

Unilateral Serous Macular Detachment in a Young Hypertensive Patient

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Abstract

Malignant hypertension is an uncommon cause of serous macula detachment. We report a case of a 27-year-old gentleman who presented with unilateral macula detachment. His blood pressure was increased during presentation. His renal profile was elevated suggestive of stage 5 chronic kidney disease. The ultrasound confirmed renal parenchymal disease with hydronephrosis. His blood pressure was stabilized and macula detachment resolved. Early diagnosis and treatment is mandatory. It is essential to highlight this alarming presentation in a young adult as it is an indicator of the ophthalmologic morbidity associated with systemic disease. The outcome is good if treated successfully.

Keywords: Serous Macula Detachment; Malignant Hypertension; Chronic Kidney Disease; Young Hypertensive

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Introduction

Bilateral optic disc swelling and serous retinal detachment are commonly seen in malignant hypertension, especially those with history of preeclampsia and eclampsia. Presence of serous retinal detachment of the macula may suggest an accelerated hypertensive crisis. We report a rare occurrence of unilateral serous macula detachment in a young adult who was subsequently diagnosed with malignant hypertension with stage 5 chronic kidney disease.

Case Report

A 27-year-old male with no co-morbidities presented with sudden onset of blurring of vision of the right eye for two days and headache that progressively worsened over one month. He had no associated symptoms such as eye pain, recurrent redness, floaters or diplopia. He denied nausea, vomiting, limb weakness, seizures or altered level of consciousness. There was no history of blindness or similar ocular problems among his family members.

On examination, his best corrected visual acuity was 6/24 on right eye and 6/6 on left eye respectively. There was no relative afferent pupillary defect. Examinations of anterior segment in both eyes were essentially normal. Fundoscopy showed bilateral peripapillary cotton-wool spots, narrowing of the arterioles and intraretinal hemorrhages (Figure 1A and B) with a well-localized serous macula detachment on the right eye. The optical coherence tomography (OCT) of the right eye confirmed a localized retinal detachment with disruption of external limiting membrane, outer and inner segment junction, while the scan was normal in the left eye (Figure 2A and B).

Central nervous system examinations including examination of the other cranial nerves were normal. His blood pressure on admission was 180/120 mmHg. Baseline laboratory tests revealed hemoglobin of 9.5g/dL, urea of 28.8 mmol/L, creatinine of 1259 mmol/L, parathyroid hormone of 60.8pmol/L, Erythrocyte Sedimentation Rate of 13mm/hour. Anti Nuclear Antibody levels were negative and Venereal Research Disease Laboratory test was also negative. Complement 3/Complement 4 levels were within normal range. Ultrasonography showed renal parenchymal disease with hydronephrosis. The patient declined a renal biopsy.

A diagnosis of unilateral serous macula detachment due to malignant hypertension with stage 5 chronic kidney disease was made. He was started on two oral antihypertensive medications (metoprolol succinate and amlodipine besylate), which subsequently resulted in improvement in blood pressure recordings. His vision improved to 6/12 with pinhole on the right eye after two weeks. He is undergoing regular hemodialysis. His latest creatinine was 717 mmol/L, and he is planned for renal transplant.

His best corrected vision on the right eye at six weeks of follow up was 6/9 with resolving cotton wool spots and serous detachment of the macula (Figure 1C and D). Blood pressure remained stable with systolic blood pressure ranging from 120mmHg to 140mmHg and diastolic blood pressure of 80mmHg to 90 mmHg with two oral antihypertensive medications.

Discussion

A few studies have recently showed the rising incidence of young hypertensive in both developing and developed countries [1, 2]. It is postulated that one in five young adults between the ages of 24 and 32 have high blood pressure [1]. They are usually asymptomatic, except when complications develop in the end organs. There has been few reported case of eye complications in young hypertensive patients [3-6]. These include retinal vein occlusion [3], retinal arterial macroaneurysm [4], anterior ischemic optic neuropathy [5] and papillophlebitis [6]. Serous detachment of the macula is a rare complication in young hypertensive patients [7, 8].

The exact pathophysiology of serous detachment of the macula in hypertension is not known. It was postulated that accelerated blood pressure causes choroidal ischemia and necrosis of retinal pigmented epithelium (RPE), resulting in serous retinal detachment, with some additional attribution from breakdown of inner blood retinal barrier [9]. Kishi et al. reported in their animal study that acute ischemia played an important role by causing constriction of choroidal arterioles, leading to focal necrosis of choriocapillaries and RPE [10].

Bilateral serous retinal detachment of the macula is common in pregnancy induced hypertension especially in pre-eclampsia and eclampsia [11]. However, it is very rare in non-pregnancy state and often reported as bilateral symmetrical serous

retinal detachment of the macula. Etiology of unilateral serous macula detachment is unclear in our patient. We postulate that there is an increase in perfusion pressure on the right eye causing choroidal vasculature damage and RPE necrosis which leads to unilateral serous retinal detachment. Shukla et al. reported an interesting observation from their cross sectional study; 14 patients were found to have serous retinal detachment of the macula; 4 of them developed asymmetric fundus changes and 10 patients developed bilateral symmetrical retinopathy [12]. They reported that serous macula detachment predicted malignant hypertension more persistently than papilloedema. Thus, localized serous retinal detachment of macula might serve as an indicator of malignant hypertension [12].

An OCT finding of serous macula detachment in malignant hypertension is different from other diseases. Our patient displayed localized retinal detachment with disruption of external limiting membrane and outer and inner segment junction, which is a typical finding in malignant hypertension and consistent with findings of Xiao-Qiang et al. [13].

In contrast, Lee et al. reported OCT findings of 15 patients with rhegmatogenous retinal detachment. Findings revealed intraretinal cyst formation (67%), intraretinal separation (60%), and undulation of outer detached retina (40%) with height of macular detachment of 290 ± 153 micron. In comparison, 21 of their patients with central serous chorioretinopathy showed higher height of macular detachment of 310 ± 141 micron with no other fundus changes [14]. In addition, subretinal fluid accumulation with retinal pigment epithelium hypertrophy and fibrosis were noted during OCT assessment in Vogt-Koyanagi-Harada by Parc et al. [15].

Consistent with the findings of Shukla et al., our patient had a localized serous detachment of the macula secondary to malignant hypertension with end stage renal failure. His blood urea and creatinine levels were elevated. The ultrasonography showed right parenchymal disease with hydronephrosis. After antihypertensive therapy, there was improvement in visual acuity, normalization of blood pressure and reduced serous detachment in posterior pole. This suggests that prompt management and treatment of this condition is mandatory.

In conclusion, this case emphasizes on the role of the ophthalmologist in the diagnosis of atypical presentations of hypertension, especially in young patients. Presence of serous macula detachment is suggestive of malignant hypertension. Thus, systemic work-up is indicated to detect possibility of end organ failure. Early diagnosis is extremely important to prevent devastating visual loss associated with ophthalmic complications of malignant hypertension.

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Figure 1. Fundus photographs (A, peripapillary cotton-wool spots, narrowing of the arteriole and intraretinal hemorrhages with a well-localized serous retinal detachment of the macula on the right eye; B, peripapillary cotton-wool spots, narrowing of the arterioles and intraretinal hemorrhages on the left eye; C, resolving cotton wool spots, intraretinal hemorrhages and right serous retinal detachment of the macula on the right eye; D, resolving cotton wool spots and intraretinal hemorrhages on the left eye).

Figure 1A



Figure 1B

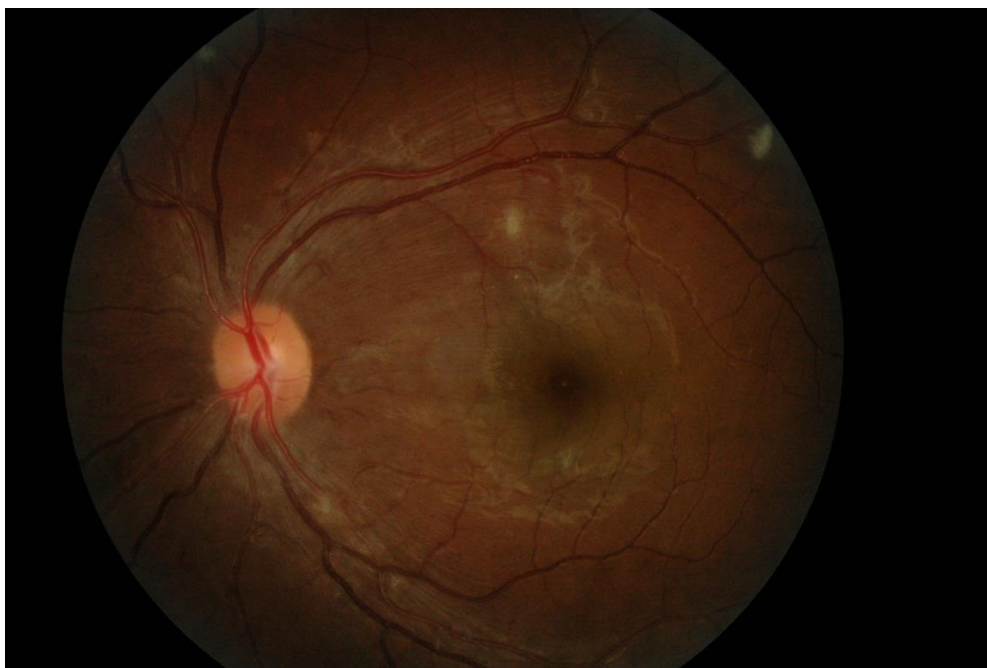


Figure 1C



Figure 1D

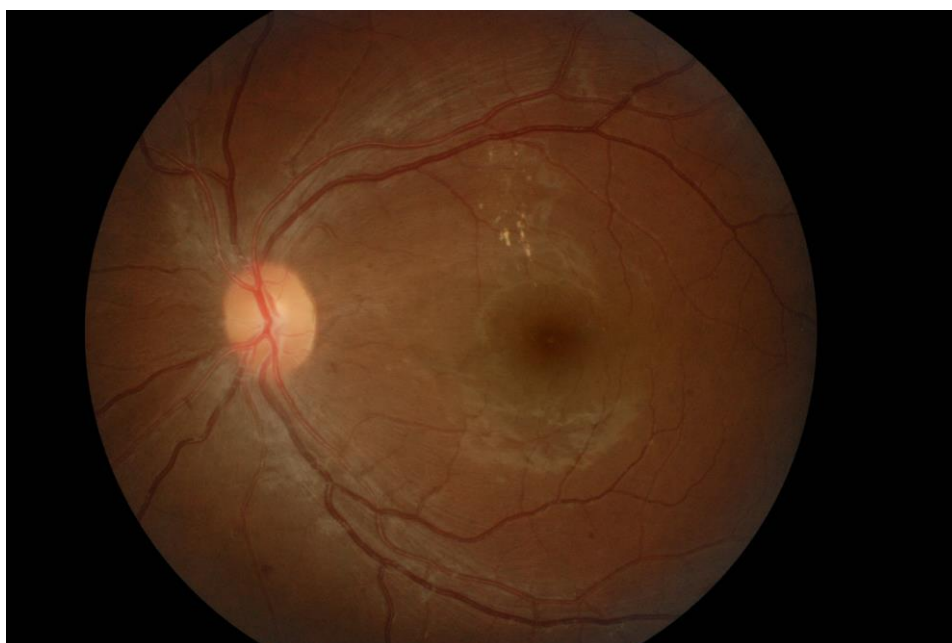


Figure 2. OCT images (A. localized retinal detachment with disruption of external limiting membrane, outer and inner segment junction on the right eye; B. normal findings on the left eye).

Figure 2A

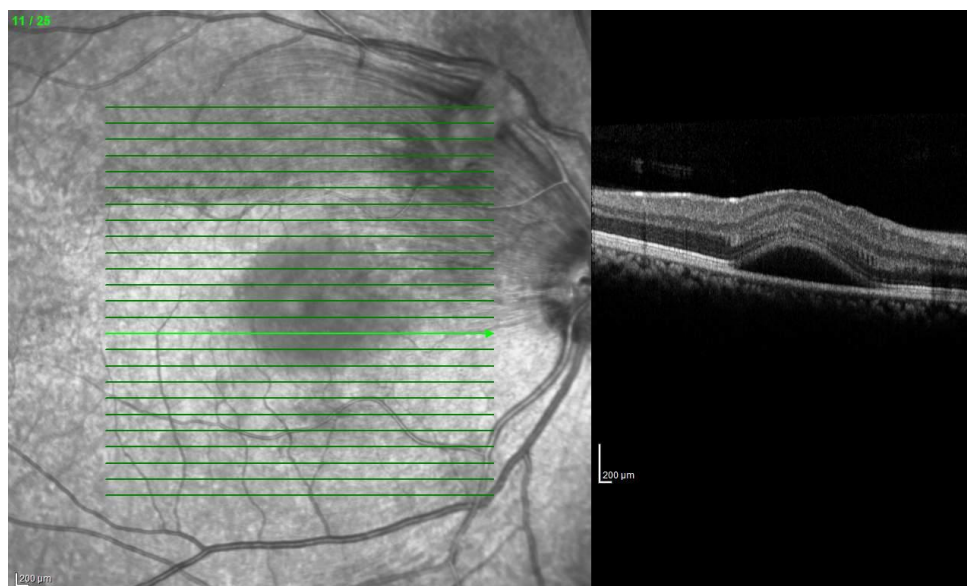


Figure 2B

