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Hypertensive Chorioretinopathy Revealinga Renal Failure

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Abstract **Case Report**

A 30-year-old man presented with rapidly progressive bilateral visual loss. Fundus examination revealed grade IV hypertensive retinopathy with optic disc edema, macular star, cotton-wool spots, retinal hemorrhages, and serous retinal detachment. Fluorescein angiography demonstrated delayed choroidal and retinal perfusion with areas of capillary nonperfusion. Systemic evaluation showed malignant hypertension (210/150 mmHg) associated with renal insufficiency. Further nephrological investigations established renal failure secondary to pyelocaliceal junction syndrome. Following blood pressure control and hemodialysis, visual acuity improved and retinal lesions partially regressed.

Keywords: Hypertensive chorioretinopathy - optic nerve swelling -kidney deseas.

INTRODUCTION

Hypertension serves as a risk factor for numerous systemic conditions that lead to significant morbidity and mortality. According to the World Health Organization, hypertension is characterized by a systolic blood pressure exceeding 140 mmHg and/or a diastolic blood pressure exceeding 90 mmHg. In vivo, the eye is the only organ where vascular alterations induced by systemic hypertension can be observed. Hypertensive chorioretinopathy can be the sign of a vital hypertensive emergency, caused by a severe increase in blood pressure that can induce acute end-organ damage. Associations between retinopathy and kidney disease have been previously described.

CASE PRESENTATION

A 30 - year - old man presented to our department complaining of reduced visual acuity in both eyes, which has progressively deteriorated over the past four days. His past ocular history was unremarkable. On the initial examination, the best corrected visual acuity (BCVA) was 01/10 in the right eye (OD) and 04/10 in the left eye (OS). Slit lamp biomicroscopy revealed a normal anterior segment. Intraocular pressure (IOP) was 14 mmHg in the OD and 16 in the OS. Fundoscopic examination showed grade IV of Keith-Wagener-Barker classification: optic nerve swelling with stellate macular edema, cotton-wool spots and patchy hemorrhages in all 4 quadrants in both eyes. Bonnet's sign in the superior temporal vein of the left eye. Fluorescein angiography showed patchyand delayed choroidal filling, and severely delayed retinalarterial filling with areas of retinal capillary nonperfusion. Elschnig spots appear as areas of early hyperfluorescence with late subretinal leakage. Opticdisc leakage and blockage from cotton wool spots and intra-retinal hemorrhage there were no signs of retinal vasculitis. Optical coherence tomography (OCT) demonstrated thinning of the inner retina and serous retinal detachement most prominent in the right eye. On general check-up, the patient was in hypertensive crisis, his blood pressure was 210/150 mm Hg, biological test, notably renal, revealed renal insufficiency, The patient remained under nephrology care, receiving hemodialysis sessions. After investigation, the diagnosis of renal failure secondary to pylocalicular junction syndrome was made. In summary, the patient presented hypertensive retinopathy following malignant hypertension secondary to kidney disease. The patient was evaluated every 48 hours in our department for possible deterioration. His BCVA after blood pressure normalization improved from 1/10 to 4/10 at the right eye, and from 1/10 to 2/10. Fluorescein angiography showed reperfusion of the choriocapillaris after initiation of antihypertensive treatment These serous retinal detachments improved after medical management of hypertension on the macular OCT.

Images:

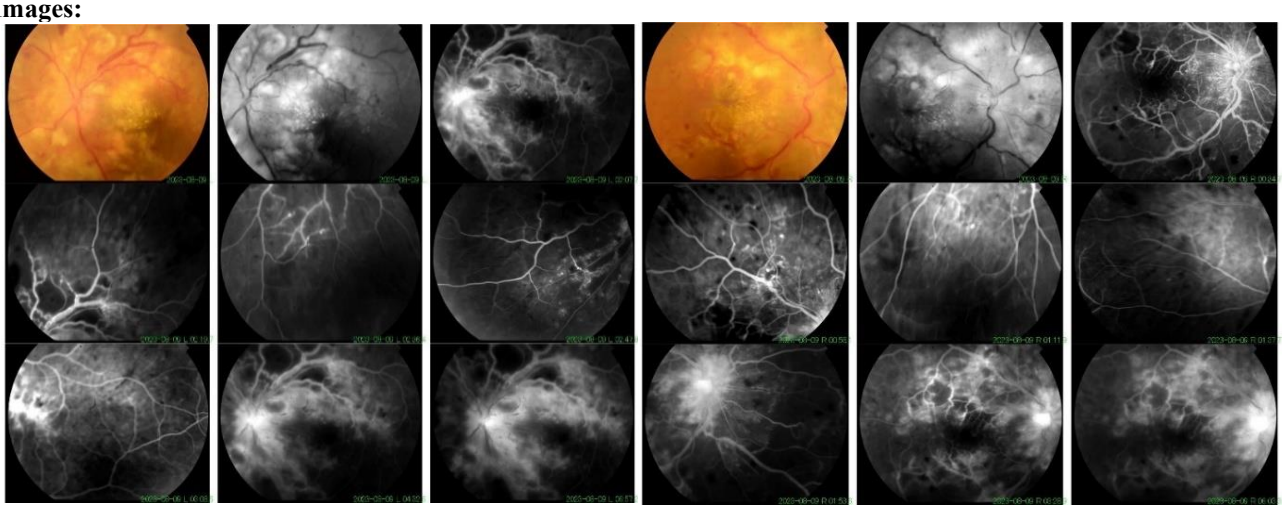

Figure 1- 2: Fundus photography and fluorescein angiography showed grade IV hypertensive retinopathy with peripapillary ischemia in the nasal quadrant in both eyes

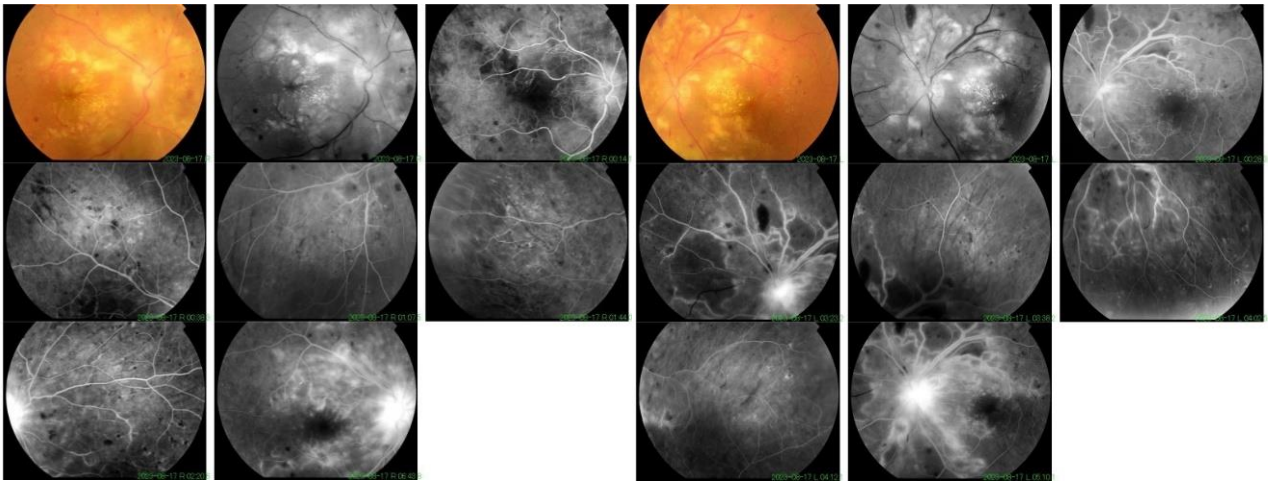

Figure 3- 4: Fundus photography and fluorescein angiography shows a decrease in papillary edema with almost complete repermiabilization in the right eye and a stationary aspect of ischemia in the left eye

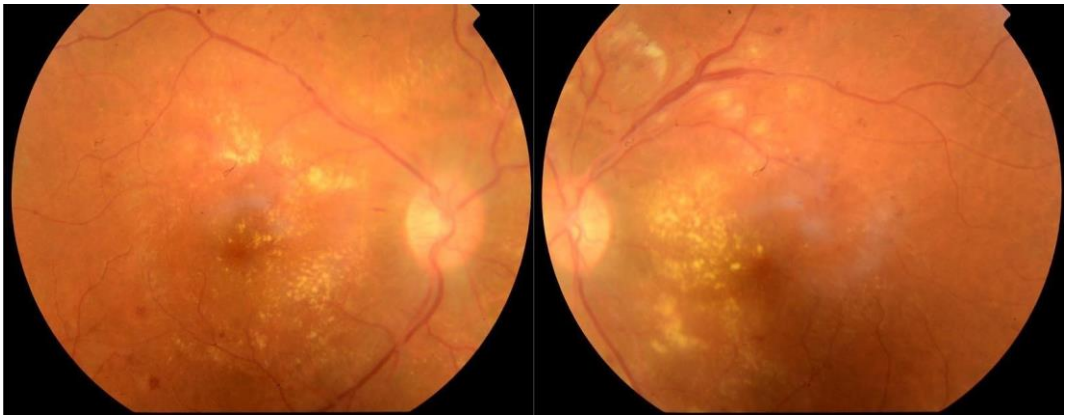

Figure 5: The final fundus photography after normalization of blood pressur

DISCUSSION

Malignant hypertension results from poorly treated or untreated hypertension. It affects young adults, with multivisceral complications dominated in our context by end-stage renal disease (ESRD). Hence the importance of early diagnosis and appropriate management of all forms of hypertension [1,2]. It frequently leads to swelling in both optic nerves. Typical indicators encompass bleeding around the optic nerve, cotton-wool spots, and either fluid build-up or detachment in the macula. Swelling of the optic disk occurs due to hindered axoplasmic flow caused by

inadequate blood supply from the choroid, leading to optic nerve ischemia, this corresponds to stages III and IV of Keith and Wegener's classification [3,4], or severe hypertensive retinopathy according to Wong and Mitchell Classification [4,5]

Hypertensive chorioretinopathy is seen more commonly in younger patients with acute elevations in blood pressure and is associated with a poor prognosis if left untreated. It has been reported in conditions such as malignant hypertension [6] pre-eclampsia [7] eclampsia [8]acute or chronic renal failure [9] renal artery stenosis [2,10] These conditions, are all medical emergencies that require immediate treatment [4]

The sudden loss of vision could potentially serve as the initial indicator of advanced chronic kidney disease, as outlined by Pociej-Marciak *et al.,* in a case involving a 25-year-old patient diagnosed with hypertensive retinopathy and choroidopathy stemming from a hypertensive crisis. Following urgent diagnostic measures, the patient was identified as having chronic kidney disease at stage 5 of the chronic glomerulonephritis progression.[9]

Cyrus Golshani reported a case of proliferative hypertensive retinopathy but her BCVA didn't improve despit a normalization of her blood pressur [11]. However, in contrast to our case, their case was more progressive

CONCLUSION

Chronic kidney desease is reported to be essociated with other ilnesses including eyes desease. In the event of hyepertensive crisis, blood pressur should be normlized to age-appropriate levels at the same time a complete examinination including fundoscopy should be performed in order to that required an urgent treatement to avoid complications.

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