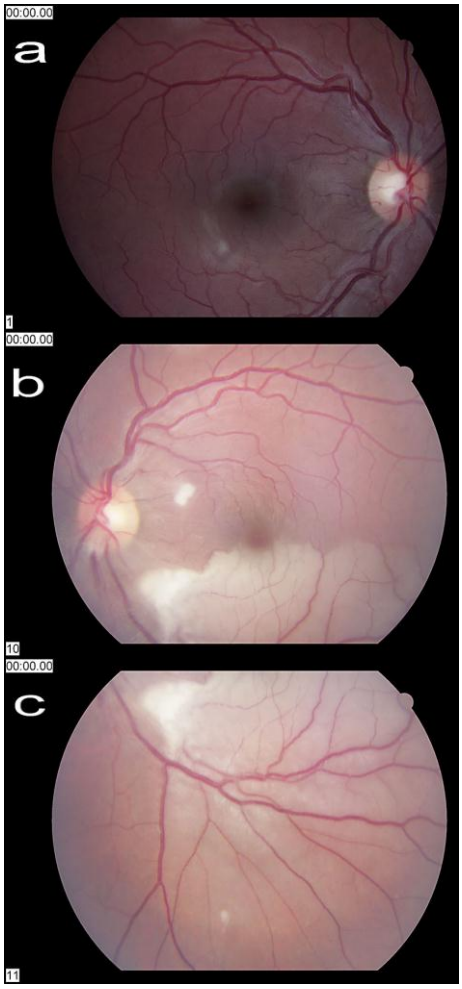

Fig. 1. **a** Color photo of the patient's right eye showing a small area of ischemic macular edema (whitening) inferotemporally to the fovea. **b**, **c** Color photos of her left eye. Note an inferotemporal branch retinal artery occlusion and multiple foci of retinitis in the posterior pole.

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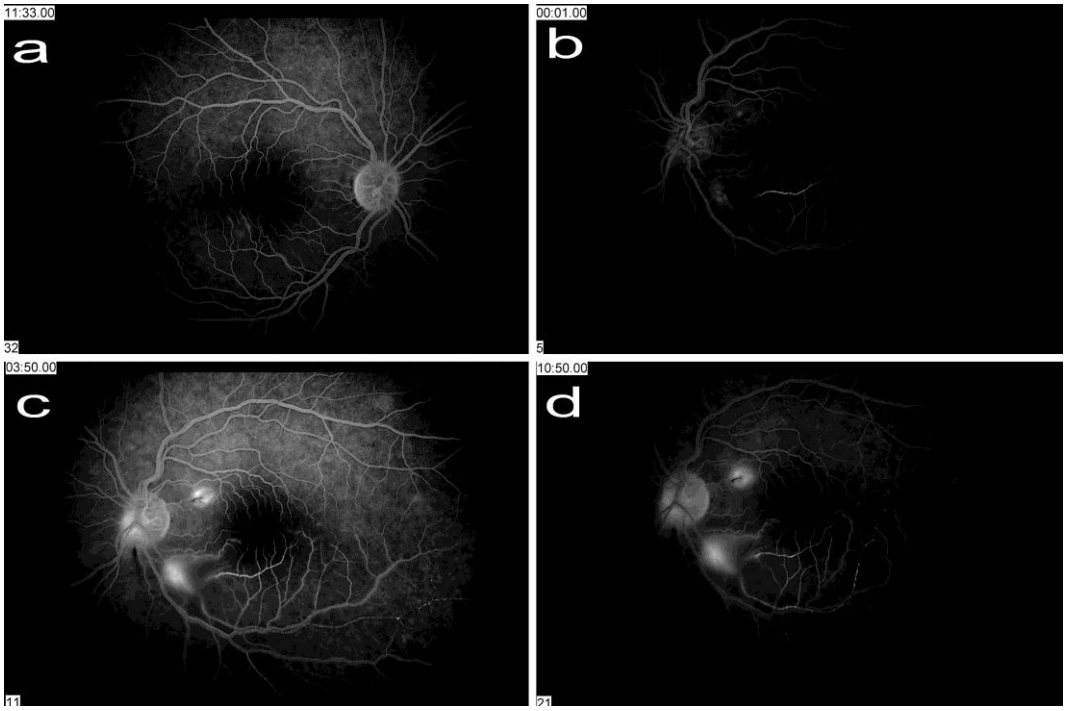

Fig. 2. **a** Fluorescein angiography of the patient's right eye showing localized vasculitis inferotemporally to the foveal and ischemic edema. **b–d** Fluorescein angiography of the left eye at 1, 3.50 and 10.50 min confirming an inferotemporal branch retinal artery occlusion, vasculitis and some foci of retinitis. Also note that there is leakage in the inferonasal part of the optic disc.

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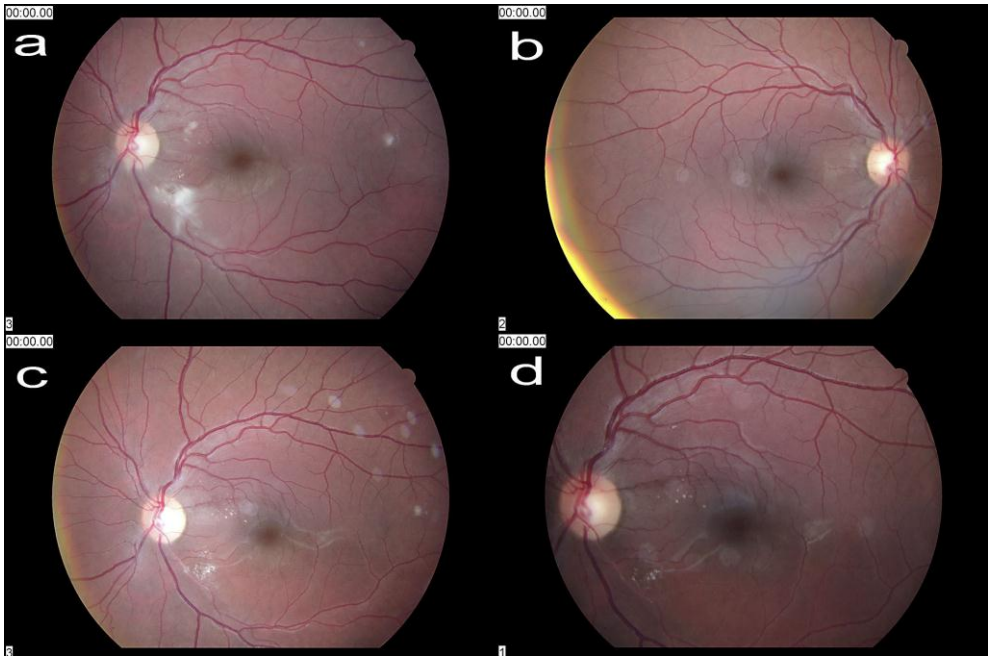

Fig. 3. **a** Color photo of the patient's left eye 2 weeks after initiation of treatment showing improvement of the retinal edema and the ischemic areas. **b** Color photo of the right eye showing complete resolution of the vasculitis and ischemic macular edema 2 months after initiation of treatment. **c** Both the arterial occlusion and retinitis resolving in the left eye 2 months after initiation of treatment. **d** Four months after presentation there are still some hard exudates in the left macular region, without forming a typical macular star.