Retinal Manifestations in Cardiovascular Diseases

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The human eye is unique in the sense that it is the only place where the blood vessels and optic nerve can be seen. Examination of the vessels and optic nerve can give a clue to an underlying systemic disorder; Hence it is rightly said that the eye is the window to the body. Like other systems, cardiovascular diseases also have an impact on the eye.

Below we present the fundus pictures of some patients, examination of whom gave us a clue that they had an underlying cardiovascular disorder.

Grade 4 hypertensive retinopathy with macular fan appearance in a 45 year old male who presented with severe headache.(Fig 1 a,b). On evaluation patient was found to have systemic hypertension.
Arterial attenuation with AV crossing changes and Hollenhorst plaque seen in the inferotemporal artery in this 60 year old hypertensive male who was admitted for CAD. (Fig 2 a,b)

Bilateral exudative retinal detachments seen in a 30 year pregnant old female who was diagnosed with PIH and presented with sudden onset visual loss in third trimester. (Fig 3 a and 3 b) The exudative detachments subsided and vision returned to normal after emergency caesarian section.

30 year old gentleman, with diagnosed malignant hypertension presented with acute severe decrease in vision in the left eye. Fundus examination showed disc edema in the left eye suggestive of hypertensive ischemic optic neuropathy. FFA showed disc leakage. (Fig 5 a, b, c, d)

Focal arteriolar attenuation, Elschnigs spots and Siegrists streaks in a 40 year old male who had been diagnosed with accelerated hypertension following a bout of altered sensorium. (Fig 4 a,b,c,d)
61 year old male who presented with sudden onset, painless loss of vision. On examination there was central retinal opacification with a well defined cherry red spot at the macula. FFA was done which confirmed the diagnosis of CRAO. Carotids Doppler showed evidence of plaques and occlusion. (Fig 6a, b, c)

65 year old gentleman presented with sudden onset of dimunition of vision. Fundus examination of the right eye showed attenuation of the inferotemporal artery with corresponding opacification of the retina. FFA showed non filling of the artery in the early frames with complete filling in the later stages. Cause of embolism was evaluated to be a cardiac valvular defect (Fig 8a, b, c).

71 yr old female who presented with sudden onset painless decrease in right eye vision. Patient gave a history of stroke 1 year back. On examination, patient had posterior pole retinal opacification with cherry red spot, gross arterial attenuation and multiple patches of RPE changes in the nasal retina (Fig 7a). FFA was done which showed delayed arterial filling and macular ischemia (Fig 7b, c, d). Systemic evaluation showed aortic compression secondary to a sarcoma.

68 year old known diabetic and hypertensive presented with blurring of vision in the left eye. Fundus examination showed a superior hemiretinal vein occlusion. The findings were confirmed on FFA. Systemically he had uncontrolled hypertension and high cholesterol levels. (Fig 9a, b, c)
35 year old hypertensive male presented with congestion of the right eye. Examination showed minimal proptosis, conjunctival and episcleral congestion and a raised intraocular pressure. Fundus examination showed central retinal vein occlusion. An MRA showed indirect carotico cavernous fistula. (Fig 10a, b, c)

55 year old gentle man with hypercholesterolemia referred for fundus examination from internal medicine. Fundus examination showed minimal venous congestion with cholesterol deposits along the arteries. (Fig 12a, b)

55 year old patient on warfarin therapy for aortic valve thrombosis comes with sudden diminution of vision. On examination, there is central retinal artery occlusion with an embolus seen within the optic nerve vessel. (Fig 13a, b)

38 day old infant who was detected to have lipemia retinalis. On investigation the baby was found to have autosomal recessive congenital lipoprotein lipase deficiency with triglyceride levels >3000mg/dl. This was later mutation proven with both mother and father testing positive for the recessive gene. With dietary modification, the baby had dramatic improvement with blood triglyceride levels coming back to normal and the fundus became normal again. (Fig 11a, b)