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# Geographic Choroiditis and Retinal Vasculitis in Rheumatoid Arthritis

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**Abstract:** A 37-year-old man developed geographic choroiditis and retinal vasculitis in the left eye while taking 3.5 mg/day oral prednisolone for rheumatoid arthritis. The choroidal lesions stopped growing when the dose of prednisolone was increased to 60 mg/day, while its tapering resulted in the recurrence and enlargement of the choroidal lesions to the macula. The patient experienced further recurrence twice in the following year. Indocyanine green angiography demonstrated the obstruction of choroidal arteries in addition to the complete obstruction of the choriocapillaris in a fresh lesion. This case was the first to have geographic choroiditis on the background of a systemic inflammatory disease. **Jpn J Ophthalmol 1998;42:51–55** © 1998 Japanese Ophthalmological Society

**Key Words:** Geographic choroiditis, indocyanine green angiography, retinal vasculitis, rheumatoid arthritis.

## Introduction

Geographic (or serpiginous) choroiditis[1–4] has been recognized as a distinct clinical entity since its initial description as chorioiditis geographica[5] in 1933. The disease is progressive, appears to be of inflammatory origin, and mainly involves the choriocapillaris without developing any systemic manifestations.[1–4] Our patient developed progressive geographic choroiditis together with retinal vasculitis in the course of rheumatoid arthritis.

## Case Report

A 37-year-old man had noticed blurred vision and floating spots in the left eye 2 weeks previously and visited a hospital on April 4, 1996. He had been treated for rheumatoid arthritis since 1984 and was taking auranofin 6 mg/day, bucillamine 150 mg/day, prednisolone 3.5 mg/day, and diclofenac 50 mg/day. C-reactive protein was 7.0 mg/dL (normal, <0.3), and rheumatoid factor was 640 IU/mL (normal, <18). Urinalysis was negative. Physical examinations revealed rheumatoid nodules at both elbows.

The best-corrected visual acuity was 20/15 in both eyes, and the intraocular pressure was 18 mm Hg in both eyes. The right eye was unremarkable. The left eye showed a few cells in the anterior chamber and a grayish-white edematous lesion superotemporal to the macula in the fundus. Fluorescein angiography demonstrated early hypofluorescence followed by late hyperfluorescence in the lesion as well as leakage from the retinal capillaries (Figure 1, 2). The patient was given intravenous prednisolone 60 mg/day, the dosage was subsequently tapered to 20 mg/day orally on April 15. The patient was well until the beginning of July when he developed blurring in the left eye while taking 3 mg/day prednisolone. On July 12, the visual acuity was 20/15 in the right eye and 20/50 in the left eye. The left eye had a few aqueous cells and an enlarged fundus lesion extending to the macula, together with periarteritis in the lower fundus (Figures 3, 4). C-reactive protein was 0.9 mg/dL, and urinalysis showed low-grade proteinuria and microhematuria. The dose of prednisolone was increased to intravenous 60 mg/day, while bucillamine and auranofin was discontinued. The visual acuity in the left eye further decreased to 20/400 due to the macular involvement on July 29. Urinalysis became negative on August 8, and the patient was placed on prednisolone 20 mg/day orally from August 18, without further progression. Antinuclear antibodies and

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**Figure 1.** Montage of fluorescein angiograms in the left eye on April 4, 1996, showing geographic choroiditis together with leakage from retinal capillaries.

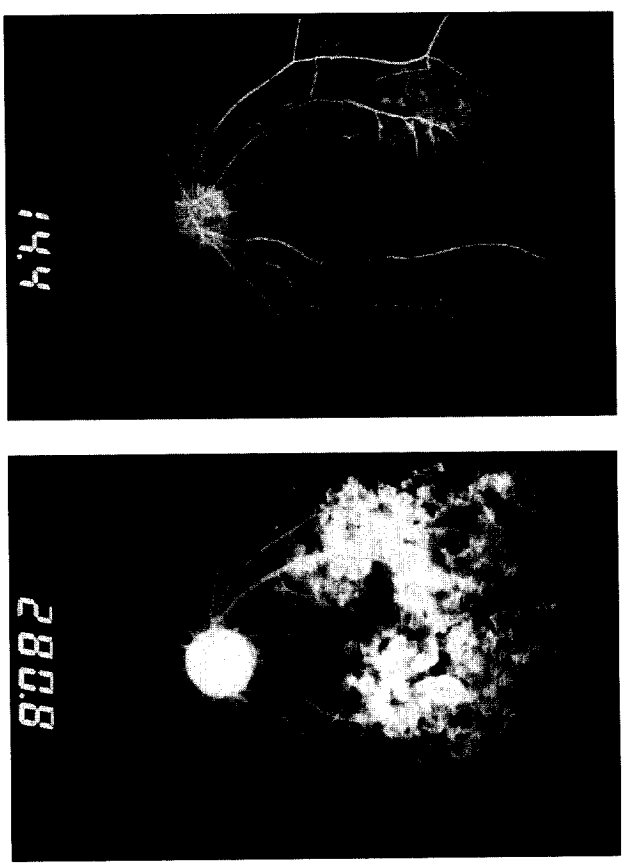

**Figure 2.** Fluorescein angiograms in the left eye on August 6, 1996. The lesions show (top) early hypofluorescence and (bottom) late hyperfluorescence.

autoantibodies to SS-A, SS-B, pANCA, and cANCA were all negative.

In September, the best-corrected visual acuity in the left eye returned to 20/20. The dose of prednisolone was tapered further to 15 mg/day. The patient developed a new choroidal lesion at the border of the previous ones in the inferior midperipheral fundus of the left eye in February 1997, and another new choroidal lesion isolated in the nasoinferior midperiphery in April. Indocyanine green angiography with a scanning laser ophthalmoscope demonstrated the obstruction of the choriocapillaris and the choroidal arteries in the lesion (Figure 5). The choroidal veins traveling through the lesion decreased in number and appeared to be filled irregularly. The dose of prednisolone was increased to 30 mg/day, which resulted in the subsidence of the lesions.

## Discussion

The clinical and fluorescein angiographic features in this patient were consistent with those described previously for geographic choroiditis.[1–4] In addition, indocyanine green angiography showed obstruction of both choriocapillaris and choroidal arteries in the lesion. It should be noted that geographic choroiditis as well as retinal vasculitis initially developed in the course of rheumatoid arthritis with high activity, as evidenced by an elevated level of C-reactive protein. However, the following recurrences were not neces-

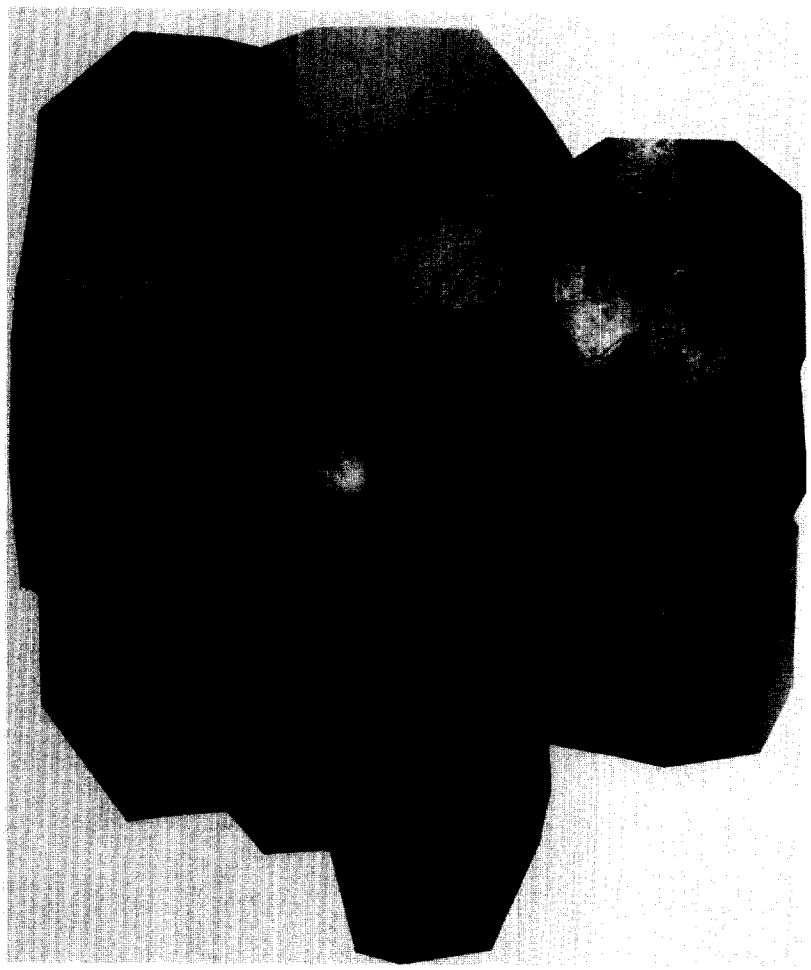

**Figure 3.** Montage of fundus photographs in the left eye on August 17, 1996. Note retinal periarteritis with hemorrhages (arrows) in the inferior fundus. A white spot near the upper arrow is an artifact.

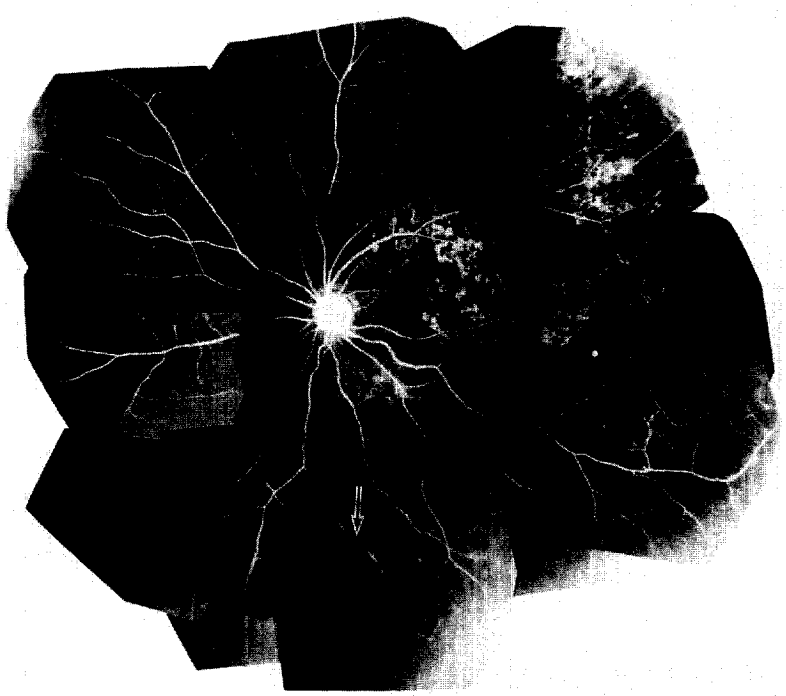

**Figure 4.** Montage of fluorescein angiograms in the left eye on August 6, 1996. Note retinal capillary leakage and obliterative retinal arteritis (arrow) as well as progressive enlargement of the choroidal lesion compared with that on April 4 (Figure 1).

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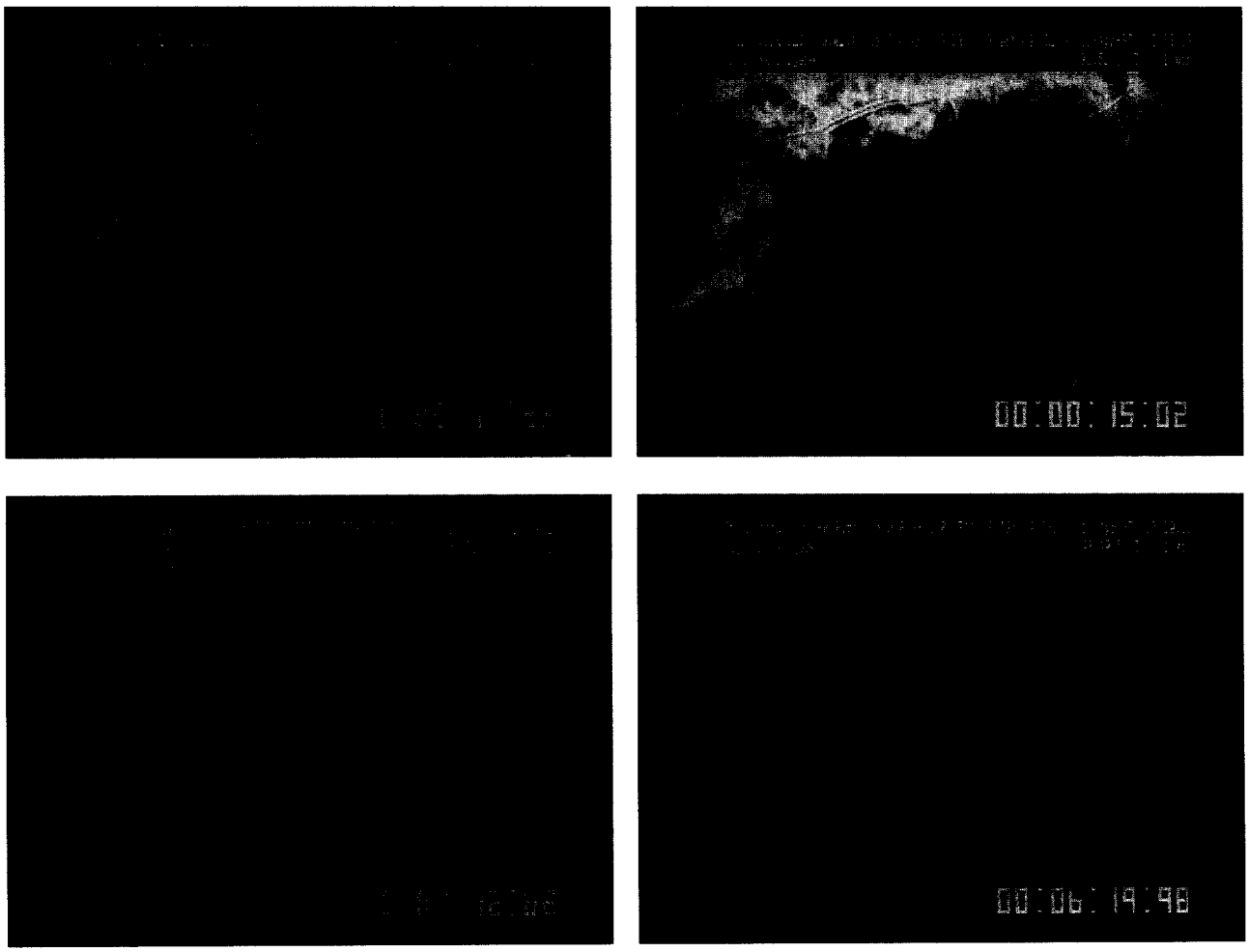


**Figure 5.** Indocynine green angiograms taken with a scanning laser ophthalmoscope in a fresh lesion of the nasoinferior fundus of the left eye on April 16, 1997. Note the absent filling of large choroidal arteries in the early phase (top left) in addition to the absence of veil-like fluorescence, indicative of obstruction of the choriocapillaris, from the early phase to the late phase. Choroidal veins are filled irregularly (top right and bottom left).

sarily associated with higher levels of C-reactive protein since the patient was placed on larger doses of prednisolone. The patient also showed such signs of systemic vasculitis as rheumatoid subcutaneous nodules, suggesting that retinal vasculitis and geographic choroiditis are part of manifestations of rheumatoid vasculitis. Retinal vasculitis, as seen in this patient, already has been reported to be complicated with rheumatoid arthritis.[6–9]

Geographic choroiditis reported so far has not been associated with any systemic manifestations and is considered to be caused by inflammatory obstruction of the choriocapillaris and some larger choroidal vessels.[1–4] This case supports the understanding that geographic choroiditis is indeed vasculitis in the choroid, and it also suggests that immunological abnormalities, either localized to the choroid or disseminated systemically as in rheumatoid arthritis, underlie its development.

## References

1. Schatz H, Maumenee AE, Patz A. Geographic helicoid peripapillary choroidopathy: Clinical presentation and fluorescein angiographic findings. Trans Am Acad Ophthalmol Otolaryngol 1974;78:747–61.
2. Laatikainen L, Erkkila H. Serpiginous choroiditis. Br J Ophthalmol 1974;58:777–83.
3. Hamilton AM, Bird AC. Geographical choroidopathy. Br J Ophthalmol 1974;58:784–97.
4. Weiss H, Annesley WH, Shields JA, Tomer T, Christopher-

son K. The clinical course of serpiginous choroidopathy. Am J Ophthalmol 1979;87:133–42.

5. Omoto K. Chronic choroiditis designated as chorioiditis geographica. Nippon Ganka Gakkai Zasshi (Acta Soc Ophthalmol Jpn) 1933;37:235–8.
6. Meyer E, Scharf J, Miller B, Zonis S, Nahir M. Fundus lesions in rheumatoid arthritis. Ann Ophthalmol 1978;10:1583–4.
7. Martin MFR, Scott DGI, Gilbert C, Dieppe PA, Easty DL. Retinal vasculitis in rheumatoid arthritis. Br Med J 1981;282: 1745–6.
8. Matsuo T, Koyama T, Morimoto N, Umezu H, Matsuo N. Retinal vasculitis as a complication of rheumatoid arthritis. Ophthalmologica 1990;201:196–200.
9. Giordano N, D'Ettorre M, Biasi G, Fioravanti A, Moretti L, Marcolongo R. Retinal vasculitis in rheumatoid arthritis: An angiographic study. Clin Exp Rheumatol 1990;8:121–5.