EENT Workshop
Denise Ramponi, DNP, FNP-C, ENP-BC, FAANP, FAEN

Objectives

1. Describe the assessment and general principles for an eye exam
2. Describe the assessment and common conditions involving the ears, nose & throat
3. List the pharmacological treatment considerations in eyes, ears, nose & throat conditions

Eyes

- Subconjunctival hemorrhage
- Corneal abrasions/ulcers
- Foreign bodies
- Brow and Lid lacerations
- Blow out fractures
- Globe rupture
- Hyphema
- Acute closed angle glaucoma
- Ocular burns

Eye findings?

History

- Chief complaint
- Change in vision
- Pain
- PMH of eye problems
- Contact lenses
- Tetanus

Eye Exam

- Good lighting essential
- Anterior to posterior
  - External – lids, EOM/ROM, PERRIL
  - Globe – conjunctiva, cornea, iris, anterior chamber
  - Fundus – optic disc, cup, retinal vessels, macula
Visual Acuity
Most important vital sign of eye
- Distance - Snellen
- Near Card - Rosenbaum
- Pinhole
- Newsprint (NP)
- Counting fingers (CF)
- Hand motion (HM)
- Light perception (LP)
- No light perception (NLP)

Tonometer
- Measures IOP (Intraocular pressure)
- Equipment
  - Applanation tonometer
  - Tonopen
- Normal pressure 10-21 mm Hg

Applanation tonometer

Measurement of IOP
### General Principles

- Topical anesthetic unless allergy exists
- Superficial injuries more painful
- Never send pt home with topical anesthetic
- Never use steroid drops without talking with Ophthalmologist
- Discharge instructions regarding depth perception

### Subconjunctival Hemorrhage

- After trauma, sneeze, cough, etc
- Treatment
  - None
  - Reassurance
  - Resolve in approximately 2 weeks

### Subconjunctival hemorrhage

![Image of subconjunctival hemorrhage]

### Corneal Abrasion

- Symptoms:
  - FB sensation, tearing, photophobia, blepharospasm
- Diagnosis:
  - Fluorescein stain dye uptake
  - Damaged cells take up dye
- Location
  - Visual axis – within the pupil

### Corneal Abrasion

![Image of corneal abrasion with fluorescein stain]

### Eye Procedures

Fluorescein Stain
Corneal abrasion

Wood’s Lamp & Portable UV light

Upper Eyelid Eversion
- Have patient look down
- Grasp patients upper lid lashes with fingers
- Use firm cotton swab to press down
- Lift lid with fingers
- Examine under side of upper eyelid

Removing foreign bodies

Moistened cotton swab
Treatment of Corneal Abrasion
- Topical antibiotics –
  - Drops vs. ointment; 2 gtt qid or ½ inch ribbon tid
  - Bacitracin-polymyxinB (Polytrim), Ciprofloxacin (Cipro), Tobramycin (Tobrex)
- Cycloplegic drops — Cyclogyl (Cyclopentolate) 1% 1 gtt X 1
- Patch considerations
- Analgesia
- Ophthalmology follow-up

Corneal Foreign Body
- Symptoms
  - Pain
  - FB Sensation
- Topical anesthetic
- Moistened cotton swab with rolling action, 25 g needle, spud
- Rust ring

Algerbrush
- FB's or Rust Ring removal
- Ophthalmologist referral for central axis or those deeply embedded

Glue Substances
- Warm water irrigation
- Warmed topical antibiotic ointments
- Surgical separation

Removal of glue substances
- Periorbital edema
- Enophthalmus
- Upward gaze
- Decreased sensation of 2nd division of trigeminal nerve
- Decreased EOM/ROM
- Diagnosis: Orbit X-rays, CT is best
Blow out fracture of R orbit

Blow out fracture Orbit treatment

- Analgesia
- Sedation
- Antibiotics
- Ice
- Ophthalmology referral

Globe Rupture

- Metal to metal contact
- Soft globe
- Enophthalmus
- Diplopia
- Flat anterior chamber
- Pupil irregular

Globe Rupture

- Semi-fowlers position
- NPO
- IV antibiotics
- Eye shield
- Tetanus
- Analgesia & sedation
- Impaled object – don’t remove it!
  - Stabilize object

Globe Rupture Treatment

Hyphema

- Usually blunt trauma to eye
- Pain, blurred vision
- Hemorrhage into anterior chamber – suspended or layered
Hyphema treatment

- Semi-fowlers position
- Bedrest, Sedation
- Cycloplegia, steroid
- No aspirin
- Frequent monitoring – 1st 5 days high chance rebleed

Ocular Burns

- Chemical
  - Acid
  - Alkali
  - Thermal
  - Ultraviolet

Alkali Ocular Burn

- Tear gas, mace, lime, ammonia, household cleaners
- Penetrates cornea quickly by lyse cell membrane
- Severe damage may not occur until 3-4 days post injury
- Refer ALL alkali burns

Acid Ocular Burn

- Battery acid, acetic acid
- Mechanic or laboratory positions
- Acid precipitates proteins that set up barriers against deeper penetration

Ocular Burn Treatment

- Treat urgently
- Irrigate eyes immediately
  - Acid burn – 500 ml
  - Alkali burn – 2000 ml
- Check pH after 20 minutes irrigation complete
- Analgesia
- Cycloplegic and antibiotic drops
- Ophthalmology referral

pH consideration

- Tears pH 7.1
- Lactated Ringers solution pH 6.0 – 7.5
- Normal Saline pH 4.5 – 7.0
Eye irrigation

Thermal injury
- Pain
- Tearing
- FB sensation
- Red eye
- Decreased vision
- Treatment ATB drops

UV Keratitis – UV Burns
- Arc welding, sunlamp, snow
- Delay between exposure and symptoms
- Diagnosis – fluroscein stain
  - Stippled pattern
  - Diffuse punctate staining

Punctate staining

UV Ocular Burn Treatment
- Avoid sun exposure
- Sun protection
- Cycloplegia
- Antibiotic drops
- Analgesia
- Ophthalmology referral

Redness Scores
- 0 None
- 1 Mild
- 2 Moderate
- 3 Severe
- 4 Extremely Severe
**Bacterial or Suppurative Conjunctivitis**

- Usually staph, strep or H flu
- Limbal sparing
- Purulent discharge
  - If excessive – get c & s
- Topical antibiotics –
  - Drops vs. ointment
  - Bacitracin-polymyxinB (Polytrim), Ciprofloxacin (Cipro), Tobramycin (Tobrex)
- Save 4th gen. quinolones
  - Vigamox (gatifloxacin), Zymar (gatifloxacin)

**Bacterial Conjunctivitis**

**Viral Conjunctivitis**

- Watery discharge
- Recent URI
- Diffuse injection
- Pre-auricular node
- Scrupulous hygiene
- ATB to prevent super-infection
- Warm/Cool compresses

**Viral conjunctivitis**

- Adenovirus cause 90% viral conjunctivitis
- Adenodetector
- Point of care test
- 90% sensitivity, 96% specificity

**Allergic Conjunctivitis**

- Seasonal – spring & fall considerations
  - IgE; seasonal – April/May – tree pollens; June/July – grass pollens; July/Aug – mold spores & weed
  - IgE: perennial - persistent – house dust mites
- Bilateral
- Rope like discharge
- Nasal congestion
- Boggy conjunctiva

**Allergic Conjunctivitis**
Chemosis

Allergic Conjunctivitis
- Topical antihistamine
  - Patanol (olopatadine)
  - Cromolyn (cromoglycate)
  - Livostin (levocabastine)
- Antihistamine oral
  - Benadryl (diphenhydramine)
  - Clairtin (loratadine)

Stye or Hordeolum
- Infection of eyelid at accessory oily gland
- Internal vs. External
- Usually Staph aureus
- Treatment
  - Hot compresses
  - Antibiotic drops vs. ointment
  - Erythromycin (Ilotycin), Tobramycin (Tobrex)

Hordeolum

Chalazion
- Inflammation of mebomian gland under eyelid
- Hard, non-tender
- Treatment
  - Hot compresses
  - Intra-lesion corticosteroid injection by Ophth
**Blepharitis**

- Irritation, burning, and FB sensation
- Erythema and dandruff-like deposits on the lashes
- Lash loss can occur
- Recurrent, mild conjunctivitis
- 3 types
  - Seborrheic, Staphylococcal & Mebomian gland dysfunction

**Blepharitis treatment**

- Lid margins scrubbed daily
- Cotton tipped applicator dipped in dilute baby shampoo

**Herpes simplex keratitis**

- Photophobia
- Conjunctival injection
- Pain is mild
- Epithelial dendrites
Herpes Zoster

- Pain
- Headache
- Photophobia
- Vesicular rash in distribution of trigeminal nerve – dermatome distribution

Herpes Zoster
Hutchinson’s sign

Herpes treatment

- Herpes Simplex
  - Famvir (Famciclovir) or Valtrex (Valacyclovir) 500 mg tid X 7 days or Acyclovir (Zovirax) 400 mg 5 x/day
  - Viroptic (Trifluridine) drops; Vira A oint (Vidarabine)
- Herpes Zoster
  - Acyclovir 800 mg po 5 times day x 7-10 days
  - Famvir (Famciclovir) or Valtrex (Valacyclovir) 1 gm po tid x 7 days
- Ophthalmologist referral

Contact lenses

Corneal Ulcer

- Most common cause – contact lenses
- Swimming in lake
- Symptoms
  - Blurred vision
  - Photophobia
  - Foreign body sensation
  - Limbal injection
  - Corneal opacification

Corneal ulcer with hypopyon
Corneal Ulcer Treatment

- Urgent – permanent vision loss
- Discontinue contact lens use
- Ophthalmology referral urgently
- Cycloplegia
- Gatifloxacin (Vigamox/Zymar)
- Ciprofloxacin (Ciloxan/Oculflox)

Periorbital/preseptal cellulitis

- Swollen, inflamed eyelids
- No proptosis
- No chemosis
- No limit of EOM/ROM
- Treatment: antibiotics

Periorbital cellulitis

- Differential diagnosis – CT scan

Orbital cellulitis

- 60% originate - sinuses
- Fever, pain
- Exophthalmos
- Chemosis *
- Eyelid swelling
- Limited EOM – “cement globe” *
- Elevated WBC and ESR

Orbital cellulitis

- High dose IV antibiotics
- Complications - optic neuritis and loss of vision
- Cavernous sinus thrombosis – life threatening
- ENT specialists & neurosurgeons
Glaucoma

- Open angle (chronic)
- Closed angle (narrow angle or acute)
- Obstruction of aqueous at canal of Schlemm
- Elevated IOP

Aqueous humor circulation

Acute closed angle Glaucoma

- Halos around lights, history
- Steamy, hazy, foggy cornea
- Fixed & dilated pupil
- Severe pain, headache
  - \( \uparrow \uparrow \text{IOP} \)
- Diffusely injected eye
- Blurred vision

Acute closed angle Glaucoma

- Red eye
- High IOP > 60 mm Hg
- Eye rock hard
- Foggy, steamy cornea
- Mid dilated pupil

Acute closed angle Glaucoma

PATHS treatment

- Pilocarpine (Pilocar) 2% one drop q 5 – 15 min X 3
- Acetazolamide (Diamox) 500 mg po or IV X 1
- Timoptic (Timolol) 0.5% one drop x 1
- Hyperosmolar – Mannitol 20% 1.5-2.0 Gm IV over 30 min
- Surgery – laser iridectomy
- Blindness in 3-5 days without treatment

Retinal Detachment

- Most common cause – degenerative
- Painless
- Curtain, veil, or gray cloud
- Flashes or floaters
- Injury latent period – 8 mon – 2 yrs
- Infero-temporal quadrant most common
Retinal detachment
3 D retina

Retinal Detachment Treatment
- Bedrest
- Sedation
- Ophthalmology referral

Retinal Vascular Occlusions
- Sudden, painless loss of vision
- Blockage of blood flow out of or into the retina
- Fundoscopic exam
- Emergent treatment or referral

Amaurosis Fugax
- Decreased Visual Acuity
- Transient – may only last a few seconds
- Normal eye exam
- TIA of eye

General Principles
- Is it unilateral or bilateral
- Local anesthetic test
- Pain or not?
- Change in vision?
- When in doubt – consult
- Follow-up Ophthalmology

Ears
- Tympanic membrane perforation
- Foreign bodies
- Necrotizing otitis externa
- Ear lacerations
- Ear blocks
Injury to TM

- Blow to the ear
  - Head hitting water while water skiing
  - Struck with flat of hand
- Atmospheric overpressure
  - Explosion
  - Scuba divers
- Objects used to clean ear
  - Irrigation
  - Object perforation

TM perforation

- Audible whistling sounds during sneezing and nose blowing
- Decreased hearing
- Tendency to infection during colds and when water enters the ear canal
- Drainage – purulent or sanguineous

TM perforation

Treatment
- Oral Amoxil (Amoxicillin) or Sulfamethoxazole & Trimethoprim (Bactrim)
- &/or Topical antibiotic drops Floxin (Ofloxacin)
- Avoid Macrolides – any mycins (Gentamycin, Tobramycin, Neomycin) – ototoxic, sensorineural hearing loss
- Analgesia

Foreign Bodies

- Odor
- Foreign bodies in the ear
  - Insects
  - Metal
  - Vegetable matter

Ear Foreign Bodies

- Cerumen Removal
- Alligator Forceps Removal
- Ear Curette
- Irrigation Removal
- Light
Precautions to Cerumen Removal

- Consider Docusate (Colace)
- Don’t irrigate if ear surgery, tympanostomy tubes, perforation suspected
- **GENTLE** irrigation to prevent perforated TM
- Warm irrigating solution prevent caloric stimulation
- Aim irrigating stream at the superior wall of the ear canal

Cerumen Removal

Alligator Forceps & Curette

Otitis Externa

- Ear wick -will fall out as the otitis externa resolves
- Ofloxacin (Cipro)
- Ciprofloxacin with hydrocortisone (Ciprodex)
- PolymyxinB & neomycin & hydrocortisone (Cortisporin) otic suspension
- Pseudomonas
- Proteus
- Enterobacteriaceae
- S. aureus
- Fungal infections

Auricular Hematoma
**I & D**

**Auricular Cellulitis**
- Follows minor trauma
- Lobule
- Soft tissue infection symptoms
- ATB – *S. aureus* & *Strep*
- ATB – 1st gen cephalosporins

**Nose**
- Anterior & posterior epistaxis
- Nasal packing
- Fractures
- Foreign bodies
- Septal hematoma
- Septal perforation

**Nasal kit**

**Nasal Examination**

**Blow Technique**
- Caution
Removal tools
Fogarty catheter & tools

Katz extractor $50
http://www.youtube.com/watch?v=rOpIo0dJrYIc

#8 lubricated foley cath
Paper clip

Nasal Foreign Bodies

- Direct Removal with forceps
- Blow Technique
- Fogarty catheter
- If FB is smooth and round, consider Frazier suction tip or right angle hook

Anterior Epistaxis

- Localized nasal mucosa dryness
- Local trauma
- Rare result HTN or coag disorder
- Firm pressure minimum 10 minutes
  - Above nasal alar cartilage
- Second line therapy
  - Nasal packing
  - Cautery
  - Topical thrombin

Anterior Epistaxis

- Kiesselbach’s plexus

Nasal tampon

Nasal balloon & Vaseline gauze
Caution: Septal perforation

Nasal Fracture

Nasal Fracture Complications
- Septal hematoma
- Septal deviation

Septal hematoma

Throat
- Epiglottitis
- Foreign bodies
- Retropharyngeal abscess
- Peritonsillar abscess
- Ludwig's angina

Epiglottitis
- H. influenzae & Group A Streptococcus – most common
- Medical emergency
- Toxic appearing
- Fever, sore throat, tachy, drooling
- Stridor, respiratory distress
- Direct visualization NOT recommended
- Lateral neck radiographs & lab tests
Lateral Neck

Epiglottitis
- Secure the airway
- IV antibiotics
- B-lactam/B-lactamase inhibitor combination
- Cefuroxime, Ceftriaxone with Clinda & TMP-SMX
- ATB for 7-10 days

Foreign bodies of throat
- Most common - plastic, metal pins, seeds, nuts, bones, coins, and dental appliances
- Airway protection
- Radiographs
- Removal attempts often complicated by gag reflex
- ENT consultation

Fishbone stuck in throat – pt tried to remove it - with what?

Aphthous ulcers
- 2 mm to several cm.
- Self limiting disease
- 7 – 10 days usually
- Stress, trauma, even menses
- Symptomatic treatment:
  - Dexamethasone (Decadron) swish & spit qid
  - Viscous lidocaine (Xylocaine) – swish & spit
  - Liquid topical debriding agent

Peritonsillar Abscess
- Tonsillitis to cellulitis to peritonsillar abscess
- Nov – Dec & Apr – May
- Fever
- Drooling
- Trismus
- Hot potato voice
- Contralateral deviation of the uvula
**Peritonsillar Abscess**
- Streptococcus pyogenes,
  Staphylococcus aureus,
  and Haemophilus influenzae
- Needle aspiration
- I & D
- CBC & blood c/s
- Monospot
- Lateral neck
- CT scan head & neck with IV contrast

**Ludwigs Angina**
- Inflammation of submandibular & sublingual spaces
- Often dental infections
- Severe neck pain, fever, malaise & dysphagia
- Streptococci & Staphlococci
- PCN G IV

**Peritonsillar Abscess**
- IV fluids
- Antipyretics
- Needle aspiration vs. I & D
- Antibiotics – Penicillin (Amoxicillin) or Cleocin (Clindamycin) (if allergic)
- Steroids
- Hospitalization if toxic, sepsis, airway compromise

**Ludwig’s angina**
- CT with IV contrast
- Combination ATB
  - Penicillin (Pen V K)
  - Clindamycin (Cleocin)
  - Metronidazole (Flagyl)
- Corticosteroids
- Surgical consultation