

Inadequate Flow to Make the Eye Go: Ocular Ischemic Syndrome and Beyond

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Description

Ocular Ischemic Syndrome (OIS) is often overlooked, as many ocular complications occur and mimic other diseases due to their non-specific nature. Ocular manifestations of OIS include a variety of structures, from subtle anterior findings to hallmark retinal presentations. While serology may identify risks, only ancillary vascular assessment of the carotid artery can confirm OIS. Using a case guide, this course reviews ocular presentations and systemic findings associated with OIS. Referral discussion and follow-up are included.

Objectives

- Discuss various signs, symptoms, and ocular presentations associated with Ocular Ischemic Syndrome (OIS) - including anterior segment manifestations, drainage angle implications, retinal findings, and neurologic concerns.
- Identify risk factors for Ocular Ischemic Syndrome (OIS), be aware of in-office testing that may assist in making a tentative diagnosis of OIS, and clinical assessments that are essential to follow-up care for a patient with OIS.
- Identify a patient needing referral for vascular and neurologic testing to assess ocular perfusion, and participate in interprofessional collaborative care to aid in the patient's best potential visual and health outcome.

Outline

- I. Ocular Ischemic Syndrome
 - a. Review/Introduction to the Anatomy
 - i. Carotid artery
 - ii. Carotid Bifurcation and beyond
 - iii. Ocular flow including primary vessels and choroid
 - b. Definition of Ocular Ischemic Syndrome and Carotid Artery Disease
 - i. Demographics, Incidence and Prevalence
 - ii. Risk factors
 1. Social
 2. Systemic
 3. Anatomical variables
 - a. Anatomical: Shunt vessels presence or absence
 - b. Absence = "Steal Syndrome"
- II. Case Presentation: 57-year-old white male
 - a. CC and History
 - i. Decreased vision, especially driving
 - ii. Chronic low-grade ocular pain OU
 - b. Pertinent history: Long-term smoker, H/O HTN

- c. Findings:
 - i. Vision and Preliminary testing impacts: BCVA
 - ii. Anterior Segment: Striae
 - iii. Posterior Segment: Peripheral retinal hemorrhages
 - d. Differential Diagnosis
 - i. Diabetic complications/retinopathy
 - ii. Vasculopathies and Perfusion concerns
 - e. Additional in-office testing
 - i. Automated Visual field (Images available)
 - ii. Carotid bruit assessment
 - iii. Other potential in-office Rule outs (OCT, Topo available)
 - f. Management/Referral:
 - i. Carotid evaluation with doppler: 100% occlusion right side; 50% left
 - ii. Brain imaging results
 - iii. Serology results
- III. Impacts of Ocular Ischemic Syndrome
 - a. Risk to drainage angle/secondary glaucoma
 - b. Retinal complications – Acute and Chronic
 - i. Diffuse impairment
 - ii. Neovascularization implications
 - c. Cognitive functioning considerations
- IV. Making the Diagnosis and Referral
 - a. Carotid Doppler imaging (CD)
 - i. Reversed Ophthalmic Artery (OA) flow pattern □ highly specific
 - b. MRI/MRV – brain flow assessment
 - c. Vascular and/or Neuro/Neurosurgery may be indicated
- V. Case 2 Presentation: 55-year-old white female
 - a. CC and History
 - i. “Glare complaints” – especially when going from dark to light
 - ii. Chronic low-grade ocular pain OU
 - b. Findings:
 - i. Vision and Preliminary testing impacts: BCVA
 - ii. Posterior Segment: Peripheral retinal hemorrhages
 - c. Pertinent History and Differential Diagnosis
 - i. Diabetic complications/retinopathy
 - ii. Vasculopathies and Perfusion concerns
- VI. Ocular Ischemic Syndrome (OIS) – Prognosis
 - a. Overall – Poor
 - b. Mortality rate
 - c. Leading causes of death – 2/3 Myocardial infarct, 15-20% Cerebral infarct
- VII. Carotid artery perfusion reduction – Additional Ocular Implications
 - a. Hollenhorst plaque
 - b. Retinal Artery Occlusion
 - i. Central vs. branch

- ii. Recognition and Referral strategies – Stroke centers
 - c. Neovascularization
- VIII. Systemic Management
 - a. Oral medication considerations – enhanced perfusion
 - i. “Over the counter” considerations - Aspirin
 - ii. Prescription blood thinners – Pros and Cons
 - b. Surgical considerations
 - i. Carotid Stent – pros and cons
 - ii. Carotid endarterectomy – pros and cons
 - iii. Comparison of surgical interventions and Long term considerations
 - c. Treatment of Underlying/associated conditions
 - i. Vasculopathy- Cholesterol, DM, HTN Mx
 - ii. Management of other vasculopathies
 - iii. Social considerations – eg, Smoking cessation
- IX. Ongoing Ocular Management
 - a. Regular dilated examinations
 - b. Visual Field considerations
 - c. OCT and OCT-a
 - d. Regular gonioscopy and consideration of glaucoma evaluation

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