

Ophthalmology for the Primary Care Physician

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Financial Disclosure

The speaker has no financial interest in the subject matter of this presentation.

Objectives

At the completion of the healthcare providers will be able to:

- Develop a differential diagnosis for the presentation of red eye
- Diagnose corneal ulcer and determine best initial topical treatment course
- Describe the examination findings and management for ocular surface trauma including corneal abrasion and retained foreign body
- Develop a differential diagnosis for the presentation of red, swollen eyelid
- Distinguish between hordeolum and chalazion and formulate treatment plan
- Diagnose herpes zoster ophthalmicus and identify risk factors for ocular involvement
- Develop a differential diagnosis for acute monocular vision loss
- Provide patients with recommendations for vision screening and eye exams

Case 1 : Eye redness, burning, tearing

The patient is a 66 year-old male sportscaster who reports with a 4-day history of eye irritation and watering, first noted in the left eye followed by similar symptoms in the right eye one day later. Patient admits to mattering of the eyelids upon waking in the morning. On exam, patient has bilateral conjunctival injection, excessive tearing, and sensitivity to light. No current eye drops or medications being used.



Differential Diagnosis of Red Eye

- **Viral conjunctivitis**
 - Upper respiratory infection, sick contacts
- **Allergic conjunctivitis**
 - Prominent symptom of itching
- **Atopic conjunctivitis**
 - History of eczema
- **Medication toxicity**
 - Overuse of OTC allergy / "red eye relief" eye drops or antibiotic drops
- **Bacterial conjunctivitis**
 - Copious, purulent discharge
- **Dry Eye Syndrome**
 - Chronic, worse at the end of the day
- **Corneal ulcer**
 - Contact lens overwear
- **Corneal abrasion / foreign body**
 - History of trauma or injury
- **Iritis**
 - Constricted pupil, photophobia

Viral vs Bacterial Conjunctivitis?

Viral conjunctivitis

- Rhinorrhea, sore throat, sick contacts
- Preauricular lymph nodes
- Clear, watery discharge with eyelid crusting
- Unilateral to bilateral presentation
- Tx: Artificial tears, cool compresses, no role for topical antibiotics



Bacterial conjunctivitis

- Copious discharge
- Eyelid edema, eyelash matting and crusting
- Culture indicated for severe discharge
- Tx: Broad spectrum antibiotics

Corneal Ulcer

Sterile ulcer

- Associated with contact lens overwear

Infectious

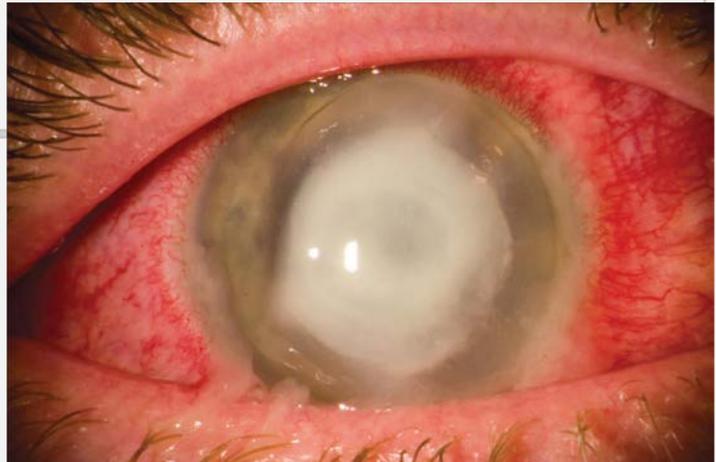
- Bacterial - pseudomonas & staphylococcus
- Fungi - Fusarium & Candida
- Parasites - Acanthamoeba

Neurotrophic

- Herpes virus, anesthetic abuse



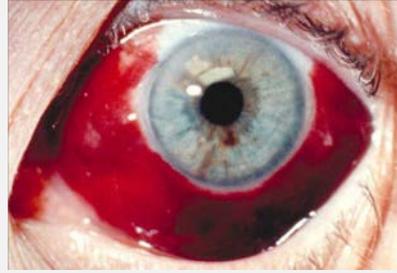
Treatment: Remove offending agent (i.e. Dispose of contact lens, discontinue all topical drops), start broad spectrum antibiotics q 2hrs (Ex: Moxifloxacin), referral



Timely initiation of broad spectrum antibiotics and ophthalmology referral is key to preventing irreversible vision loss.

Subconjunctival hemorrhage

- Spontaneous versus history of trauma / mechanical injury
- Benign in nature
- Symptomatic treatment with lubricating drops / ointment
- Recurrent hemorrhages may prompt evaluation for:
 - Bleeding disorder
 - Supratherapeutic INR if on anticoagulation



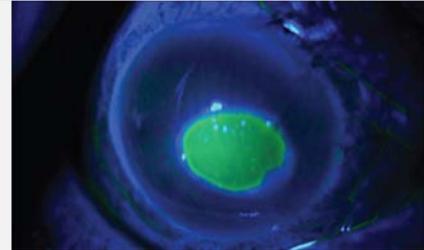
Corneal abrasion

- Physical Exam – decreased vision, conjunctival injection, irregular light reflex, fluorescein dye uptake
- Treatment:
 - Fluoroquinolone drops
 - Ciprofloxacin or Ofloxacin
 - Moxifloxacin
 - Antibiotic ointment - Erythromycin or Bacitracin ophthalmic ointment



Corneal abrasion: Evaluation

- Fluorescein dye – regions denude of epithelium highlight with cobalt blue filter
- Evert upper eyelid to evaluate for embedded foreign body if evidence of linear excoriations



Corneal abrasion

NEVER prescribe or provide patient with anesthetic drops!

- Ex: Tetracaine, Proparacaine
- May result in large, non-healing epithelial defect
- Utilize ointments and cool compresses for pain reduction
- If opiates necessary for pain control then immediate referral



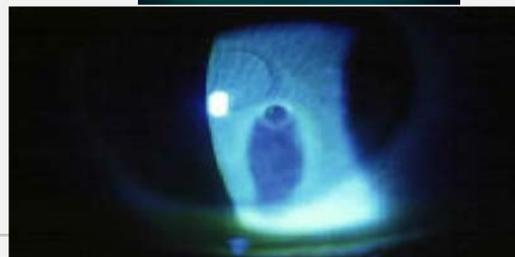
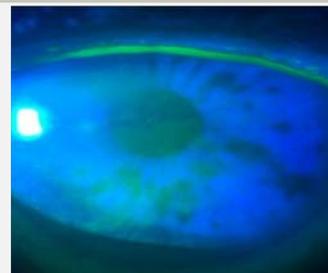
Corneal foreign body

- Foreign bodies are one of the most common ophthalmic emergencies – make up 3% of all emergency room visits
- Risk factors: Male, absence of eye protection, metal-on-metal tasks (ex. grinding, hammering, sanding)
- Timing of removal:
 - Iron toxic to ocular structures therefore timely removal is recommended
 - Rust formation within 4-6 hrs of injury
- **Must confirm no intraocular penetration!**



Corneal foreign body

- Mechanism of injury important to determine potential for intraocular and/or intraorbital foreign body
- **Seidel test** – used to assess for aqueous leakage following injury or surgical procedure
 - **Positive** = Diluted dye streaming from the site of injury or surgical wound
 - Indicative of penetrating corneal injury
 - **Place shield over affected eye and refer for immediate ophthalmology evaluation**



Back to the case...

Viral conjunctivitis

- Rhinorrhea, sore throat, sick contacts
- Excessive tearing, eyelid crusting upon waking
- Preauricular lymph nodes, unilateral to bilateral presentation
- Most common: Adenovirus
- Treatment:
 - Artificial tears, cool compresses
 - **No role for topical antibiotics**
 - Strict hand hygiene - transmission via fomites and respiratory secretions



Case 2 : Eyelid redness and swelling

Patient is an 80 year old female presenting with one week history of severe left-sided headaches. Three days ago patient noted new onset of left forehead and scalp rash as well as rapid swelling of the left upper and lower eyelids. Patient admits to excessive tearing and light sensitivity but denies loss of vision.



Differential Diagnosis of Swollen Red Eyelid

- **Internal / External Hordeolum**
 - Erythematous, tender nodule
- **Chalazion**
 - Palpable, non-tender nodule
- **Blepharitis**
 - Eyelash debris, eyelid margin hyperemia
- **Preseptal cellulitis**
 - Progressive erythema, edema
- **Orbital cellulitis**
 - Proptosis, restricted eye movement
- **Herpes Zoster Ophthalmicus**
 - Dermatomal vesicular rash in V1 distribution
- **Eyelid malposition**
 - Ectropion / Entropion
- **Contact dermatitis**
 - New exposures, scaling
- **Atopic Dermatitis**
 - History of eczema
- **Acute allergic reaction**
 - Prominent symptom of itching

Hordeolum vs Chalazion?

Internal / External Hordeolum

- Acute, tender, erythematous, associated edema
- **Tx:** Warm compresses/massage, topical steroids, oral antibiotics if concern for preseptal cellulitis



Chalazion

- Chronic, non-tender, non-erythematous
- **Tx:** Incision and drainage by ophthalmologist

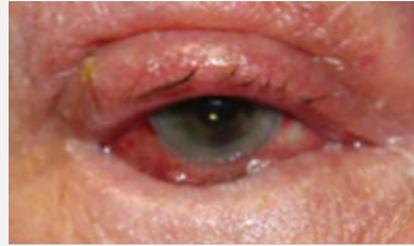


Eyelid malposition

Ectropion



Entropion



Treatment:

- Lubrication drops and ointment temporizing measure for symptomatic relief, no role for topical antibiotic drops
- Definitive treatment requires surgical eyelid tightening and repositioning

Back to the case...

Herpes Zoster Ophthalmicus

- Latent virus reactivated in ophthalmic division of trigeminal nerve
- Scalp and periorbital vesicular rash - V1 distribution
- Hutchinson's sign
- Ophthalmology referral to rule out ocular involvement
- Treatment: Acyclovir/Valacyclovir, Neurontin, Amytriptyline



Case 3 : Sudden vision loss

The patient is a 76 year-old male presenting with one day history of sudden vision loss in the left eye. Patient admits to transient episodes of vision loss in the same eye over the last several weeks. Patient denies fever, loss of appetite, or myalgia, but does admit to discomfort in his jaw, which he attributes to the fit of his dentures. Patient's past medical history is significant for hypertension, hyperlipidemia, diabetes mellitus, and tobacco abuse. On exam, the patient is noted to have light perception only vision in the left eye.

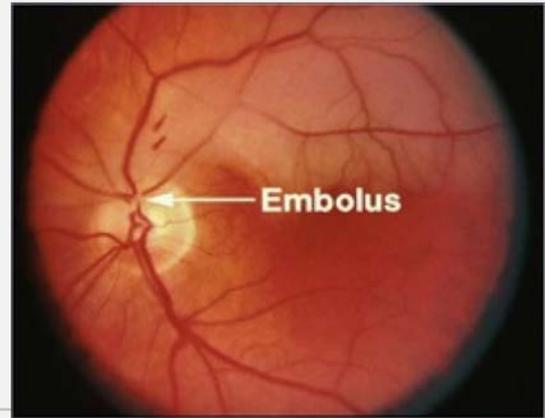
What is the first best step in management?

Differential Diagnosis of Sudden Monocular Vision Loss

- **Amaurosis fugax**
 - Atherosclerotic carotid disease
 - Cardiogenic emboli
- **Central Retinal Artery Occlusion / Central Retinal Vein Occlusion**
- **Retinal Detachment**
- **Ischemic Optic Neuropathy**
 - Giant Cell Arteritis
- **Vasospasm / Migraine**

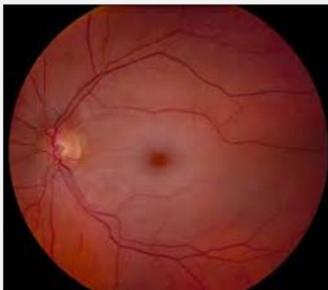
Amaurosis Fugax

- Painless transient monocular vision loss
- Temporary reduction in blood flow to retina
- Causes:
 - Atherosclerotic carotid artery or ophthalmic artery
 - Cardiac emboli
 - Vasospasm
- Workup:
 - Cardiovascular risk factors
 - Carotid ultrasound, echo, MRI, MRA
 - Hypercoagulable state



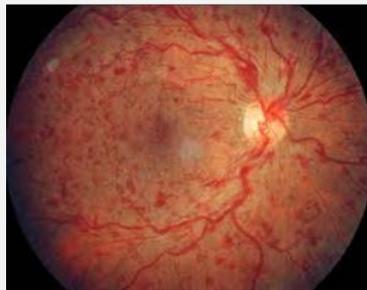
Retinal Occlusion vs Detachment ?

Central Retinal Artery Occlusion



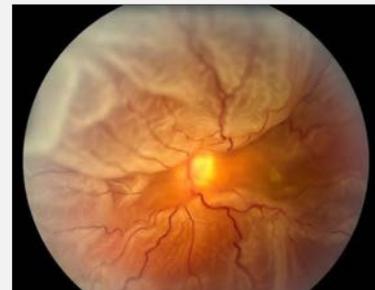
Associated with carotid artery disease

Central Retinal Vein Occlusion



Associated with chronic or acute hypertension

Retinal Detachment

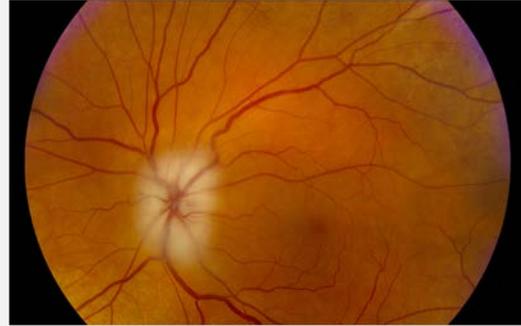


Presentation with flashes, floaters, veil over vision

Back to the case...

Giant Cell Arteritis

- Temporal tenderness, jaw claudication, unilateral headache, severe vision loss, elevated ESR and CRP levels
- **If clinical suspicion of GCA start oral 80 mg Prednisone immediately!**
- URGENT Ophthalmology evaluation for vision assessment and dilated fundus exam
- General / vascular surgery referral for temporal artery biopsy within 2 weeks
- Rheumatology referral for steroid management and Actemra initiation



*** If left untreated, 90% of patients will lose vision in fellow eye within two weeks.**

Ophthalmologist vs Optometrist

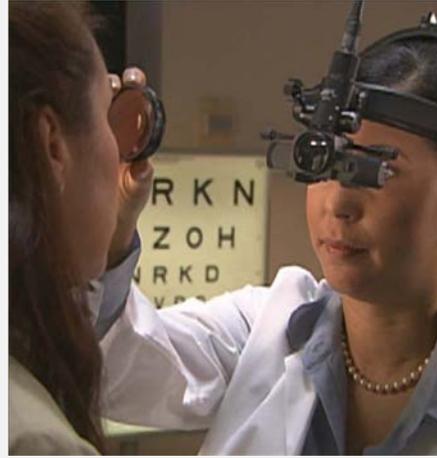
Optometrist

- Training: four-year college degree program in the sciences plus four years of post-graduate professional training in optometry school
- Scope of practice:
 - Screening for ocular disease
 - Correct refractive errors by prescribing eyeglasses and contact lenses
 - Prescribe medications to treat certain eye problems and diseases
- Scope of medical care is determined by the individual state law.

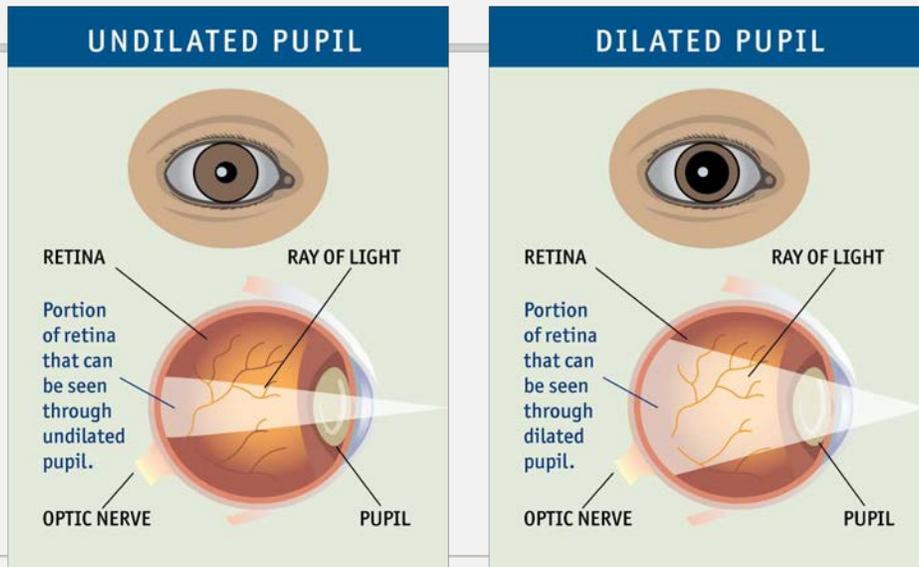
Ophthalmologist

- Training: four years of college, four years of medical school, one year of internship, and a three years of hospital-based residency in ophthalmology
- Scope of practice:
 - Perform routine eye exams
 - Prescribe glasses / contact lenses
 - Diagnose and treat ocular disease
 - Perform eye surgery (e.g. refractive, intraocular, retinal, laser, plastics)

What Is a Comprehensive Dilated Eye Exam?



The Dilated Eye



Preventive Eye Care - Adults

- Adults with no signs or risk factors for eye disease should receive a comprehensive medical eye evaluation starting at age 40 if they have not previously received one.
- Interval for evaluations:
 - For individuals aged 40 to 54 years old = 2 - 4 years
 - For individuals aged 55 to 64 years old = 1 - 3 years
 - For individuals 65 years old or older = every 1 - 2 years
- For individuals at higher risk for certain diseases, such as African-Americans who are at higher risk for glaucoma and severe vision loss, comprehensive eye examinations should be considered every 2 years for those under age 40 and yearly for those over 40 years of age even in the absence of visual or ocular symptoms.

Preventive Eye Care - Pediatrics

- Children should have an assessment for eye problems in the newborn period and then at all subsequent routine health supervision visits.
- Screening for abnormalities present at birth:
 - Opacities of the ocular media (e.g. congenital cataract, corneal scarring)
 - Congenital Ptosis
 - Strabismus (e.g. esotropia and exotropia)
- School-age children should be evaluated regularly for visual acuity and ocular misalignment during primary health care visits, in schools, or at public screenings.
- **Any abnormalities or the inability to test are criteria for referral to an ophthalmologist.**

Preventive Eye Care - Diabetes

- Type 1 Diabetes Mellitus should be examined by an ophthalmologist **5 years** after disease onset and at least **yearly** thereafter.
- Type 2 Diabetes Mellitus should be examined **at the time of diagnosis** and at least **yearly** thereafter.
- Women with Type 1 or Type 2 Diabetes Mellitus should receive a comprehensive eye examination before conception and then early in the first trimester of pregnancy. Recommended intervals for subsequent examinations depend upon the level of retinopathy.

Thank you for your attention

Questions?

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References

1. Gerstenblith AT, et al. Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease, Sixth Edition, 2012.
2. American Academy of Ophthalmology Pediatrics Panel. Preferred Practice Pattern® Guidelines. Pediatric Eye Evaluations. San Francisco, CA: American Academy of Ophthalmology; 2012. Available at: www.aao.org/ppp. Accessed February 21, 2019.
3. American Academy of Ophthalmology Preferred Practice Patterns Committee. Preferred Practice Pattern® Guidelines. Comprehensive Adult Medical Eye Evaluation. San Francisco, CA: American Academy of Ophthalmology; 2010. Available at: www.aao.org/ppp. Accessed February 21, 2019.
4. American Academy of Ophthalmology Preferred Practice Patterns Committee. Preferred Practice Pattern® Guidelines. Diabetic Retinopathy. San Francisco, CA: American Academy of Ophthalmology; 2014. Available at: www.aao.org/ppp. Accessed February 21, 2019.