LECTURE # 9
EYECARE REVIEW: PART II
FOR THE PRIMARY CARE PHYSICIAN
STEVE BUTZON, O.D.

EYECARE REVIEW : PART II
FOR PRIMARY CARE PHYSICIANS

Steve Butzon, O.D.
Member Director – IDOC
President of W.S.O.S.
Sbutzon@gmail.com

EYECARE REVIEW: PART II
LEARNING OBJECTIVES

- Recognize Signs and Symptoms of Common External and Internal Ocular Conditions
- Identify eye conditions that are within the Practitioner’s purview of treatment
- Refer undiagnosed eye conditions for a consult to either an Optometrist or Ophthalmologist

COMMON EXTERNAL OCULAR CONDITIONS

- Blepharitis
- Demodex
- Hordeolum—stye
- Preseptal cellulitis
- Orbital cellulitis
- Pterygium
- Corneal ulcers

BLEPHARITIS

- Inflammation of eyelids (anterior or posterior)
- Symptoms
  - Itching
  - Burning
  - Crusting
  - Dry eye sensation
  - Foreign body sensation

The EYES use 65% of your BRAIN POWER
BLEPHARITIS

- Signs
  - Crusts on lid margins
  - Thickened, reddened eyelids
  - Plugged or inspissated meibomian glands along eyelid

- Treatment
  - Warm compresses, 10 minutes 1-2 x/day
  - Antimicrobial Lid wipes
  - 100 mg Doxycycline bid 2 wks
  - Erythromycin ointment at night

DEMODEX MITE

DEMODEX

- Demodex blepharitis is a common but overlooked external eye disease. The pathogenesis of Demodex blepharitis can cause ocular surface inflammation.

- Signs: Collerettes and Inflamed eyelash glands

- Symptoms: Itchy eyelid and morning crusting of lashes and burning/tearing eyes evening.

Treatment: Tea tree oil (Cliradex Pads) is used to treat Demodex blepharitis by reducing Demodex counts with additional antibacterial, antifungal, and anti-inflammatory actions. Oral Ivermectin can also be prescribed.

CHALAZION

- Abscessed meibomian gland
- Raised, tender nodule
- Often gets larger over days to a week

- Signs
  - Raised nodule protruding out from or under lid
  - Red, swollen lid
  - Capped glands at site of infection

- Treatment
  - Warm compresses, BID-TID for 10 mins
  - Topical meds don’t penetrate abscess
  - Oral antibiotics if no response to traditional treatment or in acute tender nodule lesions
  - Excise lesion

PRESEPTAL CELLULITIS

- Bacterial infection of eyelid anterior to orbital septum
- Can arise from
  - Concurrent sinus infection
  - Penetrating lid trauma
  - Dental infection
  - Hordeolum (stye)
  - Insect bite
**PRESEPTAL CELLULITIS**

- **Signs**
  - Painful, swollen lid extending past orbital rim
  - May be unable to open eye
  - No decreased vision, restricted ocular motility or proptosis
  - White conjunctiva

- **Treatment**
  - Amoxicillin (Augmentin) 500 mg PO TID x 10 days
  - ZPAK
  - Treat infection quickly to minimize the risk of orbital cellulitis

**ORBITAL CELLULITIS**

- **Signs**
  - Tender, warm periorbital lid edema
  - Proptosis
  - Painful ophthalmoplegia
  - Decreased vision
  - Severe malaise, fever and pain

- **Treatment**
  - Medical emergency
  - Hospitalization with IV antibiotics
  - Consider orbit/head CT to look for abscess
  - Consult pediatrician or infectious disease specialist

**PRESEPTAL VS. ORBITAL CELLULITIS**

- **Preseptal**
  - Painful, swollen lid
  - Normal vision
  - Full EOMs
  - No proptosis
  - No fever
  - Child Mean age 21 mos.
  - Cause Bacteremia or Trauma

- **Orbital**
  - Painful, swollen lid
  - Decreased vision
  - Restricted ocular motilities
  - Proptosis
  - Fever/malaise
  - Child Mean age 12
  - Cause Sinusitis

**PTERYGIUM**

- **Signs**
  - Triangular-shaped growth of conjunctival tissue onto cornea
  - UV exposure
  - Dryness
  - Irritants
    - Smoke
    - Dust

- **Causes**
  - UV exposure
  - Dryness
  - Irritants

- **Management and Treatment**
  - UV tint on glasses
  - Avoid irritating environments
  - Artificial tears
  - Topical vasoconstrictor or mild steroid
  - Surgery
CORNEAL ULCER
- Infection of cornea
  - Bacterial
  - Fungal
  - Acanthamoeba
- Causes
  - SCL wearer
  - Trauma
  - Compromised cornea from pre-existing condition

CORNEAL ULCER
- Signs
  - Pain
  - Photophobia
  - Blurred vision
  - Discharge
  - Hypopyon
- Treatment:
  - Start immediately
  - Fortified antibiotics
  - Fluoroquinolones
  - Amniotic membrane graft
  - Culture may not be necessary if ulcer is small
  - Must be monitored daily!

CONJUNCTIVITIS (RED EYE)
- Various Causes
  - Viral/Adenovirus
  - Bacterial
  - Allergic
  - Chlamydial
  - Herpetic
  - Toxic

CONJUNCTIVIS
- Signs
  - Irritation
  - Burning/stinging
  - Watering
  - Photophobia
  - Pain or foreign body sensation
  - Itching
- Discharge
  - Watery
  - Mucoid
  - Mucopurulent
  - Purulent

VIRAL CONJUNCTIVITIS (PINK EYE)
- Most viral infections are fairly mild and self-limiting
- Signs & Symptoms
  - Watering
  - Redness
  - Photophobia
  - Discomfort/foreign body sensation
  - Palpable preauricular node

VIRAL CONJUNCTIVITIS
- Patients often have recent history of URI
- Treat symptoms
  - Cool compresses
  - Artificial tears
  - Topical vasoconstrictors or mild anti-inflammatory
- Frequent hand washing
- Usually runs course in 1-3 weeks
ADENOVIRAL CONJUNCTIVITIS

- Highly contagious
- Most common types
  - Pharyngoconjunctival fever (PCF)—can be caused by adenovirus types 3, 4 & 7
  - Epidemic keratoconjunctivitis (EKC)—caused most commonly by adenovirus types 8 & 19

BACTERIAL CONJUNCTIVITIS

- Common, especially in children
- Usually self-limiting
- Signs/symptoms
  - Acute redness
  - Burning/grittiness
  - Mucopurulent discharge
  - Lids stuck shut in morning

HYPERACUTE CONJUNCTIVITIS

- Cause
  - Sexually transmitted
  - Neisseria gonorrhoeae
- Signs
  - Swollen, tender lids
  - Copious purulent discharge
  - Significant conjunctival redness and swelling
  - Lymphadenopathy

ADENOVIRAL CONJUNCTIVITIS

- Signs
  - Watering
  - Conjunctival follicles
  - Subconjunctival hemorrhages
  - Chemosis
  - Pseudomembranes
  - Lymphadenopathy
  - Keratitis

BACTERIAL CONJUNCTIVITIS

- Common organisms: S. aureus, S. epidermidis, S. pneumonia, H. influenza (esp. peds)
- Usually self-limiting
- But important to use broad-spectrum antibiotic until discharge cleared (5-7 days)
- Antibiotics
  - Tobramycin
  - Polytrim—polymyxin + trimethoprim
  - Fluoroquinolones like Ocuflox or Ciloxan

HYPERACUTE CONJUNCTIVITIS

- Treatment
  - Lavage
  - Take scrapings for culture and sensitivity testing
  - Patients usually hospitalized and started on IM Ceftriaxone
  - Topical antibiotics not effective
CHLAMYDIAL CONJUNCTIVITIS

- Signs
- Cause
  - Sexually transmitted ocular infection
  - Follicular conjunctivitis
  - Non-respondent to topical antibiotics
  - Usually unilateral
  - Foreign body sensation

- Patients can have concomitant genital infection (could be asymptomatic)
- Refer for work-up if necessary
- Treatment
  - Oral—Azithromycin 1g, doxycycline 100mg bid x 7 days, erythromycin 500mg qid x 7 days. Also need to tx partners!
  - Topical—erythromycin, tetracycline, or sulfacetamide ung bid-tid x 2-3 weeks

ALLERGIC CONJUNCTIVITIS

- Can be seasonal or acute
- Signs/symptoms
  - Itching is hallmark
  - Conjunctival redness
  - Chemosis
  - Lid edema
  - Thin, watery discharge
  - No palpable preauricular nodes

- Treatment
  - Eliminate offending agent
  - If mild
    - Cool compresses
    - Artificial tears/vasoconstrictors
  - If moderate or severe
    - Topical antihistamine/mast-cell stabilizer
    - Topical NSAID
    - Topical steroid
    - Oral antihistamine

INTERNAL OCULAR CONDITIONS

- Glaucoma
- Cataracts
- Macular Degeneration
- Retinal detachment

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---
**GLAUCOMA**

- Progressive loss of Nerve fiber layer at ONH (increased cupping)
- Can lead to peripheral visual field loss
- Sometimes caused by elevated intraocular pressure
- Two main types

**Pathophysiology of progression not well understood**

- Increased IOP
  - Damages nerves as they leave eye, causing cell death
  - Reduces blood supply to ONH, indirectly destroying cells by starving them of oxygen and nutrients
- Abnormal levels of neurotransmitter (glutamate) cause cells to die off

**Monitoring**

- IOP
- ONH appearance
- Visual field testing
- Newer methods include
  - HRT (Heidelberg Retinal Tomograph II)
  - GDx Nerve Fiber Analyzer
  - Genetic testing

**IOP reduction is mainstay of treatment**

- Decrease aqueous production
  - B-blockers
  - Alpha-agonists
  - Carbonic anhydrase inhibitors
- Increase uveoscleral outflow
  - Prostaglandin analogs

**CATARACT**

- Clouding of natural lens
- Patients experience
  - Blurred/dim vision
  - Glare, especially at night
  - Halos around lights
  - Doubling or ghost images of objects
ETIOLOGY

- Everyone develops them if they live long enough!
- Types of cataracts
  - Age-related—senile
  - Trauma—blunt or perforating injury
  - Systemic conditions—diabetes
  - Medications—steroids

MAIN TYPES

- Age-related
  - Nuclear sclerotic
  - Cortical spokes
  - Posterior sub-capsular
  - Mature cataract

TREATMENT

- Surgery
- When loss of vision interferes with daily activities
  - Driving
  - Reading
  - Hobbies

OUTPATIENT SURGERY

- 5-10 minutes with skilled surgeon
  - Incision through cornea or sclera under upper lid
  - Circular tear in anterior capsule
  - Lens broken up with ultrasonic instrument
  - Fragments suctioned out
  - Lens implant inserted

SECONDARY CATARACT

- Cloudiness forms on posterior capsule after cataract surgery
- 30-50% of patients
- YAG laser used to create opening
- Vision quickly restored

OPHTHALMIC SIDE EFFECTS OF SYSTEMIC MEDICATIONS
NEW PLAQUENIL GUIDELINES

Primary Risk factors
- Duration: > 5 yrs
- Cumulative Damage > 1,000g
- Age: Elderly
- Systemic disease: High BMI, Liver and Kidney Dysfunction
- Ocular disease: Retinal or Macular disorders

Dilated eye exam and 10-2 visual field prior to starting medication as well as a fundus photo.

MACULAR DEGENERATION

#1 cause of blindness in Americans over age 65

PATHOPHYSIOLOGY

- Causes not well understood
- Theorized link to
  - UV light exposure
  - Subsequent release of free radicals
  - Oxidation within retinal tissues
- Another theory—areas of decreased vascular perfusion in retina, lead to cell death

TWO TYPES

- Dry (atrophic)
  - 90% of those diagnosed
- Wet (exudative)
  - 10% of those diagnosed
  - But accounts for 90% of blindness caused by disease

SYMPTOMS

- None
- Blurred vision
- Metamorphopsia—straight lines appear wavy or distorted
- Scotomas—missing areas in vision

DRY FORM

- Slow, progressive loss of central vision
- Breakdown of underlying retinal tissues, resulting in mottling or clumping of normal pigment
- Drusen begin to accumulate, little white flecks (Tombstones) of old dead RPE Cells
- Geographic atrophy can also occur
WET FORM
- Can quickly degrade central vision
- Break in underlying tissues allows new blood vessels or fluid to come through
- New blood vessels are weak so frequently break and bleed

TREATMENT FOR WET FORM
- Refer to retinal specialist
- Photocoagulation
- Photo-dynamic therapy (PDT)
- Sub macular surgery
- Macular translocation
- Anti-VEGF drug therapy

RETINAL DETACHMENT
- Several types
  - Rhegmatogenous —caused by break in retina
  - Exudative—caused by fluid accumulation beneath retina
  - Tractional—proliferative fibrovascular vitreal strands

SIGNS & SYMPTOMS
- Flashing lights in peripheral vision
- New floaters—black spots or ‘cobwebs’
- Peripheral scotoma—dark shadow or “curtain” blocking vision

TREATMENT FOR DRY FORM
- Regular eye exams
- Careful discussion regarding family history
- Education
- UV protection
- Antioxidants
- AREDS II supplements
- Stop smoking

EMERGENCY
- Patients with these symptoms must see eyecare provider immediately
- Additional risk factors
  - Highly nearsighted
  - Diabetic
  - Recent trauma/injury
TREATMENT

- Laser photocoagulation or cryotherapy
- Pneumatic retinopexy—gas bubble to tamponade retina back into place
- Scleral buckle
- Silicone oil

DIABETIC RETINOPATHY

- Diabetes affects retinal micro-vasculature
- One of leading causes of blindness among ages 20-64

PROGRESSION

- Over time, elevated and fluctuating blood sugar damages vessel walls
- Vessels leak fluid, lipids or blood into retina
- New vessels grow to bring more oxygen to retina

SYMPTOMS

- Fluctuating vision
- Blurred vision
- Distortion
- Sudden loss of vision

TREATMENT

- Control blood sugar
- Refer to retinal specialist when vision threatened
- PRP (pan-retinal photocoagulation)
- Focal laser
- Vitrectomy
- Anti-VEGF treatment for diabetic macular edema
HYPERTENSIVE RETINOPATHY

- Damage to the retina and to the retinal circulation due to high blood pressure (i.e. hypertension).