Ophthalmology in Primary Care 2015

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Objectives

- Red eye
  - Nonvision threatening
  - Vision threatening
- Cataracts
- Diabetes
- ARMD
- Red Flag Signs and Symptoms
Nonvision Threatening Red Eye

- Subconjunctival hemorrhage
- Stye/chalazion
- Blepharitis
- Conjunctivitis
- Dry eye
Vision Threatening Red Eye

- Corneal infections
- Iritis
- Scleritis/Episcleritis
- Angle-closure glaucoma
Subconjunctival Hemorrhage

- Bright red eye
- Normal vision
- No pain
- Usually no obvious cause
- No treatment
Stye/Chalazion

• Stye (hordeolum): obstruction of the perifollicular glands
• Chalazion: obstruction of the Meibomian glands
Stye/Chalazion
Stye/Chalazion

• Treatment
  • Warm compresses
  • +/- topical antibiotics
  • Systemic antibiotics for associated preseptal cellulitis
  • Incision and curettage for drainage
Blepharitis

- Chronic inflammation affecting the lash line
- Dysfunction of the meibomian glands
- Secondary infection
- Associated with acne rosacea
Blepharitis Symptoms

- Foreign body sensation
- Burning
- Mattering of the lashes
- Eyelids sticking together upon waking
Blepharitis Treatment

- Warm compresses
- Lubricant eye drops
- Mechanical cleansing of lids
- Omega-3 fatty acid supplements (flaxseed oil, fish oil)
- Counseling that this may be a chronic or recurring problem
Blepharitis Treatment

- Topical antibiotics
- Azasite (azithromycin in DuraSite)
- Topical steroids for inflammatory component (only for short duration)
- Restasis
- Systemic doxycycline for refractory problems
Diagnosis of Conjunctivitis

- Stringy white mucus: allergic
- Purulent discharge: bacterial
- Watery: viral
Allergic Conjunctivitis

- Symptoms: ITCHING
- Clinical findings
  - Normal exam
  - Lid or conjunctival edema
  - Stringy white discharge
Allergic Conjunctivitis

- Treatment
  - Cold compresses
  - Topical antihistamines (over the counter)
  - Topical mast cell stabilizers
  - Combination topical antihistamines and mast cell stabilizers
Topical Antihistamines

• Over the counter (use QID)
  • Vasocon-A
  • Naphcon-A
  • Opcon-A
  • Visine-A
Allergic Conjunctivitis Treatment

- Mast cell stabilizers with antihistamine action
  - **BID use**
    - Azelastine (Optivar)
    - Epinastine (Elestat)
    - Ketotifen (Alaway)
    - Ketotifen (Zaditor --over the counter)
    - Nedocromil (Alocril)
    - Olopatadine (Patanol)
    - Pemirolast ( Alamast)
  - **Once daily use**
    - Olopatadine (Pataday)
    - Alcaftadine (Lastacaft)
Viral Conjunctivitis

- Adenovirus
- Highly contagious
Viral Conjunctivitis

- Symptoms
  - Burning discomfort
  - Associated systemic symptoms: URI, sore throat, fever, malaise

- Clinical findings
  - Redness
  - Watery discharge
  - Palpable preauricular lymph node
Viral Conjunctivitis Diagnosis

- AdenoPlus is immunoassay to detect adenoviral antigens
- Compared to cell culture 90% sensitivity, 96% specificity
- Cost $15-$25 per test
- Reimbursable
- Accurate diagnosis reduces treatment with unnecessary and ineffective antibiotics
Viral Conjunctivitis
Viral Conjunctivitis

- Treatment: symptomatic
  - Cold compresses
  - Iced artificial tears
  - Acetaminophen
  - Topical betadine
Viral Conjunctivitis

- Duration is 1-3 weeks
- Contagious period is for 1 week after onset of symptoms
- Postconjunctivitis dry eye syndrome may persist for several months
Bacterial Conjunctivitis

• Caused by all common bacteria
• Symptoms: purulent discharge
• Clinical findings
  • Conjunctival injection
  • Purulent discharge
Bacterial Conjunctivitis

- Treatment: topical antibiotics QID for 7-10 days
Ophthalmic Antibiotic Ointments

- Erythromycin
- Bacitracin
- Sulfacetamide sodium
- Gentamicin
- Tobramycin
- Ciprofloxacin
- Polymyxin B/Bacitracin
- Polymyxin B/Neomycin/Bacitracin
- Polymyxin B/Oxytetracycllin
Ophthalmic Antibiotic Solutions

- Sulfacetamide sodium
- Polymixin B/trimethoprim (Polytrim)
- Polymixin B/Neomycin/Gramicidin (Neosporin)
- Gentamicin
- Tobramycin
- Azithromycin (Azasite)
Ophthalmic Antibiotic Solutions

- Ofloxacin (Ocuflox)
- Ciprofloxacin (Ciloxan)
- Levofloxacin (Quixin)
- Gatifloxacin (Zymar, Zymaxid)
- Moxifloxacin (Vigamox)
- Besifloxacin (Besivance)
Hyperpurulent Bacterial Conjunctivitis

Copious discharge may indicate infection with pseudomonas or gonorrhea and requires urgent referral
Dry Eyes

- Symptoms
  - Burning
  - Foreign body sensation
  - Grittiness
  - Tearing
Dry Eyes

• Associated conditions
  • Aging
  • Sjogren’s syndrome
  • Rheumatoid arthritis
  • Stevens-Johnson syndrome
  • Systemic medications: antihistamines, diuretics, antidepressants
Dry Eyes Treatment

- Lubricant eye drops (artificial tears)
- Lubricating ointment at bedtime
- Protective glasses and hat outdoors
- Flaxseed oil 1000 mg daily
- Restasis (topical cyclosporine)
- Punctal plugs or occlusion
Punctal Plugs
Vision Threatening Red Eye

- Corneal infections
- Scleritis/episcleritis
- Iritis/uveitis
- Acute angle-closure glaucoma
Vision Threatening Red Eye
Indications for Referral

- Decreased vision
- Severe eye pain
- Light sensitivity
- Opacity on cornea
Corneal Infections

- Viral keratitis
  - Herpes simplex most common
- Bacterial keratitis
  - Frequently related to soft contact lens wear
- Fungal keratitis
Herpes Simplex Keratitis

- Primary HSV
  - Conjunctivitis with watery discharge
  - Skin vesicles on lids
  - Enlarged preauricular lymph nodes
  - +/- corneal involvement with single or multiple dendrites
- Recurrent HSV
Bacterial Keratitis

- Most common in soft contact lens wearers
- Red painful eye
- Opacity on the cornea
- Requires ophthalmologic referral
Bacterial Keratitis
Iritis/Uveitis

- Inflammation in the anterior chamber (iritis) or involving the entire eye (uveitis)

- Symptoms
  - Pain
  - Photophobia
  - Decreased vision
Iritis/Uveitis

Clinical findings:
Circumcorneal redness
Pupil is smaller than normal
Cell and flare in the anterior chamber
## Iritis/Uveitis Etiology

<table>
<thead>
<tr>
<th>Nongranulomatous:</th>
<th>Granulomatous:</th>
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<tbody>
<tr>
<td>• Idiopathic</td>
<td>• Sarcoidosis</td>
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<tr>
<td>• Traumatic</td>
<td>• Tuberculosis</td>
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<tr>
<td>• Ankylosing spondylitis</td>
<td>• Syphilis</td>
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<tr>
<td>• Behcet’s disease</td>
<td>• Toxoplasmosis</td>
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<td>• Inflammatory bowel disease</td>
<td>• Brucellosis</td>
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<td>• Herpes</td>
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<td>• Lyme disease</td>
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<td>• Postoperative</td>
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<td>• Psoriatic arthritis</td>
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<td>• Reiter’s syndrome</td>
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<td>• Lupus</td>
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<td>• Wegener’s granulomatosis</td>
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<td>• JRA</td>
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Episcleritis

- Benign, self-limited inflammation of episclera (Tenon’s capsule)
- Rarely associated with systemic disease
- Mild eye pain and tenderness
- Treatment: Oral NSAIDs
Scleritis

Inflammation of the wall of the eye.
Severe destructive disease, underlying systemic disease
Severe boring eye pain
Treatment with systemic steroids, NSAIDs, and/or immunosuppressives
Scleritis
Angle Closure Glaucoma

Obstruction of aqueous outflow due to occlusion of the trabecular meshwork by the iris. Occurs in patients anatomically predisposed with shallow anterior chambers.
Angle Closure Glaucoma

Screening for susceptible patients: penlight held temporal and parallel to the iris reveals a shadow on the nasal iris in at risk patients.
Angle Closure Glaucoma

• Symptoms
  • Severe ocular pain
  • Blurred vision
  • Halos around lights
  • Headache
  • Nausea and vomiting

• Clinical findings
  • High intraocular pressure
  • Mid-dilated sluggish pupil
  • Corneal epithelial edema
  • Conjunctival injection
  • Shallow AC
Angle Closure Glaucoma

- Medical treatment to lower IOP
  - Pilocarpine
  - Topical aqueous humor suppressants: timolol, brimonidine, carbonic anhydrase inhibitors
- Definitive therapy: Iridectomy
Cataract

- Clouding of the lens which may result in decreased vision
- Leading cause of treatable blindness worldwide
- In US accounts for 50% of low vision cases in adults > 40
- Cataract surgery with IOL implantation one of most common surgeries performed under Medicare
Risk Factors

- Smoking
- Lifetime exposure to UV-B radiation
- Diabetes
- Inhaled, topical, and oral corticosteroid use
- Hypertension
- Myopia
- Obesity
- No significant delaying effect on cataract development with vitamin supplementation
Cataract
Treatment of Cataracts

- Cataract extraction with intraocular lens implant
- Indicated when patients are having difficulty with their vision due to cataracts
- Typically small incision phacoemulsification
Intraocular Lenses

- Posterior chamber intraocular lens inserted into the lens capsule
- Anterior chamber or sutured IOL used in certain cases
Intraocular lenses

Multifocal IOL

Accommodative IOL
Preoperative Preparation

- Decide based on patient’s needs if cataracts are visually significant
- Measurements for IOL calculation
- Preoperative physical examination
- EKG in patients older than 65
- Laboratory studies as medically necessary
- Preoperative topical antibiotics and NSAIDS
- Anticoagulation—frequently may be continued, but consult with ophthalmologist
Tamsulosin Precautions

• Alpha blocker therapy may cause intraoperative floppy iris syndrome and increase the risk of surgical complications
• Discontinuation of alpha blockers for weeks to years does not reverse the effect
• If a patient has a cataract and requires tamsulosin or other therapy, consider cataract surgery before initiating therapy
• Tell ophthalmologist of any history of alpha blocker use
Benefits of Cataract Surgery

• Better optically corrected vision
• Better uncorrected vision with reduced spectacle dependence
• Increased ability to read or do near work
• Reduced glare
• Improved ability to function in dim light
• Improved depth perception and binocular vision (reduced risk of motor vehicle accidents and falls with broken hips and shoulders)
Diabetes

- Leading cause of blindness under age 65
- Prevalence increases with duration of disease
- Intensive control of blood glucose reduces the risk of retinopathy in both type I and II diabetics
Nonproliferative Diabetic Retinopathy: Characteristics

- Microaneurysms
- Leakage of intravascular fluid
- Intraretinal hemorrhage
- Retinal ischemia due to capillary dropout
NPDR
NPDR
NPDR: Treatment

- Intravitreal anti-VEGF (Diabetic Retinopathy Clinical Research Net)
  - Bevacizumab (Avastin)
  - Ranibizumab (Lucentis)
  - Afibercept (Eyelea)
- Focal laser photocoagulation for clinically significant macular edema (CSME) reduces rate of vision loss by more than 50% (EDTRS)
- Intravitreal steroids
Proliferative Diabetic Retinopathy: Characteristics

- All of the findings of NPDR
- PLUS formation of neovascular tissue from the optic nerve or the retinal surface
PDR
PDR
PDR: Treatment

- Intravitreal anti-VEGF
- Panretinal photocoagulation
  - Involute neovascularization
  - Reduce risk of vitreous hemorrhage and/or reduce traction retinal detachment
- Vitrectomy
  - Remove nonclearing vitreous hemorrhage
  - Repair traction retinal detachment
Pitfalls in Diagnosis

- More difficult if pupils undilated
- CSME not visible without stereoscopic view
- IRMA difficult to distinguish from neovascularization
- Neovascularization unapparent or outside field of direct ophthalmoscope
Screening Recommendations

- Type I diabetics 5 years after onset, then yearly
- Type II diabetics at time of diagnosis, then yearly
- Diabetics who are pregnant early in the pregnancy and every trimester
Age-Related Macular Degeneration

- A leading cause of severe, irreversible vision impairment
- Characterized by
  - Drusen
  - RPE abnormalities
  - Geographic atrophy
  - Neovascular maculopathy
Age-Related Macular Degeneration

• Risk factors
  • Smoking doubles risk of AMD
  • +/-hypertension, cardiovascular disease, inflammation
  • Low levels of anti-oxidants
Dry ARMD
Wet ARMD
ARMD Treatment

• Dry ARMD
  • Diet rich in green leafy vegetables, no smoking, weight control
  • Anti-oxidant supplements for intermediate AMD or advanced AMD in one eye

• Wet ARMD
  • Intravitreal anti-VEGF (bevacizumab, ranibizumab, aflibercept)
  • Anti-oxidant supplements (AREDS 2 formula)
Amsler Grid
New Onset Diplopia

- Is this a neurologic emergency?
- Diplopia that is not improved by covering one eye requires a neuro-ophthalmic or neurologic evaluation
Diplopia

- **Monocular:** abnormalities in the refractive media
  - Corneal (high astigmatism)
  - Lenticular—cataract or dislocated lens
  - Retinal (rarely)

- **Binocular:** misalignment of the visual axis
  - Cranial nerve palsy
  - Giant cell arteritis
  - Demyelinating disease
  - Myasthenia gravis
  - Thyroid orbitopathy
  - Orbital myositis
  - Other causes
Flashes and Floaters

Patients need to be examined to detect and treat retinal holes and detachments.
What is the differential diagnosis?

- Posterior vitreous detachment
- Retinal hole/detachment
- Vitreous hemorrhage
- Posterior segment inflammation
- Trauma
- Migraine
Red Flag Signs and Symptoms

- Require urgent referral
  - Decreased vision
  - Metamorphopsia (distorted vision)
  - Severe eye pain
  - Red eye with light sensitivity
  - Corneal opacity
  - Flashes and floaters
  - Binocular double vision