Multiple Occlusive Retinal Arteritis in Both Eyes of a Patient with Rheumatoid Arthritis

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**Purpose:** To report multiple occlusive retinal arteritis as a complication of rheumatoid arthritis.

**Case:** A 67-year-old woman developed superotemporal branch retinal artery occlusion in both eyes, together with arterial sheathing and large cotton wool patches around the optic disc, in the course of rheumatoid arthritis with moderate activity.

**Observations:** Fluorescein angiography disclosed delayed filling of the superotemporal retinal artery in the right eye and no filling of the superotemporal artery in the left eye. In addition, segmental absence of filling was found in peripheral branches of the other major retinal arteries in both eyes. After hyperbaric oxygen therapy and intravenous administration of prostaglandin E1 and urokinase for 2 weeks, there was improvement in her vision.

**Conclusion:** Multiple occlusive retinal arteritis in rheumatoid arthritis can manifest as retinal artery occlusion. Rheumatoid arthritis should be included in the differential diagnosis of bilateral retinal artery occlusion.

**Key Words:** Cotton wool patches, retinal arteritis, retinal artery occlusion, retinal vasculitis, rheumatoid arthritis.

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**Introduction**

The ophthalmic complications of rheumatoid arthritis develop mainly on the ocular surface, and manifest as keratoconjunctivitis sicca, corneal-melting disease, episcleritis, and scleritis. In contrast, retinal and choroidal complications are basically rare in rheumatoid arthritis. Retinal hemorrhage, retinal vasculitis, geographic choroiditis, and subretinal fibrosis have been reported until now. The author reports on a patient who developed bilateral multiple occlusive retinal arteritis, simulating retinal artery occlusion, in the course of rheumatoid arthritis.

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**Case Report**

A 67-year-old woman had noticed abrupt reduction of vision in both eyes 4 days earlier. She had been treated for rheumatoid arthritis for the previous 5 years and had been taking oral bucillamine. The best-corrected visual acuity was 20/30 in the right eye and 20/600 in the left eye. The intraocular pressure was 10 mm Hg in both eyes. The anterior segments in both eyes were unremarkable. Retinal clouding was found mainly in the feeding area of the superotemporal artery in both eyes, with macular involvement in the left eye. Large cotton wool patches were also present around the optic disc of both eyes, overlying the cloudy retina (Figure 1). Fluorescein angiography showed delayed filling of the superotemporal artery in the right eye and no filling of the superotemporal artery in the left eye. Segmental ab-
sence of filling was also found in peripheral branches of the superonasal, inferonasal, and inferotemporal arteries in the right eye and in peripheral branches of the inferonasal artery in the left eye (Figure 2).

The patient’s blood pressure was 117/75 mm Hg. The finger joints of both hands were deformed. She had no arthralgia. Carotid bruit or rheumatoid nodules were absent. The plain chest x-ray film and electrocardiograms showed nothing remarkable. Urinalysis results were normal. Erythrocyte sedimentation rate was increased to 23 mm in 1 hour and 55 mm in 2 hours, while the serum level of C-reactive protein was not elevated (0.2 mg/dL). Serum rheumatoid factor was elevated (25.2 IU/mL). The results of other blood examinations, including coagulation tests, antiphospholipid and anti-DNA antibodies, and complement analyses, were within normal limits.

The patient underwent hyperbaric oxygen therapy together with intravenous drip infusion of prostaglandin E1 and urokinase for 2 weeks. The retinal clouding resolved, and the final visual acuity was 20/15 in the right eye and 20/400 in the left eye.

**Discussion**

The fundus manifestation in both eyes of this patient was branch retinal artery occlusion. The right eye showed retinal clouding in the feeding area of the superotemporal artery, with the macula spared, leading to good visual outcome. In contrast, retinal clouding in the left eye involved the macula, leading to poor visual outcome. Fluorescein angiography disclosed delayed filling or no filling of the superotemporal retinal artery in either eye, supporting the diagnosis of branch retinal artery occlusion. How-
ever, additional findings, such as large cotton wool patches and segmental absence of filling of peripheral branches of other arteries, cannot be explained simply by branch retinal artery occlusion.

Central and branch retinal artery occlusion is caused by embolization or thrombosis. Thrombosis is usually associated with retinal atherosclerosis and arteriosclerosis. In this patient, retinal arteries in both eyes had diffuse sheathing that appeared different from arterial sclerotic changes, such as bronze and silver arteries. The patient had normal blood pressure, and showed no signs of retinal arteriosclerosis, such as arteriovenous crossing phenomenon. Furthermore, the patient did not have any underlying causes for embolism, such as atherosclerosis of carotid arteries, atrial fibrillation, or cardiac valvular diseases.

At the time of the development of bilateral retinal artery occlusion, the patient had neither high activity of rheumatoid arthritis nor signs of systemic rheumatoid vasculitis, such as subcutaneous rheumatoid nodules. Her rheumatic symptoms, such as arthralgia, were well-controlled with daily oral bucillamine. She showed, however, a moderate increase of erythrocyte sedimentation rate and serum rheumatoid factor, indicative of the persistent activity of rheumatoid arthritis. Diffuse arterial sheathing, and large cotton wool patches, indicative of localized obstruction of retinal capillaries, and segmental obstruction of major retinal arteries revealed by fluorescein angiography, suggest underlying vascular inflammation. The manifestations in this patient can be summarized as multiple occlusive retinal vasculitis involving major arteries and capillaries. The absence of other causes for inflammation lends support to the diagnosis that multiple occlusive retinal vasculitis was caused by rheumatoid arthritis and presented as part of rheumatoid vasculitis.

In conclusion, branch retinal artery occlusion could manifest as part of multiple occlusive retinal vasculitis caused by rheumatoid arthritis. The overlapping presence of other manifestations, such as arterial sheathing and cotton wool patches, should be used as a hint in the differential diagnosis of causes for retinal artery occlusion.

References