

Case Report

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Ocular Ischemic Syndrome: A Rare Bilateral Presentation in a Hypertensive Patient-A Case Report

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Abstract

Background: Ocular Ischemic Syndrome (OIS) is a rare, vision-threatening disorder resulting from chronic hypoperfusion of the ocular tissues due to carotid artery occlusive disease. It may present with a combination of anterior and posterior segment ischemic changes and often reflects underlying systemic vascular compromise.

Case Presentation: A 59-year-old male with a two-year history of hypertension presented with gradual blurring of vision in both eyes for three years. No history of ocular trauma or prior eye disease was reported. Ocular examination revealed best-corrected visual acuity (BCVA) of 6/24 in both eyes with compound hyperopic astigmatism and presbyopia. Slit-lamp and fundus evaluation showed retinal hemorrhages and cotton-wool spots bilaterally, suggestive of ocular ischemic changes. Intraocular pressures were within normal limits. Optical Coherence Tomography (OCT) of the macula revealed ischemic retinal changes.

Management: The patient received intravitreal anti-VEGF (Avastin) injections in both eyes, followed by panretinal photocoagulation (PRP) after the first injection. Systemic evaluation for carotid artery stenosis and cardiovascular risk factors was advised in collaboration with a neurologist and a physician.

Conclusion: Early recognition of OIS is crucial as it may be the first clinical manifestation of severe carotid artery disease. Timely ophthalmic and systemic interventions can prevent irreversible visual loss and life-threatening cerebrovascular events.

Keywords: ocular ischemic syndrome; carotid artery stenosis; anti-VEGF; panretinal photocoagulation; retinal ischemia

Introduction

Ocular Ischemic Syndrome (OIS) is a vision-threatening condition characterized by ocular hypoperfusion secondary to severe carotid artery obstruction. It manifests acutely as amaurosis fugax or central retinal artery occlusion and chronically as ischemic retinopathy and neovascular glaucoma [1]. Approximately 80% of OIS cases exhibit gradual vision loss, whereas a smaller subset presents with sudden visual decline due to neovascular complications [2]. OIS is typically associated with ipsilateral internal carotid artery (ICA) stenosis, leading to an estimated 50% reduction in central retinal artery perfusion pressure [3]. Given its association with systemic vascular disorders such as hypertension, diabetes, and coronary artery disease,

prompt detection and interdisciplinary management are vital.

Case Presentation

Patient Information: A 59-year-old male presented to the eye clinic with complaints of gradual blurring of vision for both distance and near over the past three years. There was no history of ocular trauma or prior eye conditions.

Medical History: The patient was known hypertensive for two years and was on regular antihypertensive medication. No history of diabetes, cardiovascular disease, or cerebrovascular events was reported.

Family and Allergy History: No significant family ocular history or known allergies.

Ocular Examination

Parameter	Right Eye (OD)	Left Eye (OS)
Visual Acuity (Unaided)	6/36	6/60
Pinhole	6/24	6/24
Near Vision	N36 @40 cm	N36 @40 cm
Objective Refraction	+1.25 / +1.00 × 180°	+1.50 / +1.00 × 180°
BCVA	+1.00 / +1.00 × 180° 6/24	+1.00 / +1.00 × 180° 6/24

Add	+2.75 N12	+2.75 N18
Intraocular Pressure (AT @9:14am)	12 mmHg	12 mmHg

Ocular Alignment: Orthophoria at distance and near.

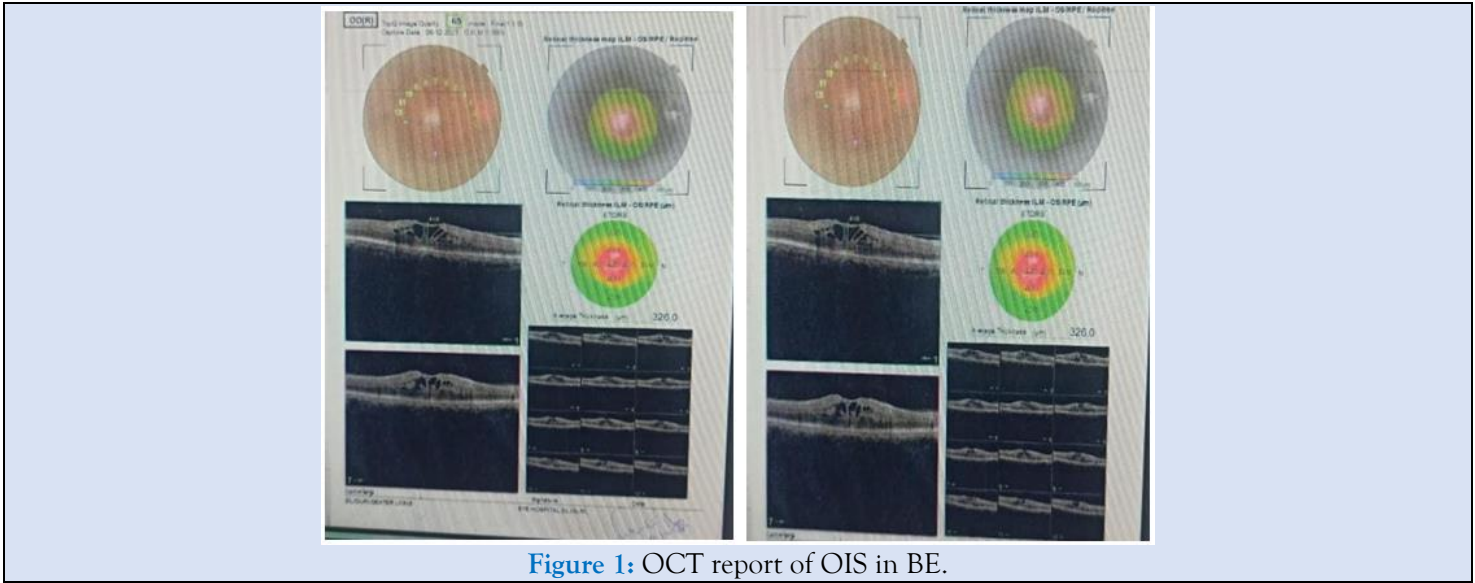
Ocular Motility: Full in both eyes.

External Examination: Normal facial symmetry, head posture, and adnexa.

Slit-Lamp and Fundus Examination

Findings	Right Eye (OD)	Left Eye (OS)
Eyelids & Adnexa	Normal	Normal
Conjunctiva	Clear	Clear
Cornea	Clear	Clear
Anterior Chamber	Normal depth	Normal depth
Lens	Clear	Clear
Iris	Normal	Normal
Pupil Reaction	RRR	RRR
Vitreous	Clear	Clear
Fundus (Dilated Exam)	C/D 0.3, NRR Healthy, Retinal hemorrhages, Cotton-wool spots	C/D 0.3, NRR Healthy, Retinal hemorrhages, Cotton-wool spots
Retinal Periphery	Normal	Normal

OCT Macula (Both Eyes): Evidence of ischemic retinal changes consistent with OIS.



Diagnosis

- Ocular Ischemic Syndrome (Bilateral).
- Compound Hyperopic Astigmatism (Both Eyes).
- Presbyopia (Both Eyes).

Management and Follow-Up

Ocular Treatment

- Intravitreal Bevacizumab (Avastin) injection in both eyes.
- Panretinal Photocoagulation (PRP) after the first anti-VEGF injection to reduce ischemia-induced neovascularization.
- Avoidance of intraocular pressure-raising agents (e.g., prostaglandin analogues, pilocarpine).

Systemic Evaluation

- Referred for carotid Doppler ultrasonography and cardiovascular assessment.
- Blood pressure monitoring and optimization of antihypertensive therapy.

Surgical Consideration

- No immediate surgical indication, as neovascularization and neovascular glaucoma were not yet present.

Discussion

Ocular Ischemic Syndrome is often underdiagnosed due to its variable presentation and overlap with

diabetic or hypertensive retinopathy. It typically develops secondary to severe (>90%) ipsilateral carotid artery stenosis, resulting in reduced ocular perfusion [2,3]. The patient presented here had hypertension, a known vascular risk factor for carotid disease, highlighting the systemic connection between ocular and cerebrovascular pathology [4,5]. Studies by Mendrinos et al. (2010) and Ishii et al. (2016) emphasize the importance of correlating ophthalmic findings with carotid Doppler imaging and systemic vascular work-up. In this case, prompt anti-VEGF and PRP therapy were initiated to prevent neovascular complications, with concurrent systemic evaluation to address underlying vascular insufficiency.

Conclusion

Ocular Ischemic Syndrome signifies not only a threat to vision but also a potential harbinger of life-threatening cerebrovascular disease [6]. Early ophthalmic detection, coupled with systemic management of vascular risk factors, is vital for preserving vision and preventing morbidity. The prognosis depends on the stage at diagnosis. Early intervention before the onset of neovascular glaucoma offers the best outcome.

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