

# Eyes, Ears, Nose and Throat Emergencies



Emergency Medicine Clerkship Lecture Series

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# Lecture Objectives

- To understand the common EENT emergencies encountered in the ED
- Review the priorities for managing those emergencies

# ENT / Ophthalmologic Emergencies

- Pharyngitis / peritonsillar abscess
- Epistaxis
- Dental emergencies
- Painful red eye
  - Conjunctivitis
  - Iritis
  - Angle closure glaucoma

# Pharyngitis

- Common causes:
  - Viral is most common cause
  - Group A Beta Hemolytic Streptococcus
- Rare causes
  - Chlamydia
  - Mycoplasma
  - Gonorrhoea

# Pharyngitis – Centor Criteria

1. Tonsillar exudates
  2. Tender anterior cervical lymphadenopathy
  3. Absence of cough
  4. History of fever
- For diagnosis and treatment
    - If four are positive – Strep throat about 50 percent likely (**Positive Predictive Value**)
    - If three or four are absent, greater than 80 percent don't have strep throat (**Negative Predictive Value**)

# Pharyngitis – Diagnosis

- Rapid strep test – bedside
  - Sensitivity: 70 – 95%
  - Specificity: 96%
- Similar sensitivity and greater specificity than throat culture
- Some patients are strep carriers

# Strep pharyngitis – Treatment

- Prevent rheumatic fever, decrease contagion and ameliorate symptoms.
  - *Rheumatic Fever* : Very low rates.
  - *Glomerulonephritis* : Rare – antibiotic won't prevent
  - *Suppurative – Peritonsillar abscess* : rare and incidence not affected by treating strep throat
  - *Contagion* : Theoretical benefit of preventing spread of infection
  - *Symptoms*. Antibiotics reduce pain by one day
- Limit antibiotic therapy to patients with a high likelihood of pharyngitis using penicillin (erythromycin or macrolide if PCN allergy)
- There is some research to suggest steroids decrease pain

# Epiglottitis

- Acute inflammation of supraglottis, epiglottis, vallecula, arytenoids, and aryepiglottic folds
- Uncommon (1 per 100,000 per year in adults)
  - Rare in kids since *HiB* vaccine
- Risk of death due to airway obstruction and difficult intubation
  - Mortality rate in adults about 7%, in children <1%
- Sudden onset of sore throat with pain and difficulty swallowing
  - Odynophagia and / or dysphagia
  - Consider in adult with severe sore throat and normal exam



# Epiglottitis

- Examination:
  - Pain out of proportion to throat examination
    - Hypopharynx benign in patient with severe pain
    - Severe pain on gentle palpation over larynx
  - Impending airway obstruction – stridor, muffled voice, tripod position, hypoxia, respiratory distress
- Direct visualization – nasopharyngeal laryngoscopy

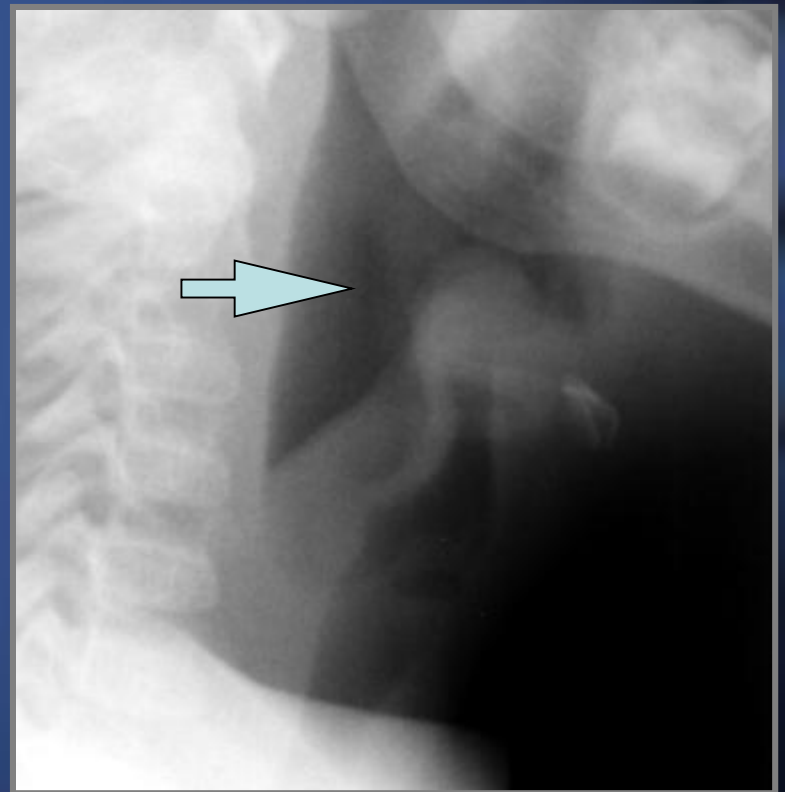
# Nasopharyngeal Laryngoscopy



# Soft Tissue Neck XRAY

- Epiglottis > 7mm thick
- If in distress, avoid x-ray until the airway is secure because of the danger of sudden obstruction.
- Most often can intubate orally but, cricothyrotomy may be necessary

“Thumb sign” – swollen epiglottis with no air in vallecula

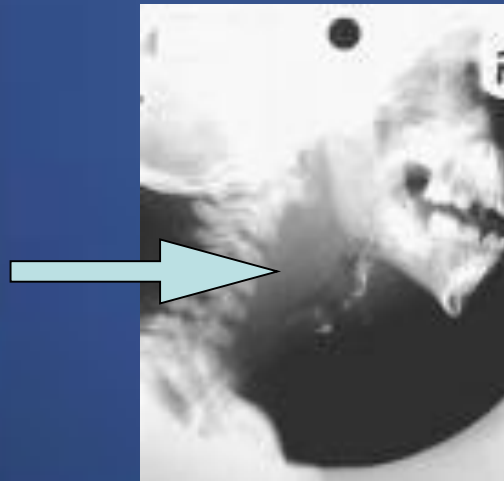


# Retropharyngeal Abscess

- Mortality due to airway obstruction
- Most commonly seen in young kids
- History of sore throat, fever, dysphagia, odynophagia, neck pain
- Physical exam may show a normal pharynx or
  - Posterior pharyngeal edema
  - Nuchal rigidity
  - Cervical adenopathy
  - Fever
  - Drooling
  - Stridor

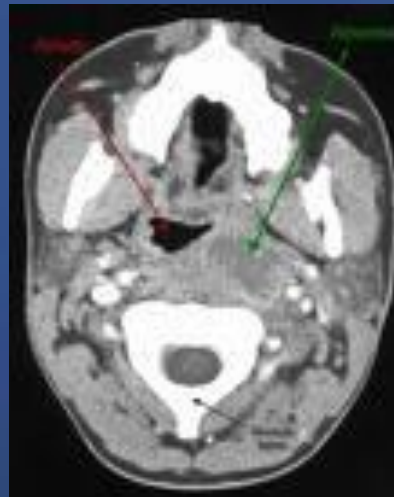
# Retropharyngeal Abscess

- Imaging Studies:
  - Lateral neck x-ray: widening of retropharyngeal soft tissues (arrow)



# Retropharyngeal Abscess

- Imaging Studies:
  - CT scan of the neck may show ring enhanced hypodense lesion in retropharyngeal space



# Retropharyngeal Abscess

- Treatment is surgical, with added intravenous antibiotics
  - Endotracheal intubation
    - For impending upper airway obstruction
    - A difficult airway
  - Surgical or needle cricothyrotomy may be required if unable to intubate

# Peritonsillar Abscess

- Low mortality- due to airway obstruction
- Mostly present in adults
- History of sore throat, fever, dysphagia, odynophagia, neck pain
- Physical exam may show
  - Swelling of one (usual) or both (less common) tonsils and tonsillar pillars => pushes uvula from the midline
  - Cervical adenopathy
  - Fever
  - Hot potato voice (sounds muffled) (dysphonia)
  - Trismus



# Peritonsillar Abscess

- No laboratory or imaging studies are needed for diagnosis
- Treatment is surgical drainage, with added intravenous antibiotics
  - Formal surgical I & D may be required
  - Often treated with needle aspiration to reduce size of abscess

# Peritonsillar Abscess

- Look for flattening or bulging of the anterior tonsillar pillar
- Abscess is right behind that landmark
- Recall that the carotid artery is right behind the tonsil (if you incise or aspirate)



# Epistaxis

- **Classification:**
  - **Anterior** – originating from Kisselbach's plexus in the nasal septum or anterior to the inferior turbinate
  - **Posterior** – branches of the sphenopalatine artery in the posterior nasal cavity or nasopharynx

# Epistaxis

- Peak in children and elderly
- Simultaneous management and history
  - Hemodynamic instability – control bleeding
  - Duration, side of bleeding, and recurrences
  - Previous epistaxis, hypertension, liver disease or coagulopathy
  - Medications (aspirin, NSAIDs, warfarin, heparin, ticlopidine, clopidogrel, and dipyridamole, dabigtran)

# Epistaxis – Physical

- Blow nose to remove clots and see better
- Insert nasal speculum – vertically open nares to see septum and localize the bleed

# Epistaxis

- Lab Studies: if major bleeding or suspect coagulopathy
  - Hematocrit – type and cross
  - CBC for recurrent epistaxis
  - INR if warfarin therapy or liver disease
- Angiography with embolization if persistent uncontrollable bleeding

# Epistaxis – ED Care

- Wear gowns, gloves, and protective eyewear. Use headlamp with adjustable light.
- Clear nose of clots.
- Apply vasoconstrictor
- Pinch anterior nose for at least 20 minutes
- Re-evaluate
- Continued bleeding: cautery or packing

# Epistaxis – ED Care

If pressure and cautery fail, pack the nose

- Traditional nasal packing using vaseline gauze
- Prefabricated nasal sponge (Merocel) sponge (coagulant and tamponade)
- Anterior epistaxis balloons have one chamber. Cover the balloon with antibiotic ointment, place and inflate



# Epistaxis – ED Care

- Posterior epistaxis balloons have two balloons (anterior and posterior)
- Admit for airway observation
- Antibiotic coverage??
- Consultations for posterior packing with ENT with admission to a monitored bed

# Dental Trauma – Fractures

- Incomplete fracture (crack) of the enamel without loss of tooth structure
- Goal: Maintain structural integrity and pulp viability
- Complications are unusual.

# Dental Trauma – Concussion or Luxation

- Concussion – periodontal ligament injury without loose tooth
  - Tooth tender to pressure and percussion but not mobile or displaced
- Luxation – periodontal ligament injury with loose tooth which is displaced
  - Permanent teeth stabilized with flexible splint
  - May lead to pulpal necrosis in permanent teeth

# Dental intrusion and Extrusion

- **Intrusion:** Tooth into alveolar bone socket
  - Periodontal ligament disruption
  - Tooth appears shortened is not mobile and tender
  - X-ray – apically displaced tooth
  - **Reposition and stabilize, refer to dentist**
  - 90% re-erupt spontaneously in 2 to 6 months
- **Extrusion:** Tooth partially displaced axially tearing the periodontal ligament.
  - Tooth appears elongated and is mobile.
  - **Reposition and stabilize, refer to dentist**
  - High risk for pulp necrosis

# Dental Avulsion

- Displacement of tooth from socket with complete periodontal ligament disruption
- Tetanus prophylaxis and antibiotic coverage
- Prognosis depends upon length of extraoral dry time, so if cannot replant in 5 minutes store in medium to maintain vitality ligament fibers

# Dental Avulsion

- Stabilize anatomically and replant ASAP
- Store tooth in Viaspan, Hank's Balanced Salt Solution (tissue culture medium), cold milk, saliva (buccal vestibule), physiologic saline, or water
- Contraindications to replantation are immunocompromise, severe congenital cardiac anomalies or uncontrolled seizure disorder or mental disability or uncontrolled diabetes, and lack of alveolar integrity

# Conjunctivitis

- Most common non-traumatic eye problem in ED
- Pathophysiology:
  - Any inflammation involving the conjunctiva;
    - Covering of eyeball (bulbar conjunctiva) or inside of eyelid (palpebral conjunctiva)
    - Redness, discharge, and irritation, with photophobia sometimes
- Viral more common than bacterial
  - Incidence of viral conjunctivitis is highest in late fall and early spring

# Conjunctivitis

- Usually self-limited but can progress to sight-threatening
  - Neonatal purulent conjunctivitis – *Neisseria gonorrhoea*
  - Chlamydia leads to scarring of lid and eyelashes



# Conjunctivitis: H & P

- Eyelids stick together
- Itching and burning or foreign-body sensation
- Purulence may distort vision
- Visual acuity is usually normal
- Check for close contacts with similar complaints
- Recent viral upper respiratory infection

# Bacterial Conjunctivitis

- Acute onset, minimal pain, occasional pruritus
- Copious discharge thick and purulent in quality with moderate or marked injection



# Viral conjunctivitis

- Acute or subacute onset
- Minimal pain with pruritus
- Clear, watery discharge
- Exposure history



# Conjunctivitis - DDx

- Corneal abrasion
- Glaucoma (acute angle closure)
- Herpes zoster
- Iritis and uveitis
- Scleritis

# Conjunctivitis Work-Up

- Lab tests not useful unless no response to therapy in 48-72 hours:
  - Culture in newborns, neonates, immunosuppressed persons or if *N gonorrhoeae* is suspected
- Ophthalmology consultation if a questionable or equivocal diagnosis
- Neisserial and herpetic conjunctivitis require consultation

# Conjunctivitis

- TREATMENT
  - Supportive – artificial tears
  - Cold compresses to reduce swelling and discomfort
  - Antibiotic drops??? Ciloxan (ciprofloxacin), Ocuflux (ofloxacin), Sulfacetamide or Polytrim (trimethoprim/sulfamethoxazole)
  - Topical corticosteroids by ophthalmologist only for inflammation and only if herpes simplex is excluded.
- Care providers must be careful not to transmit the infection

# Iritis – H & P

- Ocular and periorbital pain
- Direct and consensual photophobia (pain in affected eye when light shown in other eye)
- Blurred or cloudy vision
- White blood cells in anterior chamber can be cells and flare (scattered or diffuse) or hypopyon (large collection of white cells leading to grey or near –white appearing pupil)
- Synechia – adhesions between iris and lens (or cornea)

# Iritis – Treatment

- Always d/w ophthalmologist
- Steroid drops (prednisolone)
- Dilating eye drops prevent synechia and decrease photophobia



# Glaucoma

- Glaucoma: increased IOP
- Eventually causes optic nerve damage
- Acute angle closure: most common glaucoma seen as an acute presentation in the ED.

# Angle Closure Glaucoma – Signs and Symptoms

- Eye pain with or without headache
  - Nausea and vomiting common
- Cloudy cornea
- “Red” eye – conjunctival injection
- Iritis – pupil is mid range, poorly reactive and often irregular in shape
- Intraocular pressure usually  $>40\text{mmHg}$

# Angle Closure Glaucoma - Therapy

- Ophthalmologic emergency
- Immediate consultation
- Treatment of acutely elevated pressure:
  - Topical beta blockers
  - Oral acetazolamide
  - Miotic (pilocarpine) eye drops
  - IV acetazolamide or mannitol
- Definitive ophthalmologic therapy with laser iridectomy

# Summary

- EENT conditions are a common cause of ED patient presentations
- Many are benign, however some conditions are associated with significant morbidity and mortality
- Consider early sub-specialty consultation in complicated cases

# Thanks...

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