Bilateral Neuroretinitis With Peripapillary Serous Retinal Detachments in a Patient With HIV and HBV

To date, neuroretinitis with peripapillary serous retinal detachment has been described only in the setting of *Bartonella henselae* infection. We describe a patient with human immunodeficiency virus (HIV) and chronic hepatitis B (HBV) infection in whom bilateral neuroretinitis with peripapillary serous retinal detachments developed during acute immunocompromise. History, physical examination, and laboratory testing failed to detect *B. henselae* infection. As this presentation has never been described, to our knowledge, with either HIV or HBV infection alone, we postulate a synergistic viral effect in this case.

**Report of a Case.** A 42-year-old HIV-positive man was seen in October 2002 with a 2-week history of decreased visual acuity in both eyes. He was afebrile and denied having any systemic symptoms. There was no history of trauma. His medical history was remarkable for chronic asymptomatic HBV infection, chronic hypertension (blood pressure, 160/100 mm Hg), and shingles involving the left arm. He had been noncompliant with all of his medications, including antiretroviral therapy, for 8 months. He admitted to owning a cat 1 year before this initial examination, but denied having had any cat bites or scratches. Ophthalmic examination revealed best-corrected visual acuities of 20/200 OD and 20/400 OS. Pupils were equal and reactive to light, and a 3+ left relative afferent pupillary defect was present. Anterior segment examination and intraocular pressures were within normal limits in both eyes. Dilated fundus examination revealed bilateral nerve swelling with a peripapillary distribution of nerve fiber layer infarcts and hemorrhages. In addition, peripapillary serous retinal detachments were noted in both eyes (Figure 1). There was no retinochoroiditis or vitritis in either eye. Physical examination revealed bilateral peripapillary serous retinal detachments (arrowheads). Late angiographic views of the right (C) and left (D) eyes show optic disc leakage along with slow filling of the peripapillary detachment space.

**Figure 1.** Fundus views of the right (A) and left (B) eyes at the initial examination show a peripapillary distribution of nerve fiber layer infarcts and hemorrhages, along with bilateral peripapillary serous retinal detachments (arrowheads). Late angiographic views of the right (C) and left (D) eyes show optic disc leakage along with slow filling of the peripapillary detachment space.
nation revealed an otherwise healthy man. No cervical lymphadenopathy was present.

Complete blood cell count revealed mild pancytopenia, with a hemoglobin level of 106 g/L; platelet count, 112 × 10^9/L; and leukocyte count, 2.9 × 10^9/L. His HIV T-helper cell count (CD4) was 78/µL. Liver enzymes, bilirubin, alkaline phosphatase, and amylase levels were normal. Cytomegalovirus and Cryptococcus neoformans antigen detection assays were negative. Hepatitis B surface antigen and hepatitis B early antigen were positive, whereas anti–hepatitis B surface antigen, anti–hepatitis B core antigen, and anti–hepatitis B early antigen were negative. Serologically, this indicated active HBV replication. Chest x-ray films demonstrated slight fullness of the hila. A computed tomographic scan confirmed the presence of hilar, mediastinal, and supraclavicular lymphadenopathy. The results of rapid plasma reagin (RPR), microhemagglutination–Treponema pallidum (MHA-TP), and fluorescent treponemal antibody absorbance (FTA-ABS) tests were nonreactive. Skin testing for tuberculosis was also nonreactive. Serum angiotensin-converting enzyme values were normal. All of the following serologic tests yielded negative results: hepatitis A, hepatitis C, B henselae, and Borrelia burgdorferi. Serologic examination revealed evidence of previous exposure (IgG) without evidence of recent infection (IgM) with respect to Epstein-Barr virus, herpes simplex virus, varicella-zoster virus, and Toxoplasma gondii.

The initial impression was bilateral neuroretinitis caused by HIV and HBV. The following antiretroviral regimen was started: saquinavir mesylate, 400 mg; lamivudine, 150 mg; ritonavir, 400 mg; and stavudine, 40 mg, each given twice a day. Lamivudine is an antiviral agent effective against both HIV and HBV. Three weeks later the patient’s CD4 cell count had risen to 200/µL. His visual acuity had remained unchanged, but the serous retinal detachments had resolved somewhat, revealing a macular star in both eyes (Figure 2). In July 2003 his CD4 cell count was 163/µL. Best-corrected visual acuity was 20/20 OU, and a 1+ left relative afferent pupillary defect was present. His fundi showed mild residual pigment epithelial changes in both eyes (Figure 3).
Comment. Neuroretinitis is a clinical syndrome characterized by abrupt visual loss, optic nerve swelling, and a macular star exudate. It is usually unilateral. Originally referred to as “Leber’s idiopathic stellate neuroretinitis,” it is now known that this syndrome is caused by a variety of infectious causes. Since the advent of accurate serologic testing it has become recognized that *B henselae*, the causative agent of cat scratch disease, is the most common cause of neuroretinitis. In the setting of *B henselae* infection, neuroretinitis with peripapillary serous retinal detachment has previously been described, as well as bilateral neuroretinitis. To our knowledge, ours is the first report of bilateral neuroretinitis with bilateral peripapillary retinal detachments. This is also the first reported case of serous retinal detachment in neuroretinitis caused by an infectious agent other than *B henselae*. Serous retinal detachments in neuroretinitis are not specific to *B henselae* infection, but likely represent the severe form of a disease that can be caused by many different organisms.

Human immunodeficiency virus microangiopathy, characterized by retinal hemorrhages, cotton-wool spots, and microaneurysms, is the most common ophthalmic finding in HIV-positive patients. Hepatitis B virus has been listed as a suspected cause of neuroretinitis. In 1986 Farthing et al described a case of bilateral neuroretinitis in a homosexual patient with acute HBV infection who tested positive for HIV 1 year after the initial examination. It is possible that this patient was HIV-positive at the time of the initial examination, but serum testing for HIV (or human T-lymphocyte virus type III/lymphadenopathy–associated virus, as it was known then) at that time was not sensitive enough to detect the virus in the early stages of disease. Concurrent hepatitis C infection has been shown to have an additive effect on HIV retinal microangiopathy. We propose a similar synergistic effect between HIV and HBV in this case, mediated either through a coinfection mechanism or HIV-induced immunosuppression leading to enhanced HBV effect. That our patient’s condition resolved with treatment of HIV and HBV further supports this hypothesis.

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Paravascular Inner Retinal Cleavage in a Highly Myopic Eye

A 34-year-old Japanese woman suspected of having glaucoma by a local physician visited us for a consultation. The patient had not previously undergone intraocular surgery. Her corrected visual acuity was 20/20 OD with −9.5 diopter sphere (DS) and 20/20 OS with −9.0 DS. Her intraocular pressures were 11 mm Hg OD and 8 mm Hg OS. Color and red-free fundus photographs showed multiple, spindle-shaped retinal cleavages around blood vessels in both eyes. Small bundles of nerve fiber were seen passing across the cleavages, and the optic discs appeared normal (Figure 1). Optical coherence tomography showed a clear...