Retinal arterial plaques in acquired immunodeficiency syndrome

Pradeep Venkatesh, Harish Pathak, Satpal Garg
Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi, India

Abstract

The authors report the unusual observation of discrete plaque-like excrescencies along the retinal arterial wall in a young patient with acquired immunodeficiency syndrome. Though bilateral, in the right eye there was severe arteriolar narrowing and so these plaques were less identifiable. Fluorescein angiography did not reveal any arteriolar occlusion or areas of capillary occlusion in both eyes. There were no other signs of HIV-associated microangiopathy and the patient did not have any concurrent cardiovascular or hematological abnormality. The cause of these plaques remains unexplained and we conjecture that they could represent macroimmune-complex deposition along the arteriolar walls.

Introduction

In Acquired Immunodeficiency Syndrome (AIDS), ocular manifestations have been reported to occur in up to 100% of patients and less commonly in patients with earlier, symptomatic HIV (Human Immunodeficiency Virus) infection.\(^1\) Retinal manifestations include non-infectious and infectious retinopathy. Noninfectious retinopathy refers to cotton-wool spots, retinal hemorrhages, and microvascular abnormalities that do not progress, enlarge, or cause visual symptoms.\(^2\) We herein report a case of a patient with acquired immunodeficiency syndrome who presented retinal arterial plaques in both eyes. To the best of our knowledge such an occurrence has not been reported earlier in literature.

Case Report

A 32-year-old female with a history of chronic diarrhoea, oral candidiasis and HIV seropositivity was examined in the medical ophthalmology services at our centre with complaint of decreased vision in both eyes of two months duration. Her best corrected visual acuity was 6/60 and 6/12 in the right and left eye respectively. Slit lamp biomicroscopy of the anterior segment was normal in both eyes. On ophthalmoscopic examination, ocular media in both eyes was clear. In the right eye there was diffuse pallor of the optic nerve head and generalized attenuation of the retinal arterioles (Figure 1A). In the left eye, optic nerve head and retinal arteriolar caliber was normal. Also, in both eyes, there were multiple, discrete, dirty white and slightly elongated plaques along the retinal arteriolar wall. These plaques were predominantly situated in the initial ramifications of the central retinal artery and more clearly evident in the left eye (Figures 1B and 1C). The only abnormality evident on fluorescein angiography was narrowing of the retinal arterioles in the right eye (Figure 1D). On systemic examination patient had molluscum contagiosum of the face and oral candidiasis. There was no lymphadenopathy and hepatosplenomegaly. Cardiology evaluation including carotid doppler and echocardiogram did not reveal any abnormality. Hemogram, fasting blood sugar and blood pressure was normal. Serum ELISA for HIV was positive and VDRL was nonreactive. The CD4 count was 327/μL. At presentation to us, the patient was on treatment with oral Zidovudine 200 mg twice daily and oral Lamivudine 150 mg twice daily.

Discussion

Two forms of retinal involvement have been described in acquired immunodeficiency syndrome, non-infectious and infectious retinopa-
Non-infectious retinopathy is characterized by the presence of cotton-wool spots, retinal hemorrhages and microvascular abnormalities. Cotton-wool spots are considered as the most common manifestation of non-infectious HIV retinopathy and are reported to occur in 50% of patients with AIDS. In the patient described here, there were multiple, dull white, slightly elongated lesions along several arteriolar branches in both eyes. In the right eye there was associated generalized narrowing of the entire retinal arterial tree and diffuse disc pallor indicating possible decreased retinal blood flow. In literature, correlation between the number of cotton-wool spots and decreased cerebral blood flow has been reported earlier in patients with symptomatic HIV infection. However no cotton-wool spots were evident in our patient and the only manifestation was the presence of the arterial plaques. These plaques may have probably resulted in arteriolar narrowing and decreased retinal blood flow in the right eye. Although the left eye did not show significant arterial narrowing despite the presence of the plaques, it is possible that the same may occur over time. As patient was lost to follow up we could not identify the natural course in the left eye.

Kyereileis plaques seen in toxoplasmosis was also considered but this patient had no other evidence of ocular toxoplasma infection.

One report has indicated that there is a 1.3% risk of non-infectious retinal vascular occlusion in patients infected with HIV. In this study the authors found central retinal vein occlusion to be the most common with a very low possibility of arteriolar occlusion (in about 3%). The retinal arteriolar plaques seen in our patient, clinically seems like platelet fibrin emboli, which are known to cause branch retinal artery or central retinal artery occlusion. These plaques however did not cause any obstruction of dye passage on fluorescein angiography. In our patient however, cardiology evaluation was found to be normal. In particular, there was no evidence of carotid atheromas, acute mitral valve insufficiency or thrombocytopenia that is usually seen in patients with platelet fibrin emboli. It has been suggested that the cause for cotton-wool spots in AIDS patients could be deposition of immune complexes in the retinal blood vessels. We presume that the plaques seen in our patient are probably a manifestation of such immune-complex deposition. Despite a computerized search using MEDLINE, we could not find any previous reports of the association of retinal arteriolar plaques in a patient with acquired immunodeficiency syndrome. One limitation of this report is that we were unable determine if these plaques were transient or permanent as patient did not return for longer term follow up.

References