ORIGINAL RESEARCH PAPER

Ophthalmology

TREATMENT OF HYPERTENSIVE RETINOPATHY IN HYDROCEPHALUS PATIENT: A CASE STUDY.

KEY WORDS:

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ABSTRACT

The purpose of this paper was to report the case of a 27-year-old patient suffering from hydrocephalus with bilateral visual loss who received the diagnosis of hypertensive retinopathy with primary optic atrophy. After systemic evaluation, he was diagnosed with renal disease.

INTRODUCTION

Abnormalities in retinal vasculature may reflect similar changes in the blood vessels in other parts of the body, suggesting systemic changes[1], and unlike the complicated invasive procedures that must undergo a patient to assess the cardiac, renal and other tissue's microvasculature, a dilated fundus examination can be performed with a routine screening. These organs share pathophysiological mechanisms, such as endothelial dysfunction and the inflammatory process, leading to circulatory abnormalities and decreased vascular reactivity[2]. In some cases, ophthalmic evaluation may lead to the diagnosis of a life-threatening systemic disorder. Here, we describe the case of a patient in whom the findings of retinal vasculature led to the diagnosis and management of a hypertensive emergency secondary to an advanced chronic renal disease. Optic atrophy is the term usually applied to the condition of the disc when the end point of the optic nerve is degenerated. Injury to the nerve fibres along any part of their course from the retina to the lateral geniculate body, leads to their degeneration and atrophy[3]

CASE REPORT

A 27 year old patient was referred from Department Of Medicine with chief complaints of diminution of vision in left eye & right eye since 14yrs & 15 days, respectively. When he was 7yrs of age when his parents noticed gradual & progressive enlargement of his head. He was then diagnosed with large communicating hydrocephalus & was operated for Ventriculoperitoneal(VP) shunt. Shunt drainage was done 3 months after the surgery. Thereafter no shunt drainage was done till the patient presented. He noticed gradual painless diminution of central vision in left eye when he was 13 years of age. He was then prescribed oral & topical drugs but got no relief. At 22 years of age he completely lost his vision in left eye. Five years later he was admitted under Department of Medicine with the chief complaint of headache, chakkar and weakness & slurring of speech. MRI suggestive of blocked VP shunt and was planned for shunt replacement. On the day of surgery he had an episode of sudden shoot up of blood pressure. His surgery was called off & further control of hypertension was planned. He is a newly diagnosed case of systemic hypertension under treatment with acute kidney injury. There was no history of any chronic illness or long term use of oral, parenteral or systemic steroids. Fundus findings of the right & the left eye with diagrammatic representation have been depicted in Fig 1 & Fig 2 respectively.

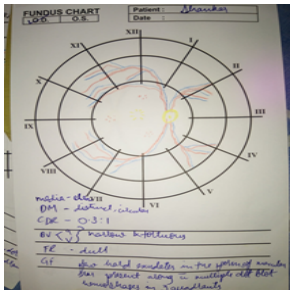

Figure 1. Right Eye

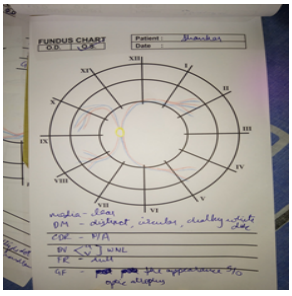

Figure 2. Left Eye

The Right eye anterior segment was within normal limits while the Left eye showed fixed dilated pupil. Rest other anterior segment findings were normal

CT scan brain was suggestive of mild to moderate hydrocephalus with the tip of drainage tube noted in the left anterior horn of lateral ventricle & a well-defined calcified lesion approx. 23x25mm in right cerebellar hemisphere.

MRI brain was suggestive of partial agenesis of corpus callosum, mild hydrocephalus & VP shunt in situ.

LABORATORY INVESTIGATIONS:

Haemoglobin	10.7g%
TLC	7600/Cumm
DLC	P68l12m02e00b01
Platelets	2.3lacs/Cumm
FBS/PPBS/RBS	96/148/123Mg/Dl
BloodUrea	**107Mg/Dl**
SerumCreatinine	**4.46Mg/Dl**
SerumSodium	143mmol/L
SerumPotassium	4.06mmol/L
Lft	WNL
HbsAg/HIV	NonReactive
Ecg	WNL
ChestXRay	WNL
USGAbdomen	WNL

Treatment was based on the line of reducing the intracranial pressure of the patient by replacement of the VP shunt with anti hypertensive drugs orally & parenterally. Topically eye drop nepafenac was started keeping the patient on fortnightly basis.

DISCUSSION

Hypertension is a disease that affects more than 1 billion of individuals throughout the world and is one of the leading

causes of death. Up to 1% of all patients present hypertensive crises, which can be divided into hypertensive urgency if the condition is characterized only by increase of tensional levels, or hypertensive emergency, the latter being a situation that requires immediate reduction of blood pressure because of acute or progressive end-organ damage.

In adolescents and young adults with a hypertensive crisis, a secondary cause of hypertension must be suspected, and among them, renovascular disease is one of the most frequent causes, accounting from 0.2 to 32% of cases[4]. Other causes of secondary hypertension must also be considered such as antiphospholipid syndrome, aldosteronism or pheochromocytoma .It has been found that 32% of the patients with hypertension and nephropathy have hypertensive retinopathy because the altered regulatory mechanism appears as thinning of the retinal arterioles and sclerosis that can lead to occlusion and microinfarcts clinically observed as cotton wool spots[4]. The generalized arteriolar narrowing reflects persistent arteriolar damage secondary to long-standing hypertension, and the hemorrhages, microaneurysms and cotton wool spots are related to acute blood pressure elevation. Hypertensive retinopathy can cause a spectrum of clinical manifestations ranging from arteriolar narrowing to papilledema. This patient was classified as grade 4 retinopathy with macular star according to the Keith-Wagener-Barker classification system[3].

Malignant hypertension presents with fibrinoid necrosis of afferent arterioles and focal glomeruli necrosis. In secondary malignant hypertension, choroidopathy, retinal pigment epithelial lesions and serous retinal detachment can be detected on fundoscopy. The most important markers of damage are micro- or macroalbuminuria, which were present in our patient. Treatment of a hypertensive crisis consists in the immediate control of blood pressure to prevent further end-organ damage.The comprehensive management of patients with suggestive ophthalmic findings is important because many of them can represent initial manifestations of systemic diseases and besides causing loss of vision may threaten the patient's life; this case highlights the importance of a correlation of the ophthalmologic manifestations with systemic abnormalities as well as to make appropriate and multidisciplinary approaches.

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