



Bilateral Central Retinal Vein Occlusion Secondary to Essential Hypertension

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Abstract

A 44-year-old male patient presented to the emergency department with bilateral vision loss and bilateral retinal central vein occlusion was detected. The patient was consulted to internal medicine and cardiology departments to investigate the etiology. Blood pressure, sedimentation rate, blood glucose, lipid profile, plasma protein electrophoresis, blood biochemistry, thyroid function tests, homocysteine, Protein C and S resistance, factor V Leiden mutation, rheumatoid factor, anti-nuclear antibody, serum angiotensin converting enzyme, syphilis antibodies, electrocardiogram, carotid Doppler ultrasonography and urinary system ultrasonography were investigated. Primary hypertension was detected in the patient and other results were negative. Etiology should be extensively investigated, especially in patients with bilateral retinal vein occlusion and patients with retinal vein occlusion under the age of 50.

Keywords: CRVO, bilateral retinal vein occlusion, etiology

INTRODUCTION

Central retinal vein occlusion (CRVO) is a cause of visual loss that can be seen at any age (1, 2). While 90% of patients with CRVO are older than 50 years, only 10% are under 40 years of age (1, 3). The central retinal vein is particularly susceptible to obstruction in the lamina cribrosa region, where the retinal vein and central retinal artery pass close to each other. Arteriosclerosis of the adjacent central retinal artery can cause central retinal vein compression, which prevents blood flow. Decreased blood flow results in increased pressure and may lead to thrombosis, which can lead to vascular occlusion (2). Systemic risk factors for CRVO include hypertension, diabetes mellitus, ischemic heart disease, bleeding disorders, vasculitis and autoimmune diseases (4). CRVO may be bilateral especially in patients under 40 years of age. Hypercoagulability, hyperviscosity syndromes and inflammatory conditions should be considered in these patients (5-7).

CASE REPORT

A 44-year-old male patient was admitted to the emergency department with loss of vision in both eyes. In the history of the patient, it was learned that vision loss in the right eye occurred one week before and he lost vision in the left eye today. In the examination of the patient, visual acuity in the right eye was "hand motion" and 2/10 in the left eye. Fundus examination revealed bilateral CRVO. The patient was referred to the retina clinic. The diagnosis was confirmed with fundus fluorescein angiography. Simultaneous systemic research was performed with the internal medicine and cardiology departments because of the patient being young and having bilateral CRVO. The examinations are shown in Table 1. As a result of the examinations, the patient was diagnosed with essential hypertension. In order to prevent further complications, anti-hypertensive treatment was started.



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Table 1. Examinations performed in the patient and their results

Examination	Result
Arterial blood pressure	160/90 mmHg
Sedimentation rate	Normal
Blood glucose level	Normal
Blood biochemistry	Normal
Lipid profile	Normal
Plasma protein electrophoresis	Normal
Thyroid function tests	Normal
Homocysteine levels	Normal
Protein C and S resistance	Negative
Factor V Leiden mutation	Negative
RF and ANA levels	Negative
Serum ACE level	Normal
Syphilis antibodies	Negative
ECG	Normal
Carotid Doppler US	Normal
Urinary US	Normal
RF: Rheumatoid factor, ANA: Anti-nuclear antibody, ACE: Angiotensin converting enzyme, ECG: Electrocardiography, US: Ultrasound	

DISCUSSION

Central retinal arteries and veins pass through a narrow opening in the lamina cribrosa and pass through a common adventitious sheath. The limited area here causes a tendency for circulatory and venous insufficiency in the eyeball. In cases such as hypertension and arteriosclerosis, the arterial wall becomes stiffer and compresses the veins. This pressure results in a tendency to thrombosis in the vein wall. In this patient, we believe that bilateral CRVO was due to hypertension-induced venous compression.

In the literature, hyperviscosity-induced bilateral CRVO were reported (1, 2). Similar to our patient, a case of bilateral CRVO due to malignant hypertension has been reported in the literature (8). Although the patient reported in the study of Zsuzsa B. et al., (8) had malignant hypertension, our patient had essential hypertension.

Hypertension is a disease that should be considered since there are no symptoms or warning signs. Patients may experience ischemic heart disease, stroke, or renal failure, as well as loss of vision as in our case. Cardiologists, nephrologists, internal

medicine physicians and ophthalmologists should consider general and atypical causes when evaluating CRVO in order to prevent further ophthalmic and systemic complications. Detailed systemic examination should be performed especially in patients with bilateral CRVO and in young patients.

Ethics

Informed Consent: Writing consent of the patient was received.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.H.B., A.Ç., Concept: A.H.B., A.Ç., S.B., Design: B.E., Data Collection or Processing: A.H.B., B.E., Analysis or Interpretation: A.H.B., A.Ç., B.E., Literature Search: S.B., Writing: A.H.B., M.E.

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