If some of this fluid became trapped under redundant dysplastic tissue normally lining the anomalous wall, anterior displacement of this tissue could change the appearance of the optic nerve (Figure 2B) as we observed in our 3 patients. In a similar manner, following vitrectomy and fluid-gas exchange in the aforementioned 24-year-old woman, Johnson and Johnson photographically documented the presence of a gas bubble trapped under tissue overlaying the optic disc cavitation, which altered the optic nerve appearance. It is interesting that in our third patient, optic nerve changes were only seen in 1 eye. We suspect the constellation of histological features necessary for our observations is rarely present, perhaps further explaining why these findings have not been reported previously. Diagnostic technology like OCT might be helpful in confirming or refuting this hypothesis.

In summary, we present 3 patients with macular schisis and concomitant optic nerve changes. Though unproven, these changes could be the result of fluctuations in the pressure gradient between the subarachnoid space and the vitreous cavity. In particular, the simultaneous development of bilateral macular detachments in our third patient lends further evidence that systemic factors may play a role in the development of macular changes in patients with cavitary optic nerve anomalies. Clinicians should be aware that in cases of macular schisis in which an optic nerve excavation is not initially apparent, spontaneous resolution of the macular schisis is possible. Concurrent optic nerve changes should be sought and in some cases will reveal a ciliary anomaly. In the future, advances in imaging technology may allow further understanding of the pathophysiology in this unusual condition.

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Extensive Chorioretinitis and Severe Vision Loss Associated with West Nile Virus Meningoencephalitis

West Nile virus is an arthropod-borne flavivirus that was first documented to affect humans in the United States in August 1999. Since that time, the infection has spread across North America, with 9862 human cases reported in 2003 alone. The majority of patients with these infections are asymptomatic, but approximately 20% develop an acute febrile illness accompanied by malaise, headache, myalgia, arthralgia, skin rash, and gastrointestinal symptoms lasting less than 1 week. Advanced age and the presence of diabetes mellitus have been identified as risk factors for severe neuroinvasive disease, including meningitis and encephalitis.

The common intraocular manifestations of West Nile virus infection have been described in several recent articles. Bilateral, multifocal chorioretinitis with circular “target-like” lesions scattered in the mid-periphery and often arranged in a radial linear pattern has been a consistent feature. Other intraocular findings include mild iridocyclitis, viritis, occlusive retinal vasculitis, and optic disc edema. Although patients may suffer a significant decline in visual function initially, visual acuity
tends to recover to near-baseline levels, and chorioretinal involvement is typically not extensive. We report a case of severe, widespread bilateral chorioretinitis and profound permanent vision loss in association with West Nile virus infection.

**Report of a Case.** A 68-year-old female Illinois resident had a fever (38.9°C-39.5°C), clear nasal discharge, headache, myalgia, fatigue, and dry cough for several days. Medical history was significant for non–insulin-dependent diabetes mellitus, hypertension, congestive heart failure, and coronary artery disease. Chest radiography revealed left lower lobe atelectasis, prompting admission to the hospital for intravenous antibiotics. Blood and urine culture results were negative. On hospital day 5, the patient’s mental status deteriorated, and she required intubation. Computed tomography and magnetic resonance imaging of the head showed normal results. Cerebrospinal fluid examination revealed West Nile virus IgM antibodies in addition to pleocytosis and elevated protein and glucose levels. Study results for St Louis encephalitis and other infectious causes were negative.

After 1 week of supportive therapy, the patient was extubated. She was oriented to person and place only. Bedside ocular examination revealed bilateral light perception visual acuity. The pupils were equal and reactive to light without afferent defects. Penlight and ocular motility examination results were normal. Fundus examination revealed discrete, multifocal, atrophic chorioretinal lesions of variable sizes scattered randomly throughout the macula and midperiphery of each eye. The vitreous was grossly clear, and the optic discs were pink and flat. Several small intraretinal hemorrhages were observed in each eye.

The patient’s health improved over the subsequent 5 months, but the visual function remained unchanged. Magnetic resonance imaging revealed bilateral high-signal abnormalities in the deep frontal lobe white matter, which is consistent with prior encephalitis. Fundus examination and fluorescein angiography revealed extensive atrophic chorioretinal lesions throughout the macula and midperiphery of each eye, with mild segmental vascular leakage in the left eye (Figure). Ganzfeld electroretinography revealed a 50% reduction in rod responses, with cone re-

![ Composite fundus photograph of right eye (A) and left eye (B), 5 months following disease onset. Note the extensive atrophic chorioretinal lesions throughout the macula and midperiphery of each eye. C, Composite fluorescein angiogram of the left eye highlights atrophic lesions and shows mild leakage from vessels in the superior macular area. Widely scattered microaneurysms are likely related to mild nonproliferative diabetic retinopathy.](https://archophthalmol.com/articleattachments/1755/1755_01.jpg)
sponses of normal amplitude. Oscillatory potentials were reduced, and flicker responses were of marginal amplitude with a delayed time to peak.

Eight months after initially developing these symptoms, the patient’s mental status had returned to baseline. The visual acuity remained hand motions in the right eye and light perception in the left eye. The fundus appearance was unchanged.

Comment. The chorioretinal lesions seen in our patient are similar to, but much more extensive than, those described in previous articles.3,7 We presume that the severity of both the neurological and the chorioretinal involvement in our patient is associated with immune compromise related to senescence and diabetes mellitus. In contrast to our patient, previously described patients with ocular involvement by West Nile virus have suffered less initial visual loss and have usually enjoyed visual improvement during disease resolution.3,6 The severity of the visual loss in the present case is clearly related in part to the degree of chorioretinal damage seen clinically and angiographically. However, the mild to moderate changes in electroretinography responses do not support visual loss to the light-perception level. In the context of such profound visual loss, the electroretinography findings, reactive pupils, and healthy-appearing optic discs suggest that retinogeniculate damage is likely a contributing morbidity. Because routine magnetic resonance image scanning has failed to show structural damage in this area, functional magnetic resonance imaging studies are planned.

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Retinal Folds as Initial Manifestation of Orbital Lymphangioma

Orbital lymphangioma is a rare, benign tumor that typically develops in childhood as proptosis or an orbital mass. These highly vascularized lesions, which also contain various amounts of lymphoid tissue, may demonstrate an acute increase in size concomitant with a viral illness or spontaneous hemorrhage. In this report, we describe an unusual manifestation of orbital lymphangioma in which an acute decrease in vision was the sole complaint and retinal folds the initial objective clinical finding.

Report of a Case. A 15-year-old girl was referred for the evaluation of transient decreased vision in both eyes and persistent decreased vision in the right eye 1 week after being diagnosed as having mononucleosis. The patient was evaluated by an outside ophthalmologist who noted an acuity of 20/50 OD and 20/25 OS. A funduscopic examination of the right eye revealed a star-shaped wrinkling of the macula. She was referred to our clinic for the evaluation of an epiretinal membrane with cystoid macular edema.

On initial examination at our clinic, her uncorrected acuity was 20/80 OD and 20/20 OS. The refraction was +4.50 sphere yielding 20/20 OD and plano minus 0.75 at 135 yielding 20/20 OS. External and anterior segment examinations were normal in both eyes (Figure 1). Extra ocular movements were full. Contact lens biomicroscopy of the right eye revealed retinal folds radiating outward from the center of the macula (Figure 2). The left eye was normal. To evaluate for retinal edema, epiretinal membrane, or central serous retinopathy, fluorescein angiogram and optical coherence tomography evaluations were performed. The fluorescein angiogram transiting the right eye revealed retinal folds and rare chorioretinal folds in the macula with no evidence of leakage (Figure 3). Optical coherence tomography revealed chorioretinal folds in the right eye (Figure 4). No epiretinal membrane, macular edema, or serous retinopathy was present. To evaluate for posterior orbital masses, B-scan ultrasonography of the right eye was obtained. It demonstrated a flattened globe with a cystic, loculated mass in the retro-orbital space (Figure 5). An orbital computed tomographic scan with contrast demonstrated a heterogeneously enhanc-

Figure 1. Appearance of the external ocular adnexa on examination. No proptosis, mass, or other external evidence of the right orbital lymphangioma is seen.

Figure 2. Color fundus photograph of the right eye on initial examination showing retinal folds radiating from the center of the macula.