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Case Report

Retino-choroidal ischemia in central retinal vein occlusion

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Abstract

A 41-year-old gentleman with insulin dependent diabetes had decreased vision in the right eye due to non-ischemic central retinal vein occlusion with macular edema. One month following intravitreal ranibizumab, he developed retino-choroidal ischemia with further loss of vision. Authors show the fluorescein angiographic transition from non-ischemic central retinal vein occlusion to retino-choroidal ischemia.

Keywords: Central retinal vein occlusion, Macular edema, Retinochoroidal ischemia

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Introduction

The common causes for visual decrease in central retinal vein occlusion are macular edema, macular ischemia and vitreous hemorrhage. Early treatment may be required to improve vision in macular edema before irreversible photoreceptor damage occurs. Retinal vein occlusion is associated with varying amounts of retinal ischemia or macular edema that results in the expression of vascular endothelial growth factor (VEGF). Various reports and short-term studies in the literature have shown that intravitreal bevacizumab and ranibizumab are effective and safe in the treatment of macular edema secondary to retinal vein occlusion.[1,2]

We report a case of central retinal vein occlusion with macular edema that developed retino-choroidal ischemia following intravitreal ranibizumab.

Case report

A 41-year-old gentleman came with complaints of decreased vision in the right eye since 2 weeks. He gave history of undergoing Laser-Assisted *in situ* Keratomileusis (LASIK) in both eyes 6 years ago. He is a known diabetic since 5 years on conventional insulin therapy. On examination, his visual acuity was 0.2^{+2} in the right eye and 1.0^{-3} in the left eye. Anterior segment examination was unremarkable and there was no afferent pupillary defect in both eyes. Intraocular pressure was 16 mmHg in both eyes. Dilated fundus examination showed clear ocular media in both eyes and the left eye was unremarkable. Right eye showed scattered blot retinal hemorrhages, tortuous and congested venules with cystoid macular edema. Disk showed cup disk ration (CDR) 0.3 with healthy neuroretinal rim in both eyes. A diagnosis of central retinal vein occlusion with cystoid macular edema in the right eye was made.

His lab test showed erythrocyte sedimentation rate (ESR) 08 mm/hr, HbA1c 10.6%, serum homocysteine 10.28 micromol/L, slight increase in total cholesterol (5.57 micromol/L) and low density lipoproteins (LDL) cholesterol (3.63 micromol/L). He was referred to the endocrinologist for management. Fundus fluorescein angiography (FFA) and optical coherence tomography (OCT) were done. The right eye FFA showed delayed venous filling with dilated and tortuous venules. Late phase showed pooling of dye in petalloid

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pattern around the fovea with late perivenous staining (Fig. 1). The left eye showed normal study. OCT of the right eye showed elevated foveal contour with extensive intraretinal cystic changes and serous foveal detachment. The central macular thickness was 592 microns and foveal thickness was 619 microns in the right eye. Based on this evaluation, he was diagnosed to have non-ischemic central retinal vein occlusion with cystoid macular edema in the right eye.

Three weeks after the control of diabetes, he underwent intravitreal ranibizumab (0.5 mg) in the right eye. Post-injection period was uneventful. One month later, he came with complaints of decreased vision in the right eye since 10 days. His visual acuity was 0.1 in the right eye and 1.0 in the left eye. Anterior segment examination was unremarkable in both eyes. Intraocular pressure was 16 mmHg in the right eye and 15 mmHg in the left eye. Dilated fundus examination showed attached retina, scattered retinal hemorrhage and an area of outer retinal opacification was seen in the macula involving the fovea (Fig. 2). No gross macular thickening was observed. An impression of resolved CRVO and acute branch retinal artery occlusion or possible choroidal ischemia was made in the right eye. He was advised FFA, OCT and advised cardiological opinion. He underwent FFA, which showed macular infarct with whole of temporal retina showing lack of arteriolar and venular perfusion as well as choroidal non-filling of dye suggestive of both outer retina-choroid and inner retinal ischemia in the right eye. The retinal arterioles appeared straightened and attenuated. The venular filling was differential between the nasal and temporal side of the retina across the optic disk (Fig. 3). Left eye angiographic phases were all within normal limits. OCT showed widening of foveal contour and intraretinal edema was evident. An impression of retino-choridal ischemia was made. His cardiological evaluation was normal and he was put on aspirin, lipitor and continued on antidiabetic treatment.

Figure 2. Color fundus photograph of the right eye showing scattered retinal hemorrhage and an area of outer retinal opacification in the macula involving the temporal horizontal raphe and inferior fovea.

Three months later, his visual acuity was counting fingers 1.5 meters in the right eye. The fundus examination was same as before.

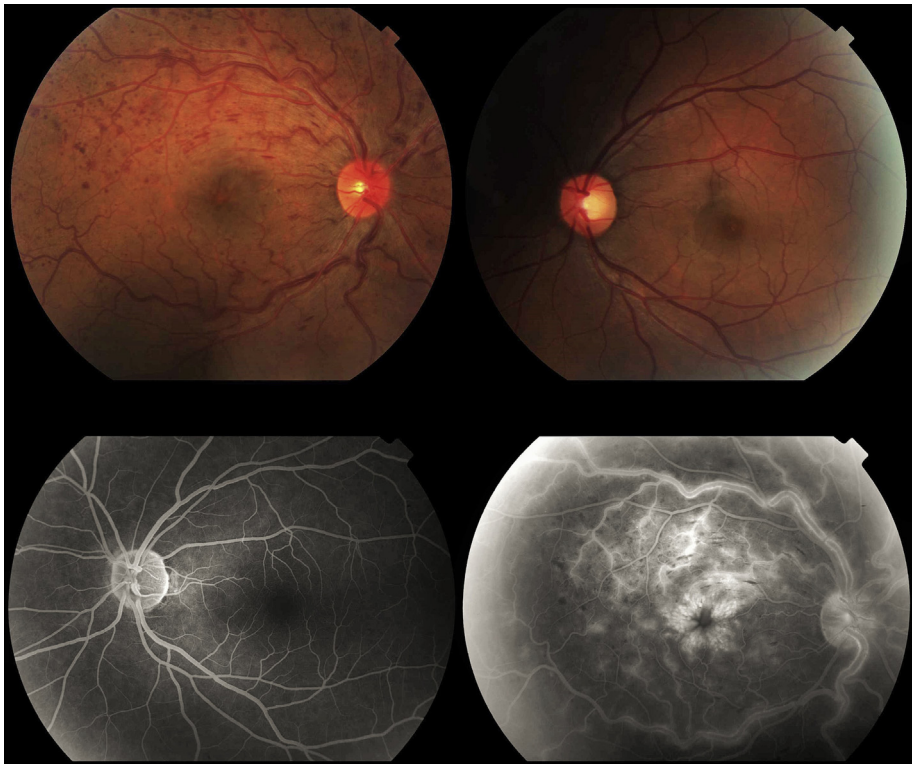

Figure 1. Color photograph of the right eye showing scattered retinal hemorrhages, tortuous vessels and cystoid macular edema (Top left) and the left eye showed normal finding (Top right). FFA of the left eye showed normal angiographic features (Bottom left) and late phase FFA of the right eye showed disk staining, perivenous staining, tortuous vessels and typical petalloid appearance of the macula suggestive of cystoid macular edema (Bottom right).