



Retinal Vasculitis Revealed by Fluorescein Angiography in Patients With Inflammatory Bowel Disease

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Abstract: Fluorescein angiography was performed to examine retinal vascular abnormalities in five consecutive patients with inflammatory bowel disease seen during the 2 years from April 1995 to March 1997, in a university hospital. All patients showed dye leakage from retinal capillaries in the peripheral fundi of both eyes. Other ocular findings included iritis in both eyes of two patients and clinically significant macular edema in the unilateral eye of one patient. This study indicates that subclinical retinal vasculitis, revealed only by fluorescein angiography, is present in patients with inflammatory bowel disease. **Jpn J Ophthalmol 1998;42:398–400** © 1998 Japanese Ophthalmological Society

Key Words: Crohn's disease, fluorescein angiography, inflammatory bowel disease, ulcerative colitis, retinal vasculitis.

Introduction

Crohn's disease and ulcerative colitis are comprised in one clinical entity called inflammatory bowel disease. A major ocular complication of inflammatory bowel disease is anterior uveitis.^{1–4} Its posterior segment manifestations do exist, although they are less common.⁵ Retinal vascular complications are one of the more frequent manifestations in the posterior segments,^{6–14} and include central and branch retinal vein occlusion, segmental retinal periarterial and perivenous sheathing, cilioretinal artery occlusion, and linear retinal periphlebitis with frosted branch appearance. Fluorescein angiography sometimes demonstrates capillary nonperfusion, cystoid macular edema, and leakage from the optic disc. In this study, we performed fluorescein angiography to determine the incidence of retinal vascular complications in patients with inflammatory bowel disease.

Patients and Methods

Included in this study were five consecutive patients with inflammatory bowel disease who were referred to the Department of Ophthalmology from the Department of Internal Medicine in Okayama University Hospital during a 2-year period from April 1995 to March 1997. Two patients were diagnosed as having Crohn's disease, and three patients as having ulcerative colitis, by histopathologic examination of specimens obtained in surgery or endoscopy (Table 1). The patients included four men and one woman, with the age on referral ranging from 22–54 years (mean: 32.4 years). The duration from the onset of inflammatory bowel disease to the time of ocular examination varied from 1–21 years (mean: 10 years). Informed consent was obtained from all patients after explanation of the procedures and purposes of this study. They underwent routine ophthalmologic examinations. Fluorescein angiography was done with a one-shot injection of 5 mL fluorescein (Alcon Laboratories, Fort Worth, TX, USA). Two patients also underwent scanning laser ophthalmoscope-assisted indocyanine green angiography with a bolus injection of 25 mg of Diagnogreen (Dai-ichi

Received: January 19, 1998

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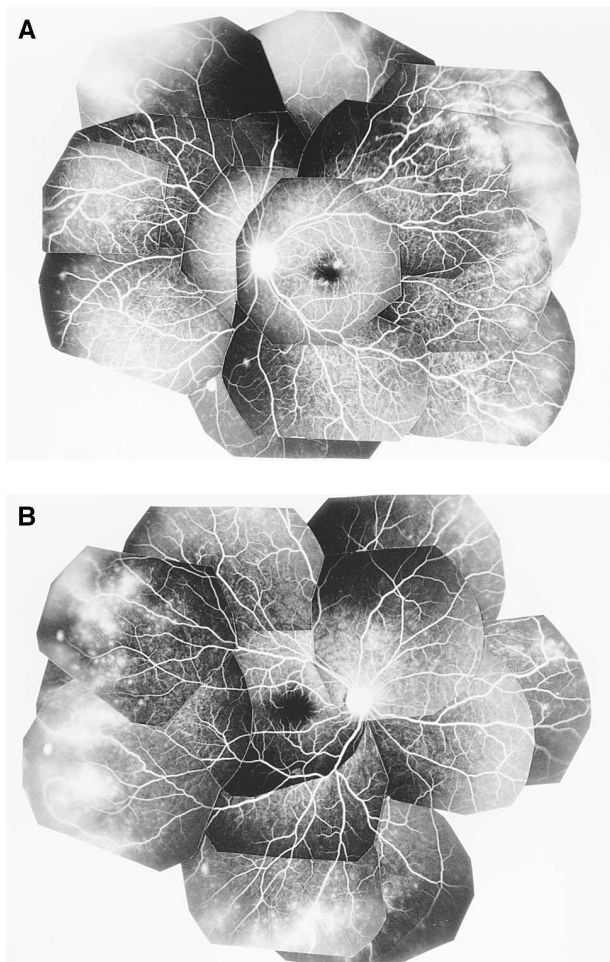


Figure 1. Montages of fluorescein angiograms in left eye (A) and right eye (B) of Case 1, showing leakage from optic disc and peripheral capillaries. Note leakage also from perifoveal capillaries in left eye.

Pharmaceuticals, Tokyo) dissolved in 1 mL water followed by a flush of 10 mL saline.

Results

All five patients showed fluorescein leakage from retinal capillaries in the peripheral fundi of both eyes (Figure 1), whereas one patient, in addition, showed segmental phlebitis in the peripheral fundi of both eyes (Figure 2). All patients also had leakage from the optic disc in both eyes. Other ocular findings (Table 1) were clinically significant macular edema in the right eye of one patient (Patient 4), a 1+ level of aqueous cells in both eyes of two patients (Patients 1 and 4), and a 1+ level of aqueous flare in the right eye of one patient (Patient 4). Perifoveal capillary leakage was found with fluorescein angiog-



Figure 2. Fluorescein angiogram in left eye of Case 2, showing peripheral segmental phlebitis.

raphy also in the left eye of Patient 1, who showed no clinically significant macular edema. The patients with aqueous cells had a tendency to show more extensive leakage from the peripheral retinal capillaries. Indocyanine green angiography demonstrated no choroidal abnormalities in Patients 2 and 3. The severity of fluorescein angiographic findings had no relationship with the duration of the disease (Table 1).

The best-corrected visual acuity was 1.2 or better in all eyes except for the right eye of Patient 4, with clinically significant macular edema. No patient had eye symptoms except Patient 4.

Discussion

All patients with inflammatory bowel disease examined in this study showed subtle leakage of fluorescein from the optic disc and retinal capillaritis, or segmental phlebitis in the peripheral fundi of both eyes in varying degrees. These changes could be detected only by fluorescein angiography, and not by funduscopy. Four patients were taking a daily low dose of prednisolone and two were taking salazosulfapyrine at the time of fluorescein angiography. The subtlety of retinal inflammation in these patients could be attributable to the ongoing treatment with prednisolone.

Retinal capillaritis, as observed in the present series of patients with inflammatory bowel disease, has been also described as a complication of acute tubulointerstitial nephritis.¹⁵ The same fluorescein angiographic manifestation of retinal capillaritis in the midperipheral to peripheral fundus occurs in juveniles without any systemic manifestations. We previ-

Table 1. Patient Data

Patient No./ Gender/Age/Eye	Type of Disease	Onset (Y)	Aqueous Cells	Aqueous Flare	Retinal Vasculitis	Other Findings	Visual Acuity	Medication
1/M/22/R	CD	2	1+	No	Capillaritis	No	1.5	Prednisolone
L			1+	No	Capillaritis	ME	1.5	
2/M/27/R	CD	11	No	No	Phlebitis	No	1.5	Salazosulfapyridine
L			No	No	Phlebitis	No	1.5	
3/M/22/R	UC	1	No	No	Capillaritis	No	1.2	Salazosulfapyridine
L			No	No	Capillaritis	No	1.5	
4/M/37/R	UC	15	1+	1+	Capillaritis	ME	0.4	Prednisolone
L			1+	No	Capillaritis	No	1.5	
5/F/54/R	UC	21	No	No	Capillaritis	No	1.2	Prednisolone
L			No	No	Capillaritis	No	1.2	

M: male, R: right, L: left, CD: Crohn's Disease, ME: macular edema, UC: ulcerative colitis, F: female.

Aqueous cells and flare were graded by slit-lamp biomicroscopic observation. Macular edema comprises that proved only with fluorescein angiography (Patient 1), in addition to clinically significant macular edema (Patient 4). Dose of prednisolone is 10 mg/day.

ously described this new entity of uveitis as bilateral iridocyclitis with retinal capillaritis (BIRC).¹⁶ Therefore, in patients with fluorescein leakage from the optic disc and retinal capillaries in the peripheral fundus, differential diagnosis should include acute tubulointerstitial nephritis, inflammatory bowel disease, and BIRC. Urinalysis, measurement of β -2-microglobulin in serum and urine, and stool examination for occult blood should be done as diagnostic procedures.

In conclusion, retinal capillaritis in the peripheral fundus is a frequent ocular complication of inflammatory bowel disease. Macular edema was found in the eyes with more extensive leakage from the retinal capillaries, suggesting that more severe retinal capillaritis may result in macular edema. The same immunologic abnormalities that occur in the bowel would underlie the development of retinal capillaritis. Fluorescein angiography is a useful procedure to detect the retinal inflammation in patients with inflammatory bowel disease.

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