



Eye, Ear, Nose, & Throat Disorders in Children

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Disclosures

Teresa Whited, DNP, APRN, CPNP-PC

- Has no financial relationship with commercial interests
- This presentation contains no reference to unlabeled/unapproved uses of drugs or products

Learning Objectives

Upon completion of this review, the course attendee should be able to:

- Describe the process of history and physical assessment of the eyes, ears, nose and throat.
- Summarize common diagnostic tests utilized when evaluating a concern of the eyes, ears, nose, and throat.
- Summarize the common procedures that may be performed when evaluating a concern with the eyes/ears/nose & throat.
- Compare and contrast the pathophysiology, clinical presentation, management, and follow-up of the most common disorders of the eyes, ears, nose, and throat
- Describe education needs related to the most common disorders of the eyes, ears, nose, and throat.
- Cite current evidence-based guidelines that determine plan of care for common disorders of the eyes, ears, nose, and throat.

Vision Screening

- According to the AAP guidelines:
- automated vision screening, including photoscreening and autorefraction, is preferred for children aged 6 months to 3 years because the procedure is quick and requires little cooperation from the patient. Visual acuity charts continue to be the reliable method of screening for children aged 4 to 5 years.
- Vision screening detects [amblyopia](#) (lazy eye) and its risk factors, which affect 1% to 4% of children. The neural condition causes obscured or misaligned imaging primarily in 1 eye. The earlier the diagnosis, the higher the benefit from treatment. However, standard screening with vision charts can be difficult for very young children or for those with developmental delays.

The Eye

- Any eye concern or complaint should be carefully evaluated.
- It is important to obtain a complete history, analysis of symptoms, family and client review of systems and careful physical examination.
- Studies have shown that parental concern alone is sufficient to warrant the above evaluation.
- Visual concerns/ complaints can be associated with significant systemic illness/ learning problems and may very well be the first symptom.

Assessment of the Eye

- **Pertinent PMH related to the eye**
 - Maternal substance exposure during
 - TORCHES exposure
 - Prematurity
 - Developmental delay
 - Neurological abnormalities
 - Metabolic abnormalities
 - Congenital/ genetic abnormalities associated with eye problems
 - Allergies

Assessment of the Eye

- **Pertinent FMH related to the eye**
 - Congenital abnormalities
 - Blindness
 - Retinoblastoma
 - Metabolic/ genetic/ congenital disorders
 - Need for corrective lenses
 - Glaucoma
 - Blood dyscrasias
 - HTN
 - Glasses

History

- Parental concern
- Not attending to voice, light, or distraction
- Developmental delays
- Squinting
- Pain in or around eyes
- Dizziness
- Mild nausea
- Tendency to cover or close one eye when concentrating

Physical Exam of the Eye

- Observation of structures and response to exam by confrontation
 - EOM
 - PERRL
 - Accommodation
- External eye exam
- Corneal light reflex
- Red reflex
- Ophthalmoscope exam

Definitions

- **Accommodation:** Ability to focus the eyes to see up close and change from close to far
- **Corneal light reflex:** reflection of light from both eyes. Should be symmetrical (Cover/Uncover if not and for older children)
- **Red reflex:** use ophthalmoscope to look through pupils to see reflection from retina. Both eyes should have crisp, round, red, orange, or tan reflex

Evaluating Vision

- Observation and physical exam are the only methods to evaluate visual health in a small child.
 - EOMI
 - PERRLA
 - CLR
 - Red reflex
- By 2 ½ years of age myelination is complete
- At age 5, 20/40 is normal
- Up to age 7 vision may be 20/30 normally
- Visual maturity age 7-9

Visual Acuity

- Try age 3, if unable reattempt in 4-6 months
- Age four, if unable reattempt in 1 month
- Refer if still unable
- Visual acuity screening tools
 - Age 3-4
 - Picture tests (LEA, Allen)
 - Over 4 years old
 - Snellen (letters/ numbers)
 - Tumbling E
 - HOTV
 - Over 6 years old: Titmus

Visual Acuity

- **REFRACTIVE ERRORS**

- Variations in axial length of the eyeball or curvature of the cornea or lens exist, light focuses in front of or behind the cornea. Abnormal focusing produces an alteration in refractive power of the eye resulting in visual acuity changes.

ENT Disorders-Myopia

- Key Characteristics:
 - **Eyeball is too long causing the visual image to fall in front of the retina.**
 - Usually develops during school age (8 to 10)
- S/S:
 - Poor visual acuity at a distance
 - **Complaints of can't see the board**
- Evaluation:
 - **Snellen** or more extensive visual eval by optometrist
- Management:
 - **Glasses or contacts** for refractory error (eg. -2.5)

ENT Disorders-Hyperopia

- Key Characteristics:
 - **Eyeball is too short causing the visual image to fall behind the retina.**
- Mild hyperopia is normal in young children,
 - Should resolve by 6 years of age
- S/S:
 - Poor visual acuity at short distance
 - **Complaints of can't read or holding objects at a distance**
- Evaluation:
 - Vision screening with close screening tools
- Management:
 - **Glasses (worn during reading or close focus) or contacts** for refractory error

Visual Acuity

- **Astigmatism:** results when there is an uneven curvature of the cornea or lens, causing blurry vision at near and far distances.
- **Anisometropia:** each eye with a different refractive error
- **Amblyopia:** decreased visual acuity caused by inadequate or unequal visual stimulation that is later not correctable with corrective lenses.
- Occurs in 2 to 4% of the population.

Nystagmus

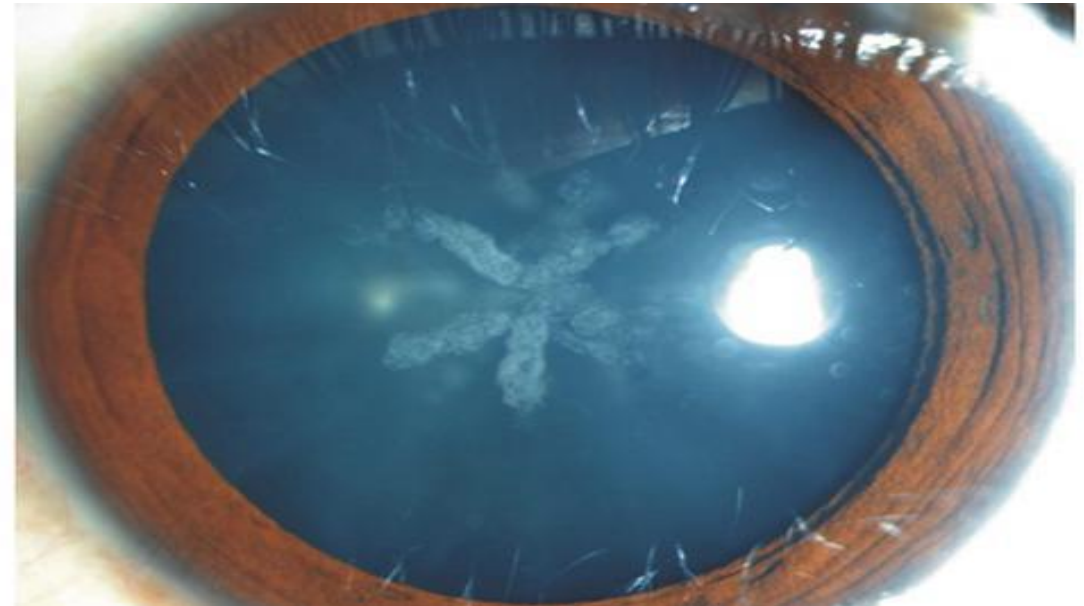
- Key Characteristics:
 - Presence of involuntary rhythmic or jerky movements of the eye(s)
 - Normal until 1 month, can have a few beats in older-otherwise abnormal
 - Albinism, high refractive errors, tumors, post infection, middle ear disease, visual loss before age two, and pharmacologic toxicity
- S/S: involuntary jerky movements of the eye
- Evaluation/Management: **Ophthalmology referral emergently**
 - Treat underlying problem if possible

Strabismus

- Key Characteristics:
 - **Muscles of eye are not coordinated**
 - Affects 5% of children; 50% of children present by age one; 80% by age
- S/S:
- **Eye turns in(eso), out(exo), up(hyper), or down(hypo)**
- Evaluation:
 - Hirschberg pupillary light reflex (**corneal light reflex**)
 - **Cover-uncover**; alternate cover-uncover
 - EOM abnormal
 - Visual acuity: amblyopia in the effected eye
- Management:
 - **Refer to ophthalmology**

- **Key Characteristics:**
 - Opacity of the lens
 - May have strabismus, amybyopia, and photophobia
- **S/S:**
 - Poor visual acuity
 - Can be associated with:
 - Hypoglycemia
 - Hypoparathyroidism
 - Galactosemia
 - Microophathlmos
 - **Management**
 - Refer to ophthalmology

Cataract



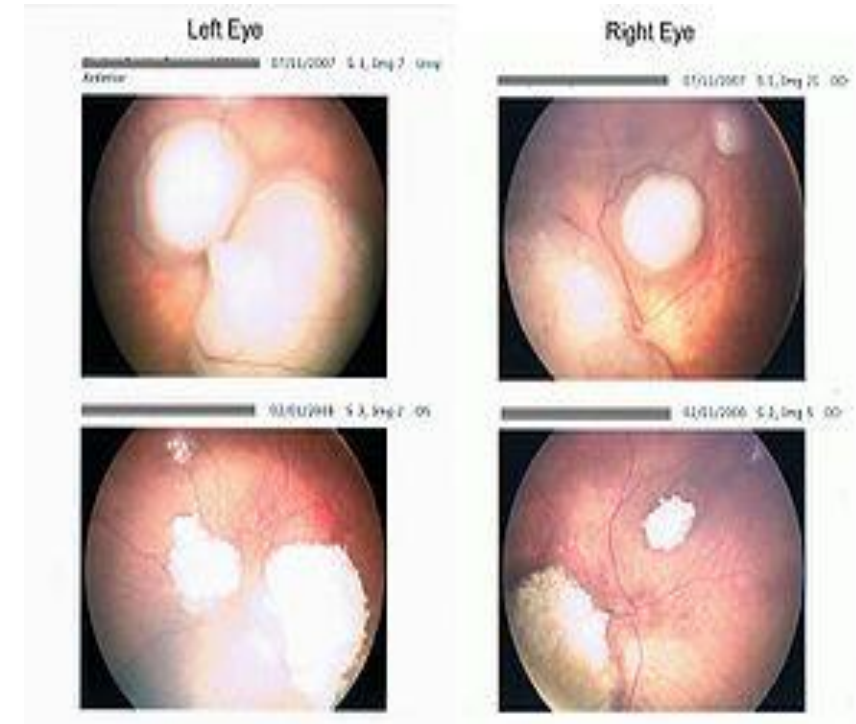
- Key Characteristics:
 - Disturbance in the circulation of aqueous fluid increasing the pressure and resulting in damage to the optic nerve
 - Congenital
 - 1:10,000 births rare
 - 80% by 12 months of age
 - 65-80% bilaterally
 - Secondary or Juvenile
 - 3-30 years of age
- S/S: Acute pain in eye, photophobia, clouding of vitreous humor
- Evaluation/Management:
 - Emergent referral to ophthalmologist**

Glaucoma



Retinoblastoma

- Key Characteristics:
 - **Intraocular tumor**
 - Usually in infants and children **younger than 6**.
 - **Hereditary form-bilateral**
 - **Non hereditary-unilateral** but often caused by genetic mutation.
- S/S:
 - **Cat's eye** in pics or on exam-strabismus, decreased visual acuity, orbital swelling, loss of milestones
- Evaluation:
 - **White Reflex** or abnormal imaging
- Management:
 - **Refer to ophthalmologist-diagnosis and then will require treatment with Hem/Onc**



Retinopathy of Prematurity

- Key Characteristics:
 - A retinal vascular pathologic disease resulting from an abnormal pattern of vascularization of retina
 - Newborns <28 weeks gestation, weighing 1500 gms or less
 - 29-40 weeks >1500 complicate course
- Evaluation:
 - Pediatric ophthalmology evaluation in NICU
- Management:
 - **Laser therapy if needed** or follow up by pediatric ophthalmology

Dacryostenosis

- Key Characteristics: **narrowing or occlusion of the tear duct**
- S/S:
 - Intermittent or continuous tearing
 - Accumulation of mucus or crusted on the lashes and lower lid- especially upon awakening
 - Maceration of skin around the eye
 - **Tearing or mucoid drainage with palpation of the nasolacrimal sac**
- Management
 - **Warm compresses** followed by **firm massage** ten times x 4 a day
 - Educate parents about signs and symptom of conjunctivitis and cystitis
 - If conjunctivitis, treat with topical ophthalmic ointment
 - **Spontaneous resolution occurs by 8-12 mos**
 - **After that, refer to ophthalmology**

Dacrocystitis

- Key Characteristics:
 - Infection of an obstructed NLD
- S/S:
 - fever, erythema, edema, and tenderness over the NLD with discharge
- Evaluation/Management:
 - ED immediately
 - Admit for IV antibiotics



Conjunctivitis

- Bacterial
- Viral
- Allergic

Newborn Bacterial Conjunctivitis

Most common cause: **chlamydia**, staph, **gonorrhea**, **HSV**

Conjunctivitis (diagnosis is age related)

- Chemical
- Key Characteristics:
 - Appears in the **first 24 hours** after birth caused by GC prophylaxis
- S/S:
 - **Mild injection of the conjunctivae**
- Management:
 - No treat necessary

Gonococcal Ophthalmia Neonatorum

Key characteristics:

- **2-5 days** after birth
- Marked chemosis and **eyelid edema, everted**
- **Marked mucopurulent eye discharge**

S/S:

- Significant purulent discharge in very young infant

Evaluation:

Labs: culture conjunctival drainage

Management:

- **Hospitalize with IV antibiotics for 7 days**
- **Ceftriaxone or cefotaxime**

Chlamydia trachomatis Conjunctivitis

Key Characteristics:

- **Most common** and presents during the **second week** after birth

S/S: **Mild to moderate injection and chemosis**

- Examine for **signs of increased WOB**

Evaluation:

- Labs: culture conjunctivae

- **CXR if respiratory symptoms: pneumonia**

Management:

- **Erythromycin eye ointment for 2-3 weeks**

- **Hospitalize for respiratory symptoms**

Bacterial Conjunctivitis

- Key Characteristics:
 - Bacterial infection of the conjunctiva
 - **Same bacteriology as AOM**
 - **Usually begins unilateral**
- S/S:
 - Preauricular node swelling
 - Mild to moderate chemosis
 - **Purulent crusting upon awakening**
- Evaluation:
 - Culture and/ or refer if chronic
- Management:
 - Treat with **polytrim**, tobramycin, vigamox



Bacterial Conjunctivitis

- Make sure to examine the ears and throat
 - **Otitis-conjunctivitis syndrome**
 - **Otitis-pharyngitis syndrome**

Viral Conjunctivitis

- Key Characteristics:
 - **High association with viral pharyngitis**
 - Adenovirus, HSV, varicella, herpes zoster
- S/S:
 - **Watery discharge/mucoid discharge**
 - **May last 10-14 days**
 - Scratchy sensation, photophobia, URI symptoms
 - Erythema of conjunctivae
- Evaluation:
 - Can culture if persistent
- Management:
 - Wash hands frequently to spread infection
 - **If suspect eye involvement or HSV, refer**

Herpes Simplex Keratoconjunctivitis

- Key Characteristics:
 - **Should be suspected if there are HSV lesions on the top half of the face**
- S/S:
 - May or **may not** have conjunctivitis **symptoms** yet
- Evaluation:
 - **Requires fluorescein** eye exam looking for **stellate lesions**
 - Obtain HSV PCR and culture
 - Need to unroof a vesicle and twirl swab in center
- Management:
 - **If conjunctivitis or stellate lesions-immediate referral to ophthalmologist**
 - PO or IV acyclovir/ eye ointment/ pain meds

Allergic Conjunctivitis

- Key Characteristics:
 - **Caused by allergens** in the environment that result in eye symptoms
- S/S:
 - **Itchy, watery eyes**
 - Other allergic symptoms
 - Mild injection, stringy white discharge, edema of lids, chemosis, & **cobblestone** appearance of conjunctivae
- Management:
 - Topical decongestants, **mast cell stabilizers**, topical antihistamines, oral antihistamines

Periorbital Cellulitis

- Key Characteristics:
 - Infection of the eyelid and skin surrounding the eye and orbital septum
- S/S:
 - **Unilateral eyelid edema**
 - Erythema surrounding the eye extending downward
 - Induration & tenderness
 - Fever (**may appear toxic**)
- Evaluation:
 - CBC with left shift
- Management:
 - If child **non-toxic**: treat with single dose **ceftriaxone with close follow-up**
 - **If toxic, admit, CT, and IV antibiotics**



Blepharitis

- Key characteristics:
 - **Acute or chronic inflammation of the** eyelash follicles or sebaceous glands of the eyelids
 - **Contact lens wearer, contaminated make-up, poor hygiene, tear deficiency**
- S/S:
 - Typically bilateral
 - Swelling and erythema with **flaky scaly debris on eyelid margins**
 - Gritty burning feeling in eyes
 - **Ulcerative form: hard scaled at the base of lashes and lashes may fall out**

Blepharitis

- Management
 - **Scrub eyelashes and eyelids with “no tear” shampoo**
 - Warm compresses to eyes
 - Antibiotic ointment
 - **Remove contact lenses until healed**
 - Artificial tears or ointment for dryness
- **Pediculosis of the eyelids**
 - Associated with **pubic lice**
 - Treat lids with **petrolatum**



- Key Characteristics:
 - **Infection of sebaceous glands, eyelids, or meibomian glands of the lids**
 - S. aureus or P. aeruginosa
- S/S:
 - **Tender, red lid furuncle; FB sensations**
- Management:
 - **Spontaneous rupture common**
 - **Warm compresses**
 - Antibiotic ointment
 - **If prolonged, refer to ophthalmology**

Hordeolum (Stye)



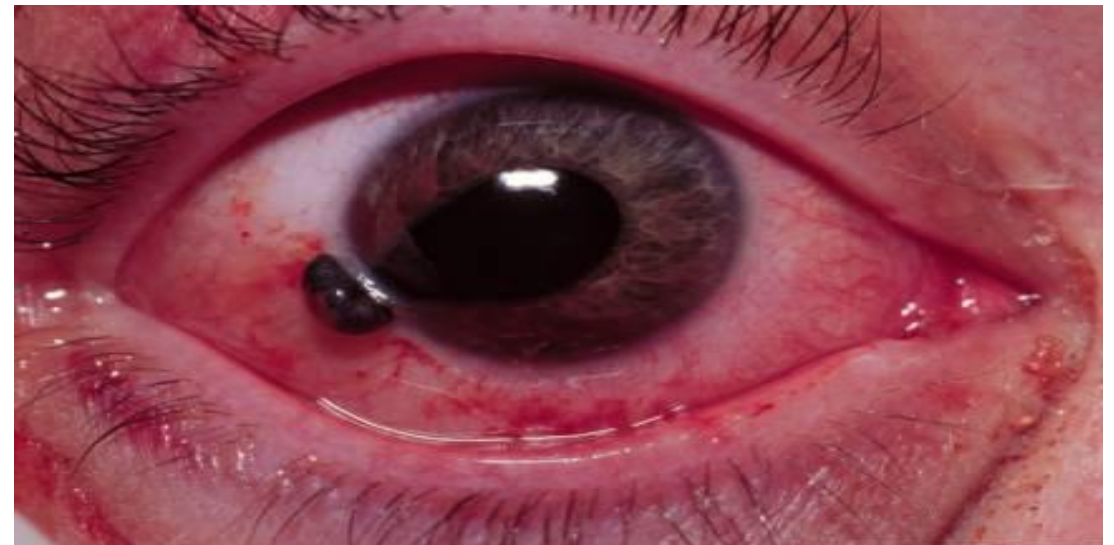
Chalazion



- Key Characteristics:
 - **Chronic sterile inflammation of the eyelids** resulting from a lipogranuloma or obstructed meibomian glands
- S/S:
 - **Mild erythema and slight swelling of the lid**
 - Few days inflammation resolved and a slow growing **nodule to eyelid that is not painful** that may persist for some time
- Management:
 - Hot compresses to acute lesion
 - If inflammation not resolved in a few days, refer to ophthalmology

Eye Injuries

- **Ruptured globe:**
 - Key characteristics:
 - **Integrity of the eye is disrupted. Loss of vitreous humor**
 - Blunt force trauma
 - Distortion of eye, pupil
 - S/S:
 - **Pain, photophobia, injection, hyphema**
 - Management:
 - Refer to **ophthalmology emergently**



Eye Injuries

- **Hyphema:**

- Key characteristics:

- **blood in anterior chamber**
 - Blunt force trauma

- S/S:

- Pain, tearing, photophobia, **hazy iris, vision change**

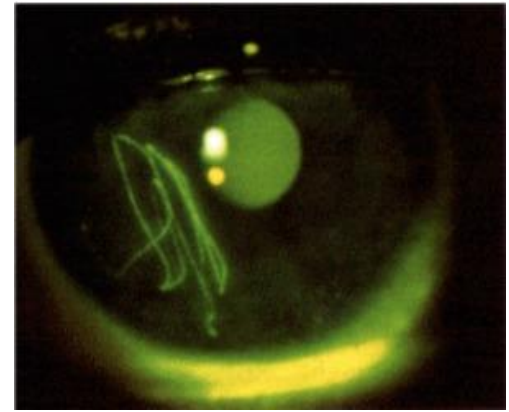
- Management:

- Referral to **ophthalmology emergently**



Eye Injuries

- **Corneal Abrasion**
- Key Characteristics:
 - **Damage or loss of epithelial cells of the cornea**
- S/S:
 - **sensation of foreign body, pain, photophobia, tearing, decreased vision, conjunctival erythema/sclera mild erythema**
- Evaluation:
 - **fluorescein staining with superficial uptake** then abrasion if more significant may have foreign body or more significant tear requiring referral.
- Management:
 - Symptomatic Care
 - **Antibiotic drops: PolyTrim etc.**



Hearing

- Hearing loss
 - **Sensorineural Hearing Loss:** that which results from **damage to the cochlear structure** of the inner ear or to the auditory nerve.
 - TORCHES, prematurity, medication exposure, inherited
 - **Conductive Hearing Loss:** that which results from **blocked transmission of sound waves from the external auditory canal** to the inner ear. Most common.
 - OME, wax, foreign body


Hearing Screening

- Newborn Hearing Screening
 - Screen at birth
 - Repeat screen by 1 month
 - Diagnosed by 3 months
 - Treated by 6 months or sooner

This is **NOT** my cochlear implant

This is my brain development device.
This is my key to whispering secrets with friends, enjoying music, and listening to my teachers.
This is my ticket to participation in the wider world.



 www.AuditoryVerbalTherapy.net
Elizabeth Rosenzweig
MS CCC-SLP LSLS Cert. AVT

Acute Otitis Media

- Key Characteristics:
 - **Symptomatic infection of the middle ear**
 - Second most frequent diagnosis in primary care (first URI)
 - **Peak incidence between 6 and 36 months of age**
 - **Risks:** male, secondhand smoke exposure, day care attendance, ETD, Down Syndrome, Native American/ Native Alaskans, craniofacial deformities



Acute Otitis Media

- Key Characteristics:
 - Most common cause is viral
 - Other causes:
 - **S. Pneumoniae**: declining in immunized children
 - **H. Flu** (nontypable): about 35% produce beta lactamase making them PCN resistant
 - **M. catarrhalis**: about 70% produce beta lactamase

Acute Otitis Media

- S/S:
 - **Red TM, distorted landmarks, air-fluid levels**
 - Rupture with drainage
- Evaluation:
 - **Pneumatic otoscopy is the GOLD standard for diagnosing AOM**
 - Labs: culture drainage if drainage persistent
 - Tympanometry: confirms pneumatic otoscopy
 - Tympanocentesis

Acute Otitis Media

- Management:
 - **Treat the pain/ fever**
 - Orally
 - Most OM respond without treatment
 - **SNAP prescription (over 2 years of age), unilateral, not ill, or if diagnosis not clear**
 - **Treat all infants less than six months and over 6 months old with severe illness (T>39, severe pain)**
 - **Amoxicillin 80-90 mg/kg/day divided BID**
 - Children <2 years for 10 days
 - Children > 6 years with mild/ moderate disease treat for 5-7 days

Acute Otitis Media

- Management:
 - **No improvement in 72 hours**
 - Assume beta lactamase
 - Inadequate dosing
 - Poor amoxicillin penetration into middle ear
 - Prescribe different antibiotic
 - **Augmentin, cefdinir**
 - **Ceftriaxone for persistence or chronicity**
 - Macrolides if they are the only choice
 - Azithromycin or clarithromycin
 - Follow-up is controversial

AOM Prevention

- Prevention
 - Avoid child care
 - Routine immunizations
 - PCV-13
 - Annual flu vaccine
 - Breastfeeding as long as possible
 - Avoid bottle propping
 - No sugary fluids in bottle
- Avoid secondhand smoke exposure
- Limit pacifier use
- No prophylactic antibiotics for OME

Otitis Media with Effusion

- Key Characteristics:
 - Fluid in the middle ear space
 - Decreased mobility with no signs of AOM
 - Caused by ETD caused by viral illness, allergies, hypertrophied adenoids
 - Changes in middle ear mucosa with increased mucus production and thickened mucus that absorbs water
 - **THE MOST COMMON CAUSE OF CONDUCTIVE HEARING LOSS**



Otitis Media with Effusion

- S/S:
 - **feeling of fullness, hearing loss, dizziness, impaired balance, behavioral changes**
 - Most kids are asymptomatic
- Evaluation:
 - **Presence of effusion behind ear on exam**
 - **Flatten Tympanogram**
 - **Monitor hearing**
 - PET for kids 1-3 yo with OME for 4-6 months with hearing loss
- Management:
 - What helps? **Tincture of time**
 - NOT antihistamines, nasal steroids, decongestants
 - Modifications as needed
 - Adenoidectomy (hypernasal breathing, SDB)

Otitis Externa

- Key Characteristics:
 - **Inflammation and infection of the External Auditory Canal**
 - Swimmer's ear
 - Q tipitis
 - Foreign bodies
- Cause:
 - **P aeruginosa**, Proteus, S Epidermidis, fungi, S aureus, S. pyogenes, varicella
- S/S:
 - **severe ear pain, ear fullness, ear discharge, hearing loss**
 - **tragal tenderness, pain with exam**
- Management: otic drops (floxin, **ciprodex**)

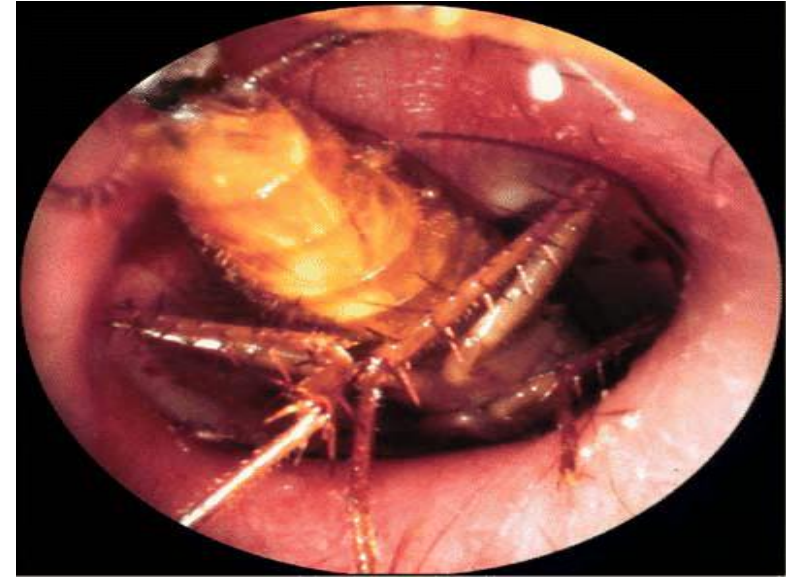
Mastoiditis

- Key Characteristics:
 - **Suppurative infection of the mastoid cells**
 - Prevention Immunization with PCV 13
- S/S:
 - concurrent, recurrent AOM, fever otalgia, persistent OM, unresponsiveness to antibiotics, **postauricular swelling**
- Evaluation:
 - Diagnostic Study: **CT (bony involvement)**
- Management:
 - **Refer to ENT, PO or IV antibiotics, mastoidectomy**



FB in Ear

- Something in the ear canal
- Remove the FB
- Refer to ENT
- May need antibiotic otic drops after removal



Disorders of the Nose

- **Foreign Body**

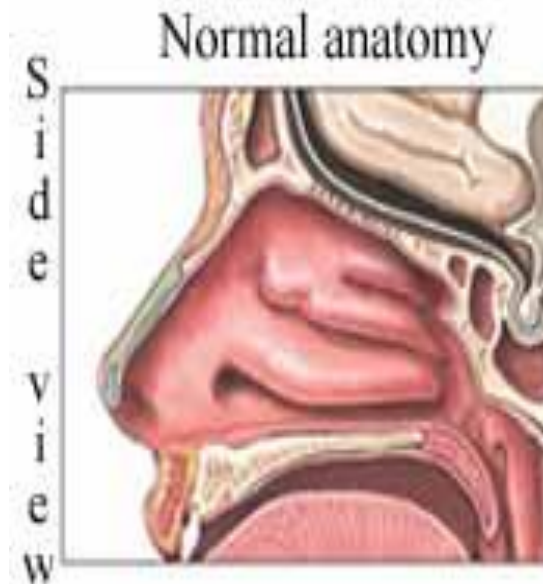
- Children put anything anywhere
- Repeat offenders
- Symptoms: epistaxis, mouth breathing, unilateral (stinky) drainage
- **Management: remove the FB (urgently)**
 - (Angel Kiss)
 - Mouth to mouth with parent
 - Katz extractor/alligator forceps
 - Cerumen scoop
 - Adapter like a small foley
- Refer to ENT if unable to get it out

Epistaxis

- Key Characteristics:
 - More common in dry climates in winter
 - Cause usually benign; mechanical
 - Concern for coagulopathies
 - Von Willebrand
 - Platelet aggregation dysfunction
 - Differential diagnosis:
 - Polyps, neoplasm, hemangioma, FB, chronic use of nasal decongestants
 - First aid for nose bleed
 - Refer for excessive/prolonged-cauterization therapy

Rhinitis/URI

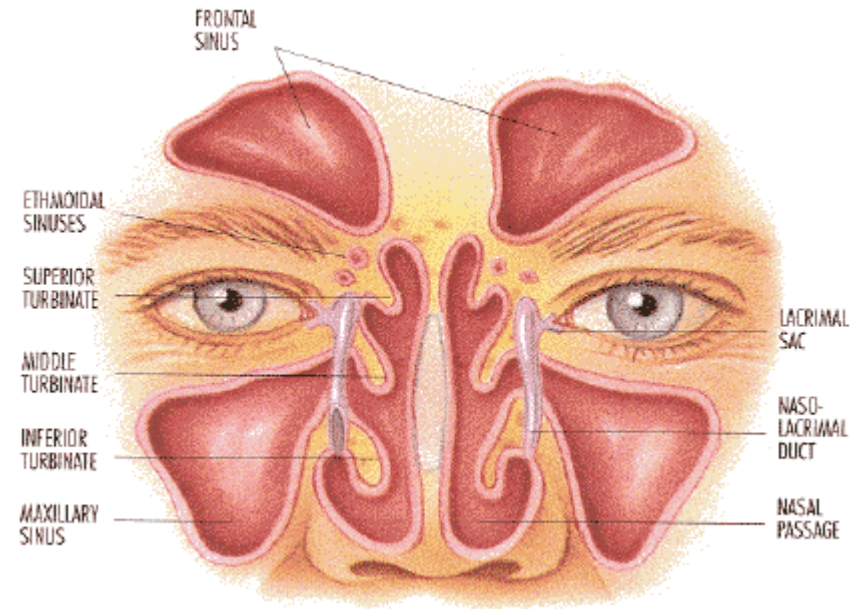
- Key Characteristics:
 - **Most typical viral infection:**
 - Caused by a variety of viruses with most common being rhinovirus
 - **Can last 7-10 days but usually worst symptoms in the first week with slow resolution over the next week.** Some viruses can cause persistent cough for 1-2 weeks post infection.
- S/S:
 - **Acute onset** of symptoms: Usually **low grade fever, pharyngitis, rhinorrhea**, conjunctivitis, cough—usually nonproductive but **worsens at night due to postnasal drip.**
- Management:
 - Symptomatic.
 - No cold medications under the age of 6. Nasal drops/sinus rinses/bulb suctioning, hydration, and rest. As long as febrile, contagious.



Inflammation of the nasal mucus layer with exudate in the airway.

Sinusitis

- Key Characteristics:
 - **Most common age group is school agers.**
 - Maxillary and ethmoid sinuses in late infancy, Sphenoids around 3-4 year of life, Frontal sinus around 6-10 year of life.
- S/S: Sinus pressure, worsening symptoms, purulent drainage, etc.
- Evaluation:
 - The diagnosis of acute bacterial sinusitis is made when a child with an acute upper respiratory tract infection (URI) presents with (1) **persistent illness** (nasal discharge [of any quality] or daytime cough or both **lasting more than 10 days without improvement**), (2) a worsening course (worsening or new onset of nasal discharge, daytime cough, or fever after initial improvement), or (3) **severe onset (concurrent fever [temperature $\geq 39^{\circ}\text{C}/102.2^{\circ}\text{F}$] and purulent nasal discharge for at least 3 consecutive days)**.
 - Imaging studies: should not be obtained because they don't contribute to diagnosis unless have orbital or central nervous system complications.



Sinusitis

- Management: (AAP Guidelines)
 - The clinician should prescribe antibiotic therapy for acute bacterial sinusitis in children with severe onset or worsening course. The clinician should either prescribe antibiotic therapy or offer additional observation for 3 days to children with persistent illness. Amoxicillin with or without clavulanate is the first line treatment of acute bacterial sinusitis.
 - 80-90mg/kg/day divided BID (amoxicillin component),
 - Augmentin 500mg TID or 875 BID

Disorders of the Throat

Pharyngitis

Key Characteristics:

-Inflammation of the mucous membranes of the pharynx, tonsillitis, or both

tonsillopharyngitis

• Causes

- **Mostly common cause by virus**
 - **Pharyngitis/ Infectious mononucleosis**
- Mycoplasma pneumoniae: older school age
- Neisseria gonorrhoea: STI



Infectious Mononucleosis

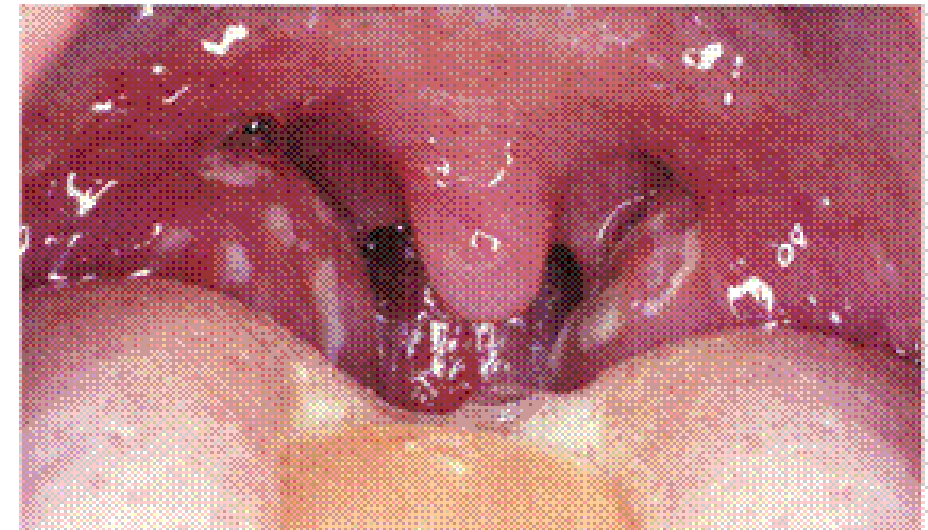
- Key Characteristics:
 - Caused by **Epstein Barr Virus (EBV)**
- S/S: fever, cervical lymph node swelling, sore throat, dysphonia, **fatigue**, anorexia, **slower onset**, **can have exudate**
- Evaluation:
 - WBC with atypical lymphs; EBV titres; **monospot**
 - Differential Diagnosis: GABHS; peritonsillar abscess

Infectious Mononucleosis

- Management:
 - Symptomatic care: Push fluids, pain management
 - If throat pain worsens, do throat culture
 - **DO NOT TREAT WITH AMOXICILLIN (or any antibiotic)**
 - **No contact sports** or strenuous activity
 - **Until spleen is non-palpable or minimum of 2 weeks** but can persist for longer (recent study found that clinically not evident enlargement present on ultrasound 1 month post but usually resolved by 2 months).
 - Rest
 - No alcohol
 - **Left upper quadrant pain: complication of mono; ruptured spleen.**

Strep Pharyngitis

- Key Characteristics:
 - Group A beta hemolytic streptococcus (GABHS)
 - **Children <3 yo do not have same receptors in throat that cause rheumatic heart disease so do not do RST or TC**
- S/S:
 - **Abrupt onset of sore throat**
 - No nasal symptoms, hoarseness or cough
 - Fetid breath, can have fever
 - **Headache, nausea, belly pain, vomiting**
 - **Scarlatiniform rash/ scarlet fever**
- Evaluation:
 - **Rapid strep screen/culture**

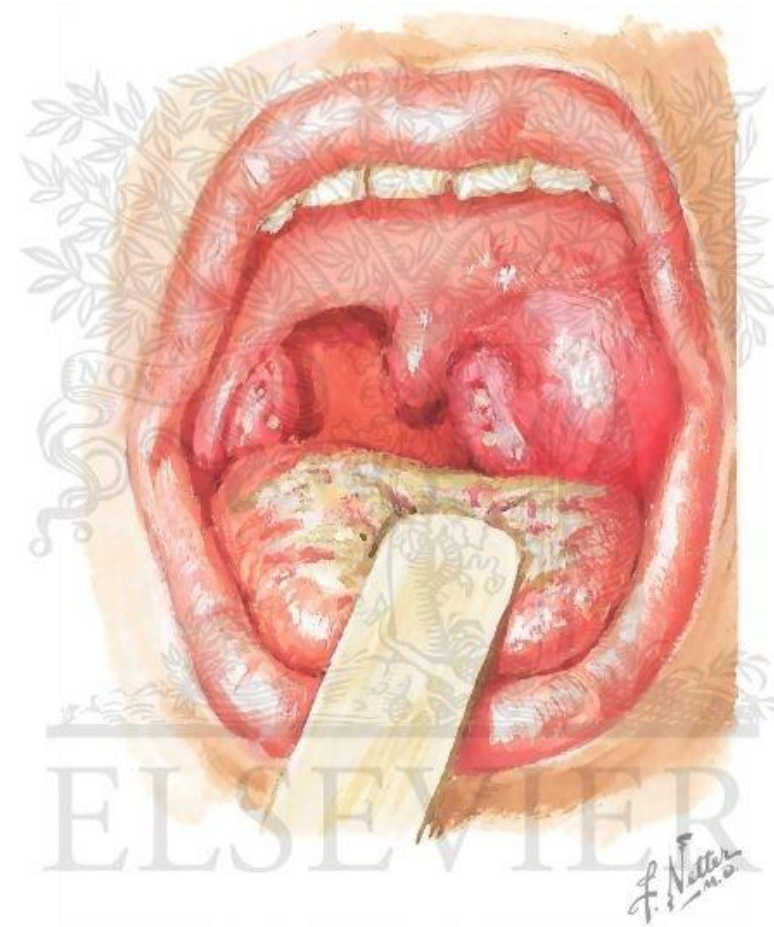


Strep Pharyngitis

- Management:
 - Penicillin or Amoxicillin is the treatment of choice
 - 50 mg/kg/day PO q day or divided twice a day
 - max of 1000 mg per dose
 - CR or LA penicillin IM once
- Penicillin allergic
 - Cephalexin 25-50 mg/kg/day divided twice a day
 - Azithromycin 12 mg/kg/day for 5 days
- No sulfa
- Pain medication, fluids
- **Change toothbrush**

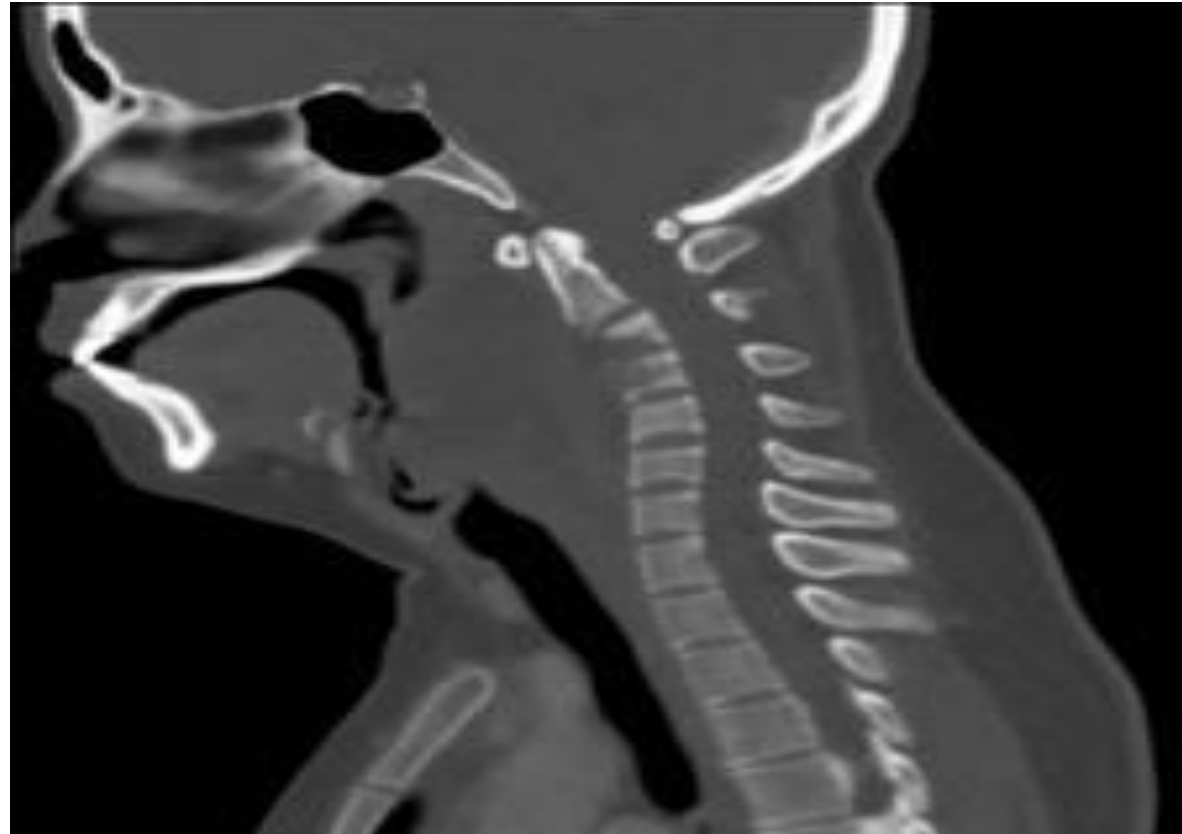
Peritonsillar Abscess

- Key Characteristics:
 - Peritonsillar abscess: Complication of pharyngitis due to **accumulation of purulence in the tonsillar fossa causing a cellulitis that leads to abscess.**
- S/S: Sore throat with bulging posterior soft palate and **deviation of uvula to opposite side(unilateral).** Can become an **airway emergency.** This is a kiddo you don't mess with as well if having s/s of respiratory distress.
- Treatment is: **needle aspiration or drainage.** IV antibiotics with penicillin, nafcillin, oxacillin or specific to organism once culture back. Analgesia, hydration, and possible tonsillectomy if not responding to antibiotics.



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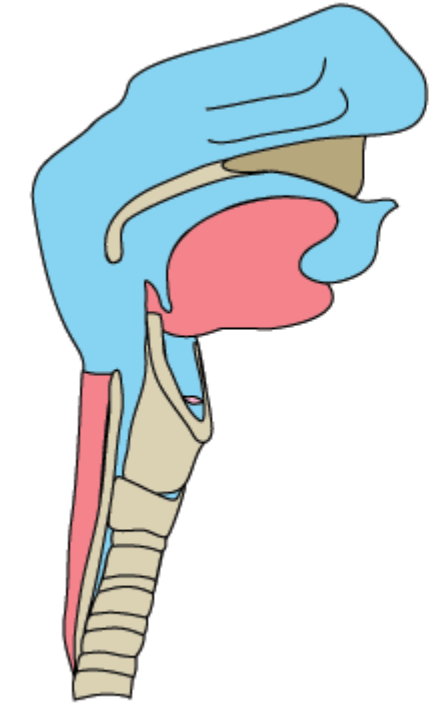
Retropharyngeal abscess



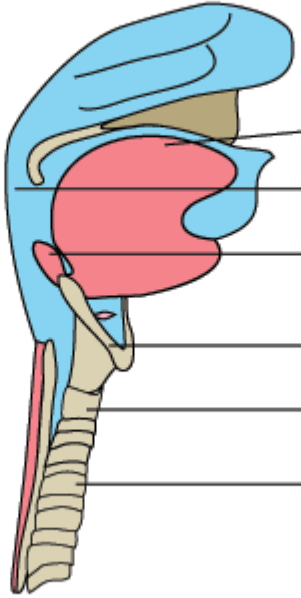
Retropharyngeal Abscess

- Key Characteristics:
 - **Inflammation of the posterior aspect of the pharynx and suppurative retropharyngeal lymph nodes.** Relatively rare infection but more common in children younger than 4 years of age. Complication from strep.
- **S/S: Sore throat with bulging posterior pharynx. Can become an airway emergency.** This is a kiddo you don't mess with as well if having s/s of respiratory distress.
- Evaluation:
 - Diagnostic studies: Lateral neck radiography or **CT-shows widened retropharyngeal space widened.**
- Management:
 - **Emergency referral to ENT and hospitalization for IV antibiotics and surgical drainage. These are even sicker than the peritonsillar. Keep comfortable and manage airway if needed prior to transport.**

Floppy small airways



Adult's Upper Airway

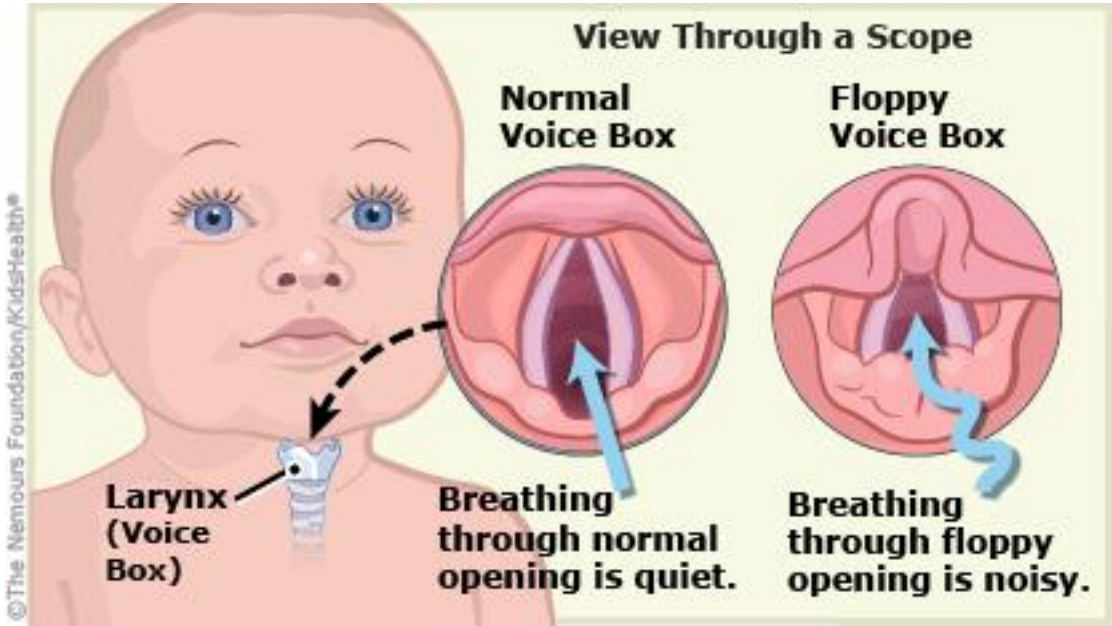


Child's Upper Airway

- Tongue is larger in proportion to mouth
- Pharynx is smaller
- Epiglottis is larger and floppier
- Larynx is more anterior and superior
- Narrowest at cricoid
- Trachea narrow and less rigid

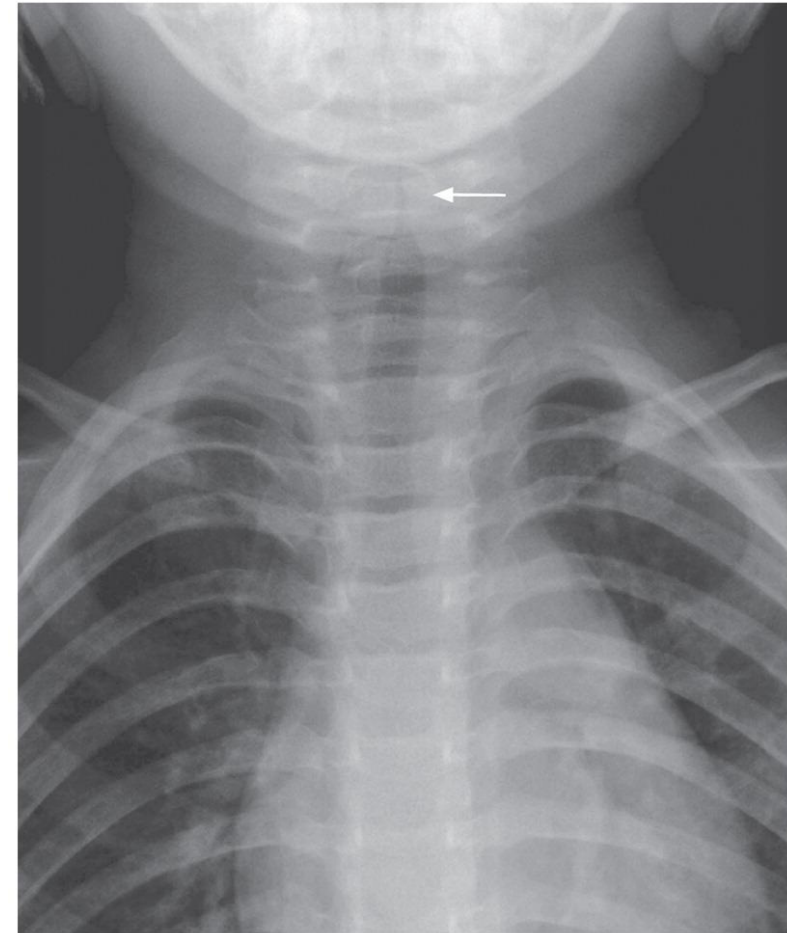
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Laryngomalacia



Croup

- Key Characteristics:
 - **Swelling and erythema to the lateral walls of the trachea below the vocal cords; subglottis**
 - **Parainfluenza is the most common agent in the fall**
 - Most common in kids 6-36 months of age
 - Incubation period of three days
 - Males > girls
- S/S:
 - URI symptoms, fever, **barky cough, intermittent stridor, worse at night and early morning**
- Evaluation: X-ray not necessary: if done, **steeple sign, Westley Croup Score**
- **Management: symptomatic care and decadron (single dose) 0.8mg/kg PO x 1**



Bacterial tracheitis/ Epiglottitis

- Uncommon
- Usually follows URI
 - Influenza, Hib
 - Peak incidence 3-10 year olds
- Cannot swallow, tripod position, tachypnea
- **LEAVE THE CHILD IN A POSITION OF COMFORT UNTIL YOU HAVE CONTROL OF THE AIRWAY**

Question 1

Which of the following set of symptoms would be most consistent with GABHS infection?

1. cough, nasal congestion, cervical lymphadenopathy
2. fever, HA, tender cervical lymphadenopathy
3. cough, fever, macular papular rash to trunk
4. sneezing, rhinorrhea, exudative tonsils

Question 1

Which of the following set of symptoms would be most consistent with GABHS infection?

Answer: fever, HA, tender cervical lymphadenopathy

Question 2

What of the following is the most appropriate treatment for strep throat?

1. Penicillin V 250mg bid for 5 days and tylenol for pain or fever.
2. azithromycin for 5 days and ibuprofen
3. Penicillin V 500mg bid for 10 days with tylenol for pain and fever
4. cephalexin 500mg bid for 10 days

Question 2

What of the following is the most appropriate treatment for strep throat?

Answer: Penicillin V 500mg bid for 10 days with tylenol for pain and fever

Question 3

The red reflex is done in the newborn period to rule out:

1. retinoblastoma
2. decreased visual acuity
3. strabismus
4. corneal abrasions

Question 3

The red reflex is done in the newborn period to rule out:

Answer: retinoblastoma

Question 4

A child presents with acute onset of 104 temperature and difficulty swallowing. She appears anxious and is drooling. You suspect epiglottitis. Your immediate management plan would be:

1. medical transportation to an ER with anesthesiology notified
2. given an injection of ceftriaxone in the clinic and have parents transport child to ER
3. obtain a CBC and blood cx the transport child to ER/hospital for admission
4. obtain a rapid strep and cx to rule out GABHS

Question 4

A child presents with acute onset of 104 temperature and difficulty swallowing. She appears anxious and is drooling. You suspect epiglottitis. Your immediate management plan would be:

Answer: medical transportation to an ER with anesthesiology notified

Question 5

Laboratory analysis of neonatal ocular discharge would be positive for gram negative intracellular diplococci for which of the following organisms?

1. chlamydia
2. influenza
3. adenovirus
4. gonococcus

Question 5

Laboratory analysis of neonatal ocular discharge would be positive for gram negative intracellular diplococci for which of the following organisms?

1. **Answer: gonococcus**

Question 6

All bacterial conjunctivitis:

1. must be treated with antibiotics to prevent complications
2. is highly contagious requiring family education on prevention
3. is more common than viral conjunctivitis
4. is frequently caused by *M. catarrhalis*

Question 6

All bacterial conjunctivitis:

1. Answer: is highly contagious requiring family education on prevention

Question 7

Which of the following is used for hearing assessment in a child age 4 years and older?

1. brainstem auditory evoked response (BAER).
2. moro reflex
3. Whisper test
4. Audiometry

Question 7

Which of the following is used for hearing assessment in a child age 4 years and older?

Answer: Audiometry