Pediatric ENT for the Primary Care Provider

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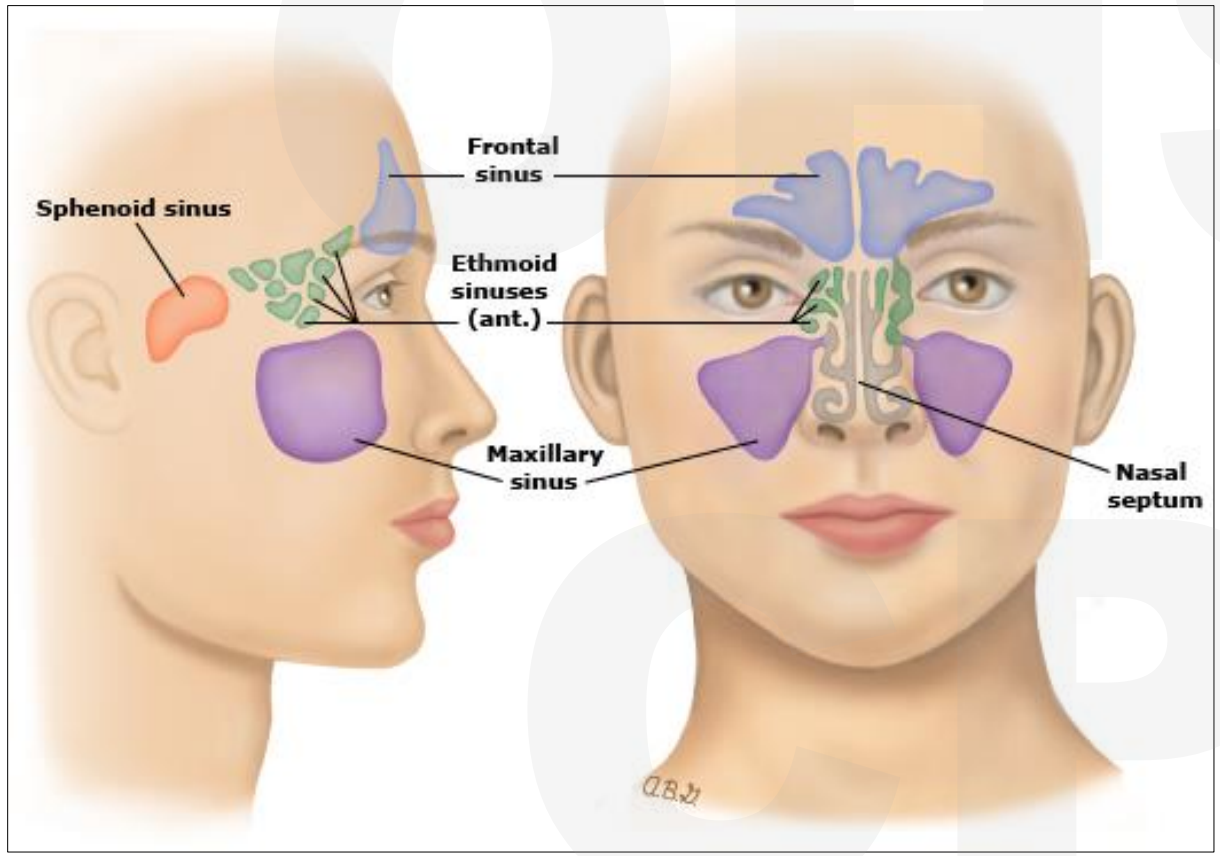
Objectives

1. How to treat Pediatric Rhinosinusitis and when to refer
2. Guidelines for referring to Pediatric ENT for ear tube placement
3. How to treat Pediatric Epistaxis and when to refer to Peds ENT
4. When to refer for tonsillectomy for chronic tonsillitis for the pediatric population

Pediatric Rhinosinusitis

- Do kids have sinuses?

Sinusitis



Sphenoid and Frontal sinus development pneumatized at ≥ 7yo

Maxillary and Ethmoid sinuses are present at birth

Differentiating features of sinusitis vs viral URI

Sinusitis is more

PERSISTENT (not improving after 10 days of a “cold”

SEVERE (true fevers with purulent nasal discharge, ill appearance)

And/or WORSE (seemed to improve but then worsened unexpectedly)

Most Common Bacteria that causes Acute Sinusitis in Children

1. Streptocuoccus Pneumonia

2. Hameophilus Influenzae

3. Moraxella Catarrhalis

Common symptoms of sinusitis in Children

1.Loss of SMELL

2.Fever

3. Pain or soreness over sinuses

4.Cough, Headache, Post-nasal drip, thick colored drainage, Stuffy nose

What children are at risk for sinusitis

1. Abnormal shape of nose-choanal atresia/stenosis
2. Infection from a tooth
3. Nasal injury
4. Foreign object in nose
5. Birth defect of mouth (cleft palate),
6. Gerd
7. Cystic fibrosis

Medical Management: Uncomplicated Patient

- Age 2 or more years
- Mild to moderate symptoms
- No day care
- No prior antimicrobials in the past 4 weeks
- Community without known *S pneumoniae* resistance (10%)
- Amoxicillin 45 mg/kg/day or Amoxicillin and Clavulanate 45 mg/kg/day

2013 AAP Clinical Practice Guidelines for Acute Bacterial Sinusitis. Pediatrics 2013;132:e262–e280.
IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. Clin Infect Dis. 2012;54(8):e72–e11

Medical Management: More Complicated Patient

- Area with high *S pneumoniae* resistance (>10%)
- Moderate to severe sinusitis
- < 2 years old
- Recent antimicrobial therapy (within 4 weeks)
- Amoxicillin 90 mg/kg/day or Amoxicillin and Clavulanate 90 mg/kg/day
- High dose clavulanate sufficient to inhibit beta lactamase production in *H influenzae* and *M catarrhalis*

2013 AAP Clinical Practice Guidelines for Acute Bacterial Sinusitis. Pediatrics 2013;132:e262–e280.
IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adults. Clin Infect Dis. 2012;54(8):e72–e112

Other sinusitis treatments

- Intranasal steroids- some benefit
- Nasal saline
- Warm compresses

Complications of Bacterial Sinusitis

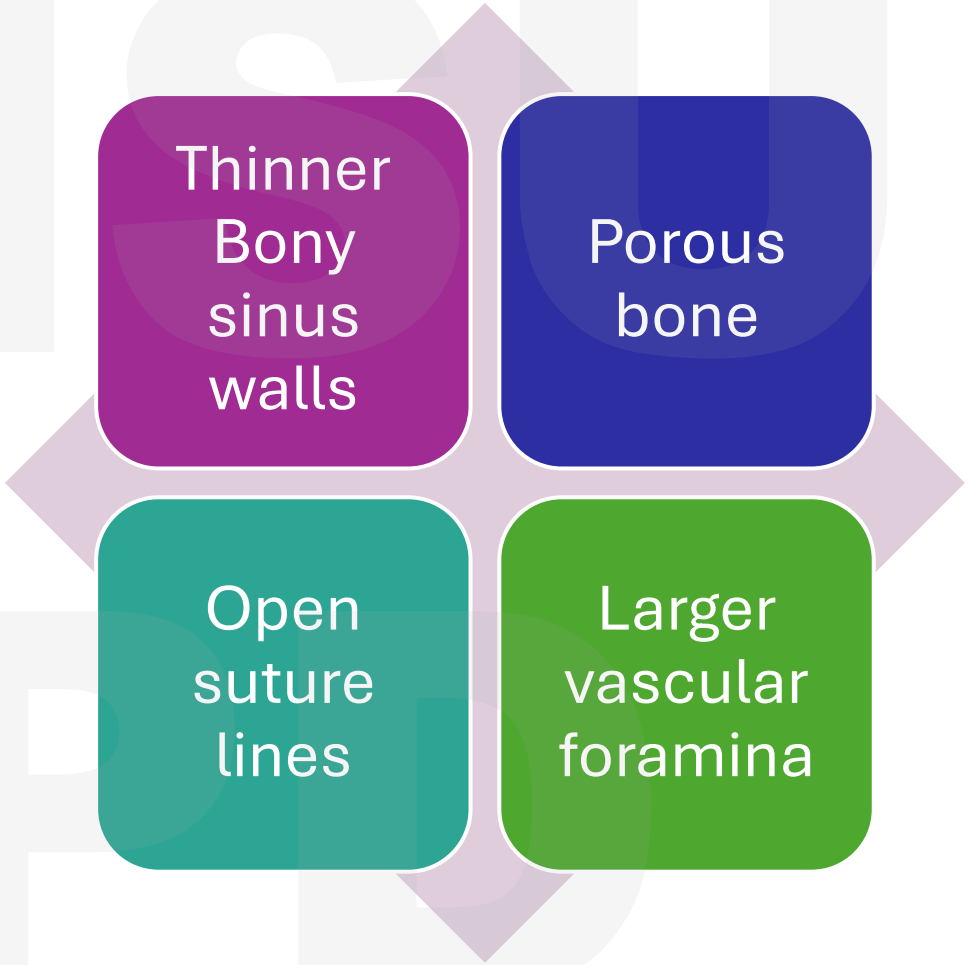
Orbital

- Facial or periorbital cellulitis
- Facial abscess
- Subperiosteal abscess
- Orbital abscess
- Frontal osteomyelitis (Pott's puffy Tumor)

Intracranial

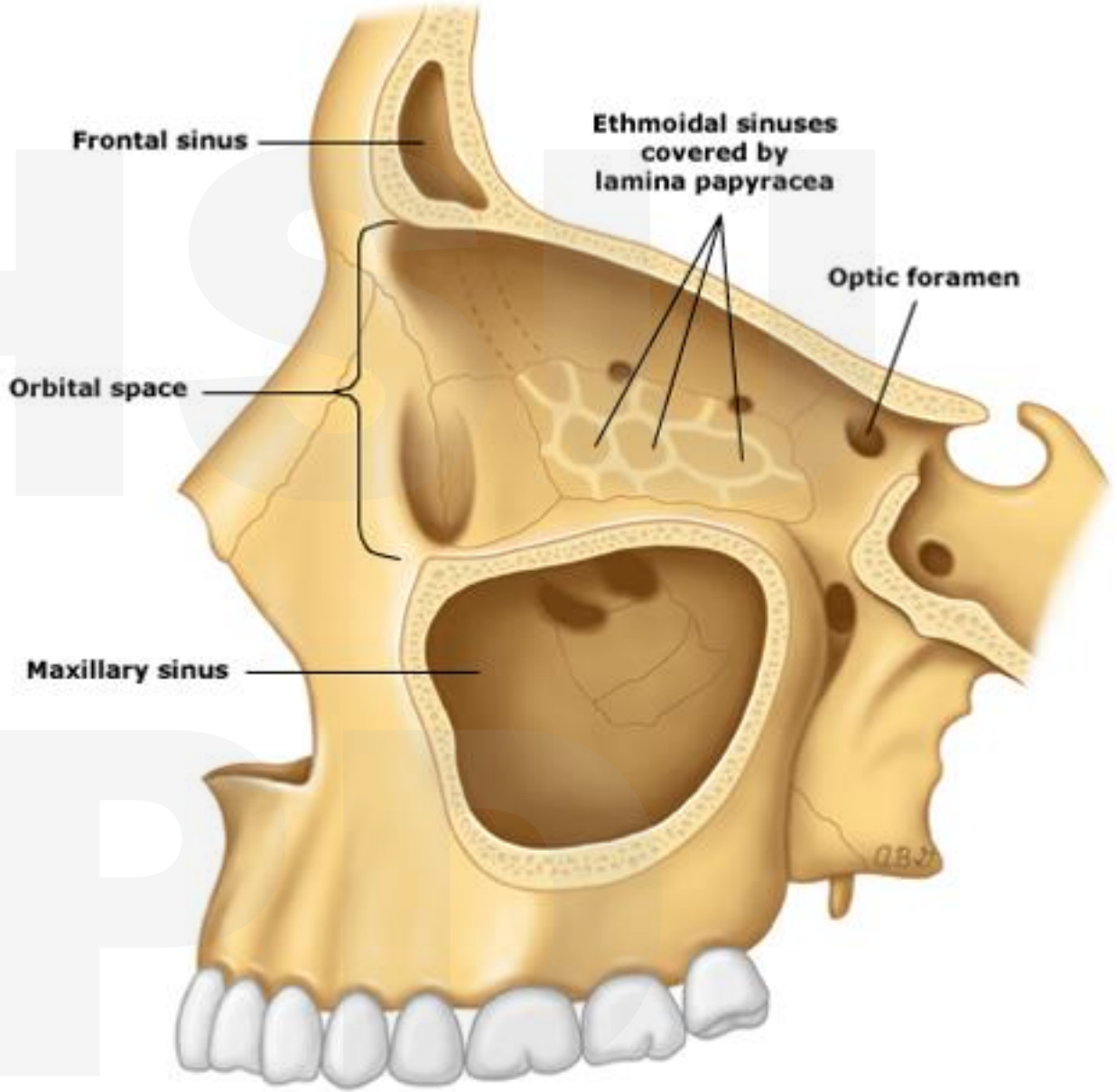
- Epidural abscess
- Subdural empyema
- Meningitis
- Encephalitis
- Cavernous sinus thrombosis

Why do children have a higher chance of complications from sinusitis



Left medial wall of sinuses

- Ethmoid sinus most common associated with orbital cellulitis
- Ethmoid separated by thin layer- Lamina Papyracea



Note the proximity of the frontal, ethmoidal, and maxillary sinuses to the orbital space. The lamina papyracea is the thin bone wall on the surface of

Red Flags for Sinusitis

- Visual changes
- Neurological Changes
- Unilateral /One sided symptoms
- Nasal polyps

When to refer to Pediatric ENT for sinusitis

1. Failure of Maximal Medical Management

2. Need for Advanced Diagnostic

3. 3 or more episodes of acute sinusitis within 6 months or 4 or more episodes within a year

What do we do for kids with chronic sinusitis?

1. Optimize medical management- 3 weeks of antibiotics, Flonase, oral steroids

Landmark CT

Adenoid removal for chronic sinusitis

1. Adenoid removal is the first line surgical management of chronic rhinosinusitis in young children<6

However, studies show that older children also benefit from adenoidectomy and do not require additional nasal surgery

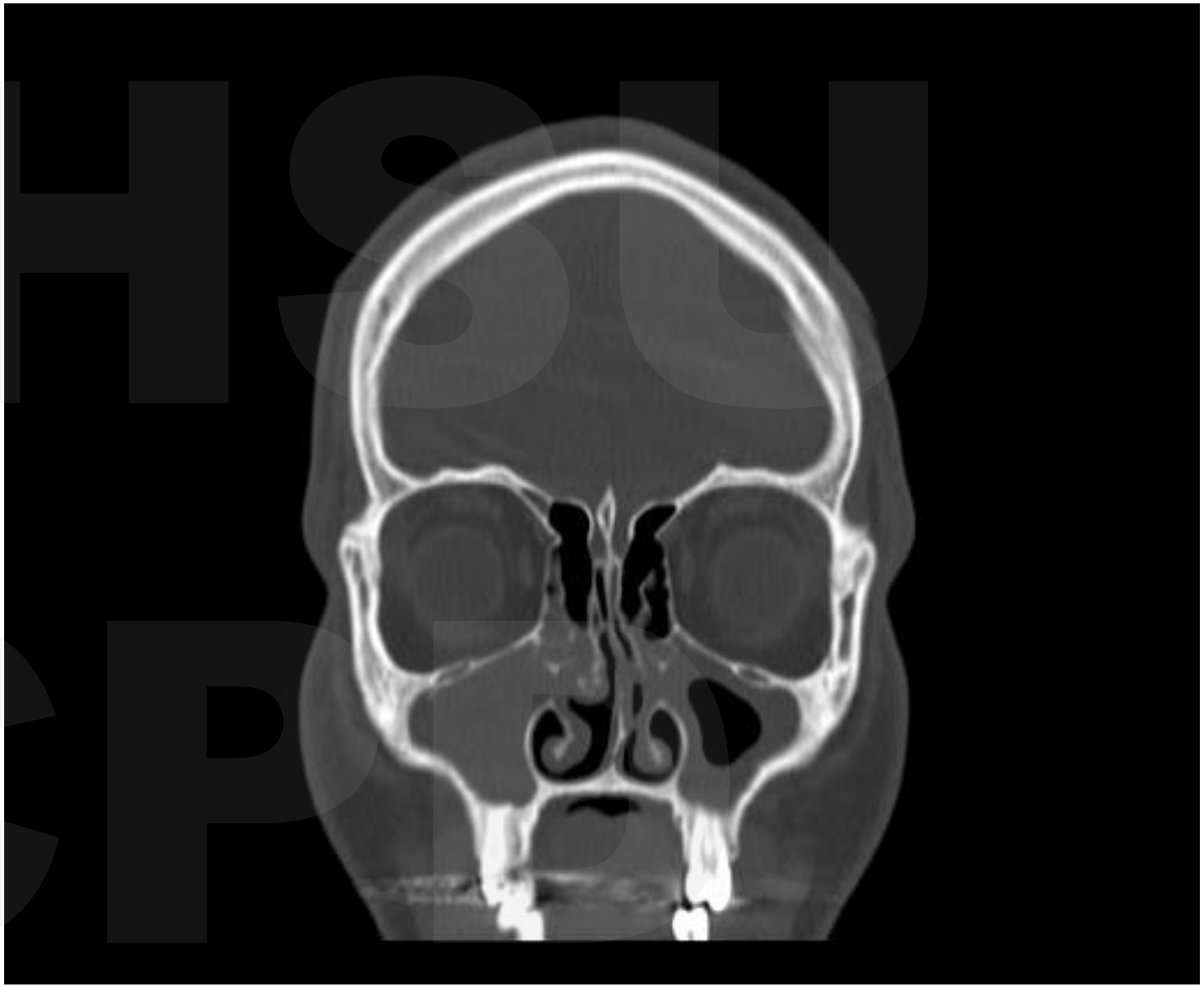
First line treatment for children who have failed medical management for sinusitis – Adenoidectomy

- Age considerations (less than 6- highly effective)
- 60-72% effective
- Older children also beneficial
- Adenoids serve as a bacterial reservoir- biofilms
- Highly effective in nasal congestion, rhinorrhea, PND, cough

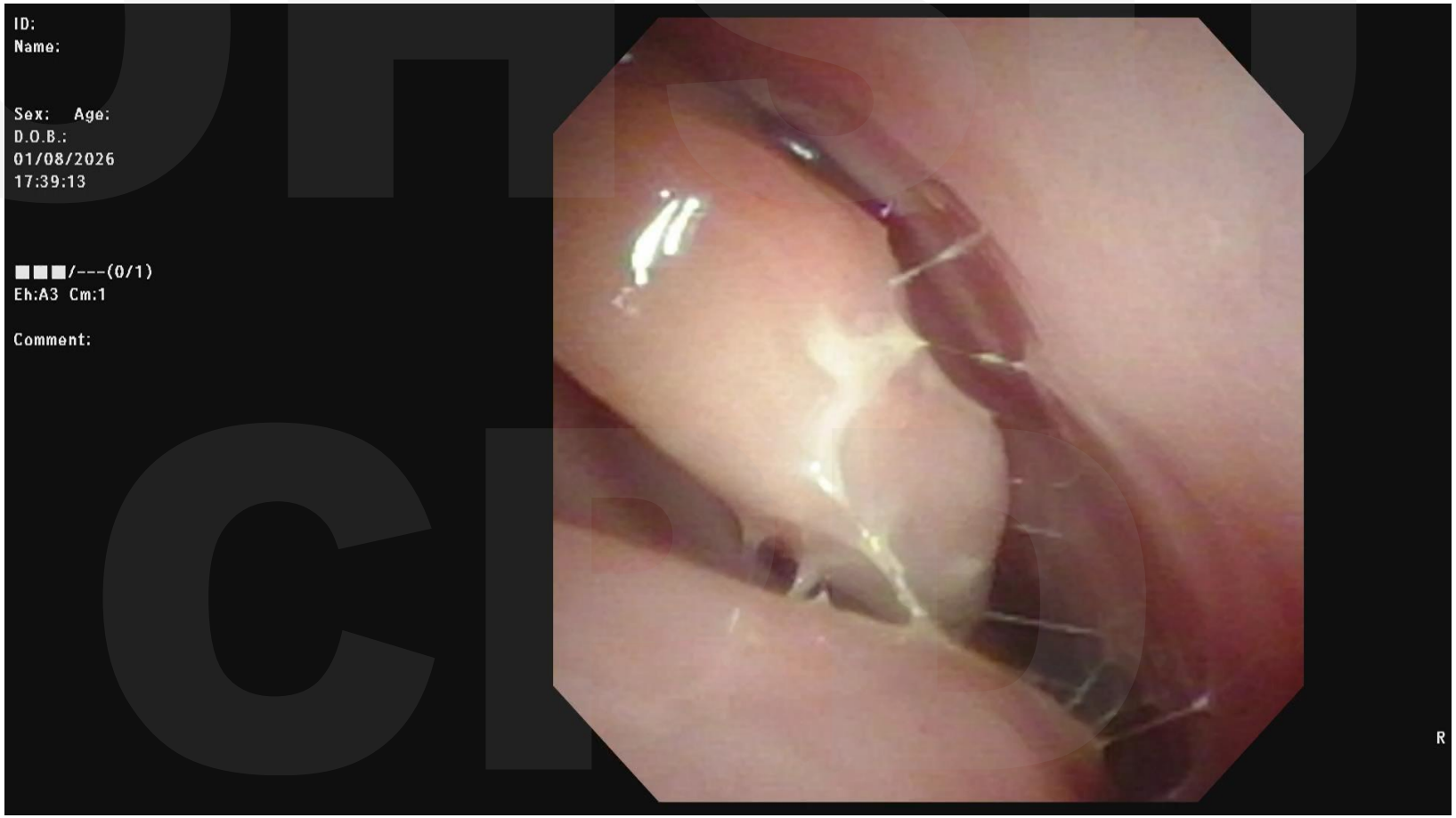
Case study

- 15 y/o referred to me for sinus infections and difficulty breathing his whole life.
- Several nose injuries but unsure if he broke his nose, very active
- Occasionally uses Flonase and saline
- Reports no snoring or mouth breathing
- Bad sinus infections 2-3 times a year requiring school absence and severe headaches-occasionally takes antibiotics for a week
- Seen allergist but can not have testing to do skin sensitivity (dermatographia)
- Occasional nose bleeds

CT – landmark Sinus



Flexible laryngoscopy



Diagnosis and Treatment

- Maintenance meds of saline and Flonase
- If he gets another sinus infection- 3 weeks of Augmentin, 5 days of steroids (oral) + Flonase and saline
- I will see him again in Spring, if not working or helping can consider adenoidectomy if all else fails

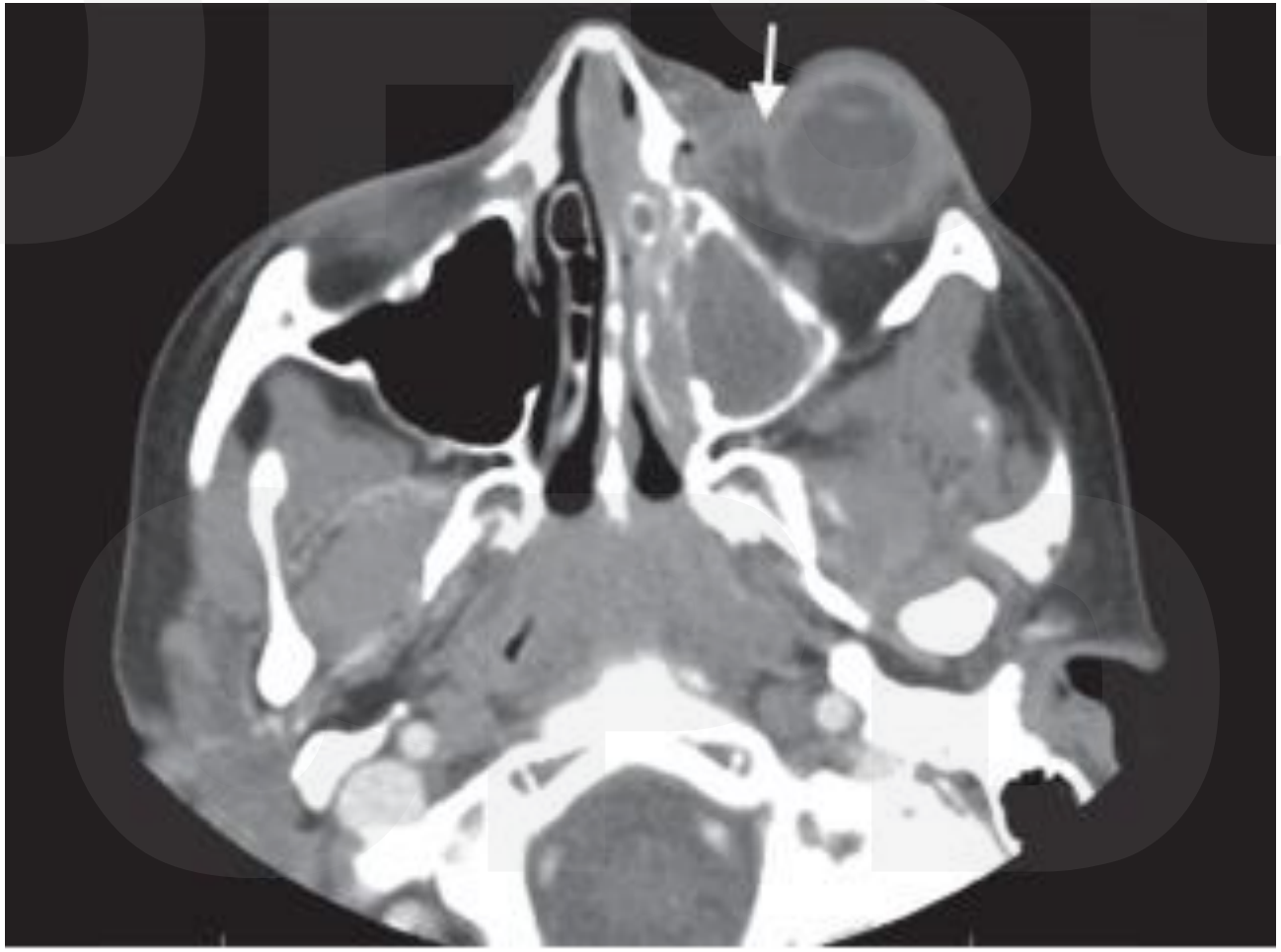
Case study

- 8 year old presents to PCP with 2 weeks of URI symptoms (cough, clear nasal drainage, low grade fever)
- Was getting better the first week
- Then symptoms started to worsen, high fever, severe headache, copious nasal discharge
- Brings her in because now she has swelling around the eye

ORBITAL CELLULITIS

FESS(Functional Endoscopic Sinus Surgery)

Reserved for severe pediatric patients.



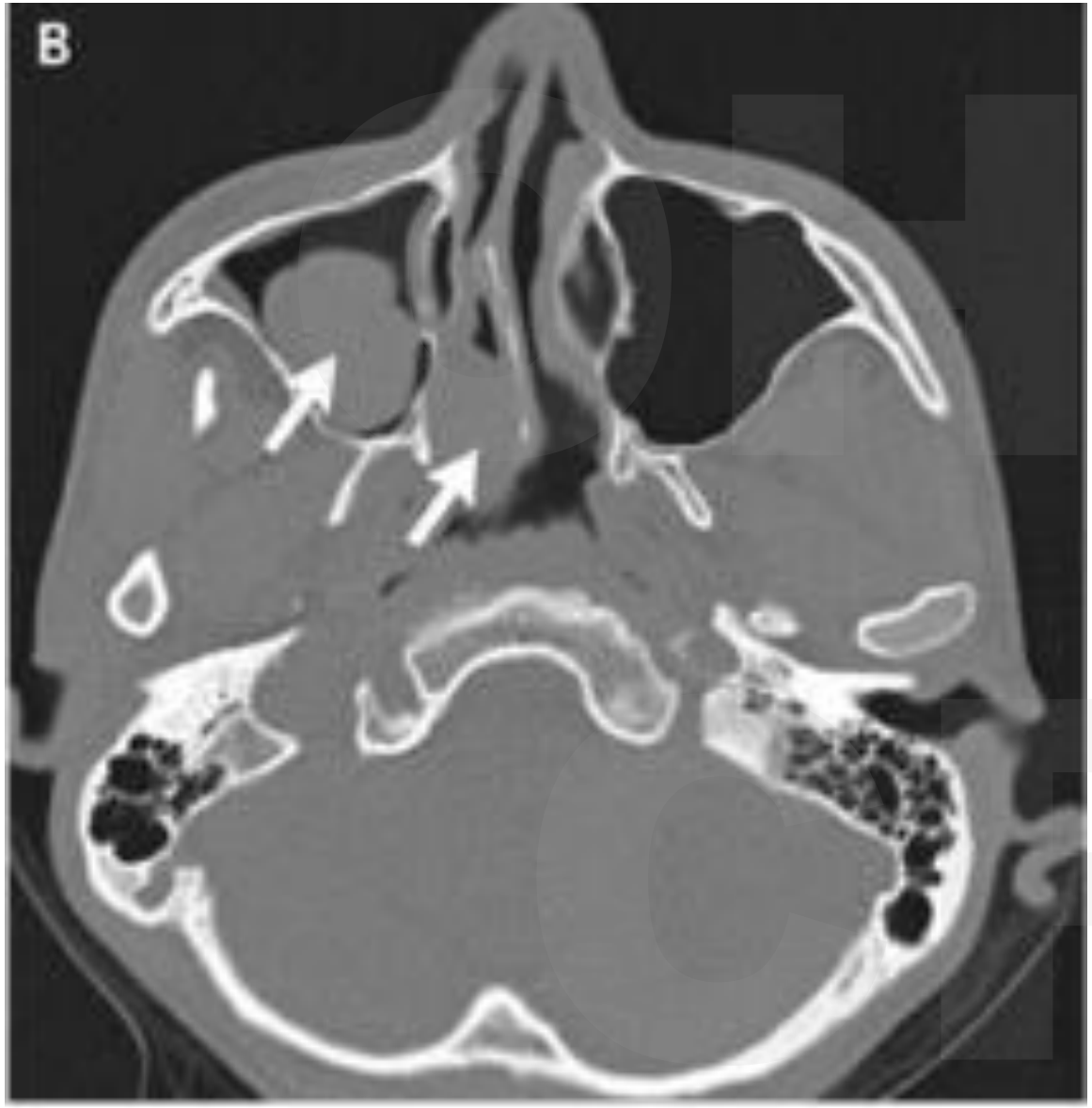
Case study

13 year old boy comes in with referral of white mass in the back of his throat

Symptoms include snoring , nasal obstruction, post-nasal drip, hyposmia, and rhinorrhea

Occasional difficulty swallowing and foul breath

Physical exam



CT Scan

What is this??

Antrochoanal Polyp

Unilateral nasal obstruction and nasal discharge

Muffled voice (if extension into nasopharynx)

Originate from maxillary sinus and then pass through posterior choana

Benign but growth causes obstruction

Mostly affecting children

Treatment involves FEES (Functional Endoscopic Sinus Surgery) to prevent re-occurrence

Ears

Case study

1. 5 year old comes in to see me referred by PCP for recurrent ear infections
2. 5 ear infections in the last 12 months
3. No speech delay
4. Normal hearing
5. Parents want ear tubes

Physical Exam

- Normal ear exam- NO FLUID
- Normal audiogram
- Child developing normally- no speech delay

- TUBES OR NO TUBES

Clinical Practice Guidelines for tube placement

- Unless there is fluid (effusion) at the time of exam , does not meet guidelines for tube placement

Exceptions to guidelines

- Weak immune system
- Prior complications of ear infections –seizures
- Adverse antibiotic reactions, allergies
- High risk of developmental problems including hearing loss, speech delays, autism, Down syndrome, cleft palate

Recommendations for Pediatric Tube Placement (AAO)- HNSF 2022

- Chronic OME > 3 months with associated hearing loss
- Persistent Symptoms if associated with balance issues, ear discomfort, reduced quality of life
- RAOM > 3 episodes in 6 months or > 4 in 1 year (with > 1 in the last 6 months
- Avoid unnecessary surgery – no tubes for OME< 3 months or rAOM if effusion not present at eval
- Hearing assessment if OME > 3 months
- At risk children with persistent OME (hearing loss, autism, speech delay
- No water precautions (earplugs not recommended)

Condition	Clinical Finding	Recommendation
Short-duration OME	Fluid present for < 3 months	**Do Not Perform** tube insertion; many resolve on their own.
Chronic Bilateral OME	Fluid in both ears for ≥ 3 months **AND** hearing difficulty	**Offer** bilateral tube insertion.
Chronic OME with Symptoms	Unilateral or bilateral fluid for ≥ 3 months **AND** symptoms (balance issues, ear discomfort, poor school performance)	**Option** to perform tube insertion.
Recurrent AOM (No Fluid)	History of frequent infections but **no fluid** at the time of evaluation	**Do Not Perform** tube insertion.
Recurrent AOM (With Fluid)	History of frequent infections **AND** fluid in one or both ears at evaluation	**Offer** bilateral tube insertion.
At-Risk Children	Children with developmental delays, Down syndrome, or cleft palate with fluid likely to persist	**Option** to perform tube insertion.

Case study

- 3 year old comes into PCP office with bilateral ear tubes for recurrent ear infections.
- Cold, congestion, fever
- Ears have been draining for 3-4 days
- Rest of PE is normal

How do you treat?

1. Oral abx
2. Topical abx
3. Oral and topical abx

Acute suppurative otitis media in children with ear tubes

1. Ok to treat with topical drops for 5- 7 days (cipro dex, tobradex, ofloxin)

TYMPANOSTOMY TUBE CARE

- TUBE OTORRHEA (THIS IS AN EAR INFECTION) – TREAT WITH TOPICAL ANTIBIOTICS SUCH AS OFLOXACIN , CIPRO HC DROPS . NEVER NORMAL !
- NO ORAL ANTIBIOTICS NEEDED WHEN YOU HAVE TUBE IN PLACE AND PATENT
- TYMPANOSTOMY TUBES SHOULD BE FOLLOWED BY OTOLARYNGOLOGY EVERY 6-12 MONTHS
- SHORT TERM TYMPANOSTOMY TUBES TYPICALLY EXTRUDE WITHIN 9 TO 12 MONTHS
- RETAINED TYMPANOSTOMY TUBES SHOULD NOT BE ALLOWED TO STAY IN TM LONGER THAN AROUND 3 YEARS , INCREASE RISK OF PERMANENT PERFORATION-UNLESS LONG TERM TUBES

EPISTAXIS IN KIDS

EPISTAXIS

CAUSES

TRAUMA

- #1 NOSE PICKING
- MINOR TRAUMA (HIT IN FACE)
- FOREIGN BODY
- POST-OP AFTER ENT SURGERY
- IATROGENIC (NG TUBE PLACEMENT, ETC)

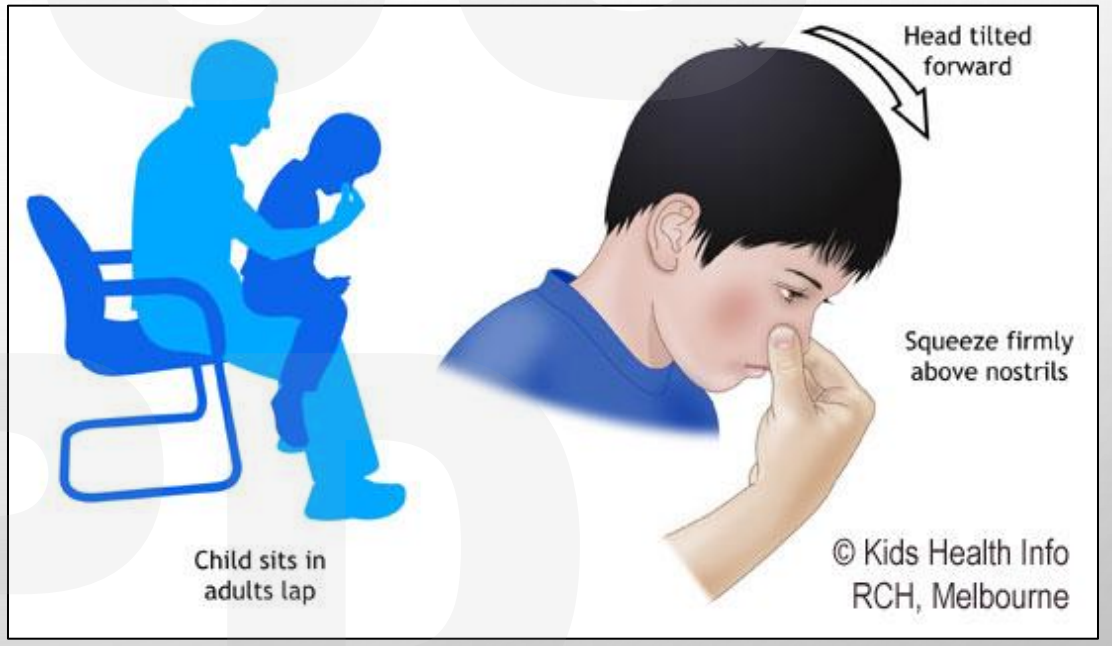
MUCOSAL IRRITATION

- ALLERGIC RHINITIS
- INFECTION (URI)

BLEEDING DISORDERS

ZEBRAS - (JUVENILE NASOPHARYNGEAL ANGIOFIBROMA)

BASIC MANAGEMENT



2020 AAO Clinical Practice Guideline: Nosebleed

Applying Nosebleed Clinical Guideline: Target Setting and Practice Setting	
Target Patient	**Exclusions**
Age ≥ 3 years	Age < 3 years
Severe, persistent, recurrent, or affects QoL	Nasal or nasopharyngeal tumor
	H & N Vascular malformation
	Bleeding disorder
	Recent facial trauma
	Recent sinonasal surgery

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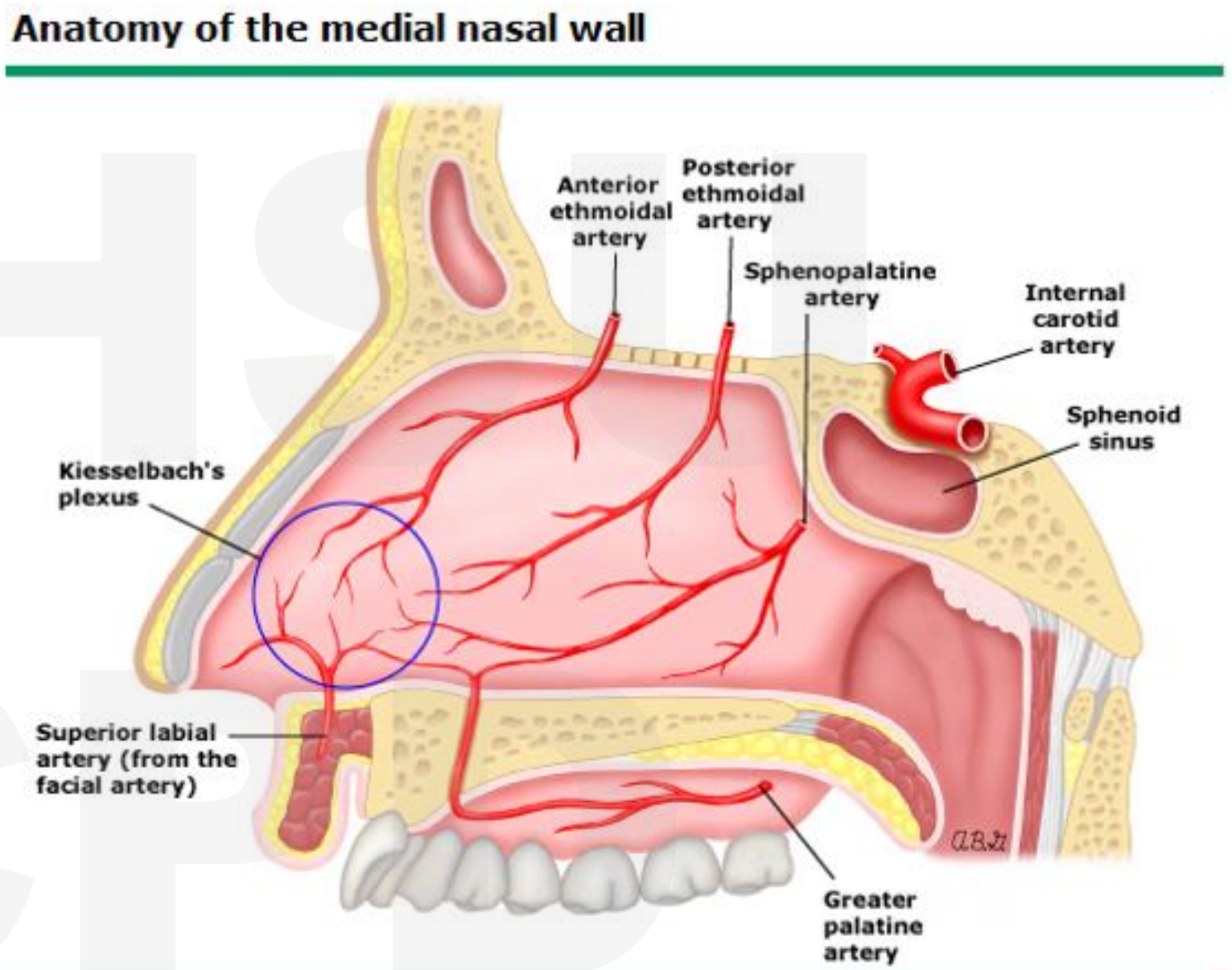
NASAL SEPTUM

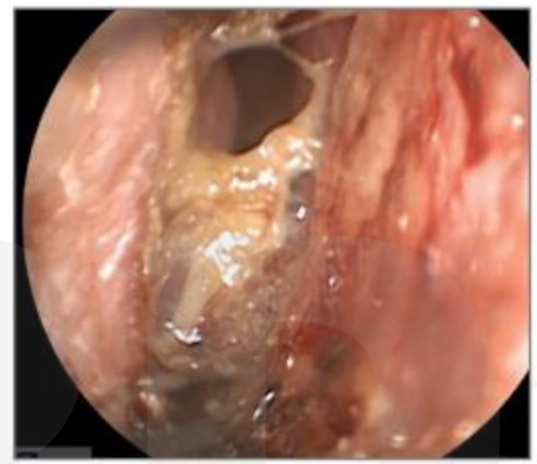
- ANTERIOR SEPTUM MOST COMMON AREA FOR NOSE BLEEDS
- POSTERIOR IS UNLIKELY SOURCE ESPECIALLY IN CHILDREN



Question 1

How would you manage a 7-year-old female with recurrent epistaxis and the nasal exam shown?

1. ENT referral
2. Humidifier
3. Flonase
4. Mupirocin/Nasal saline gel



CASE STUDY

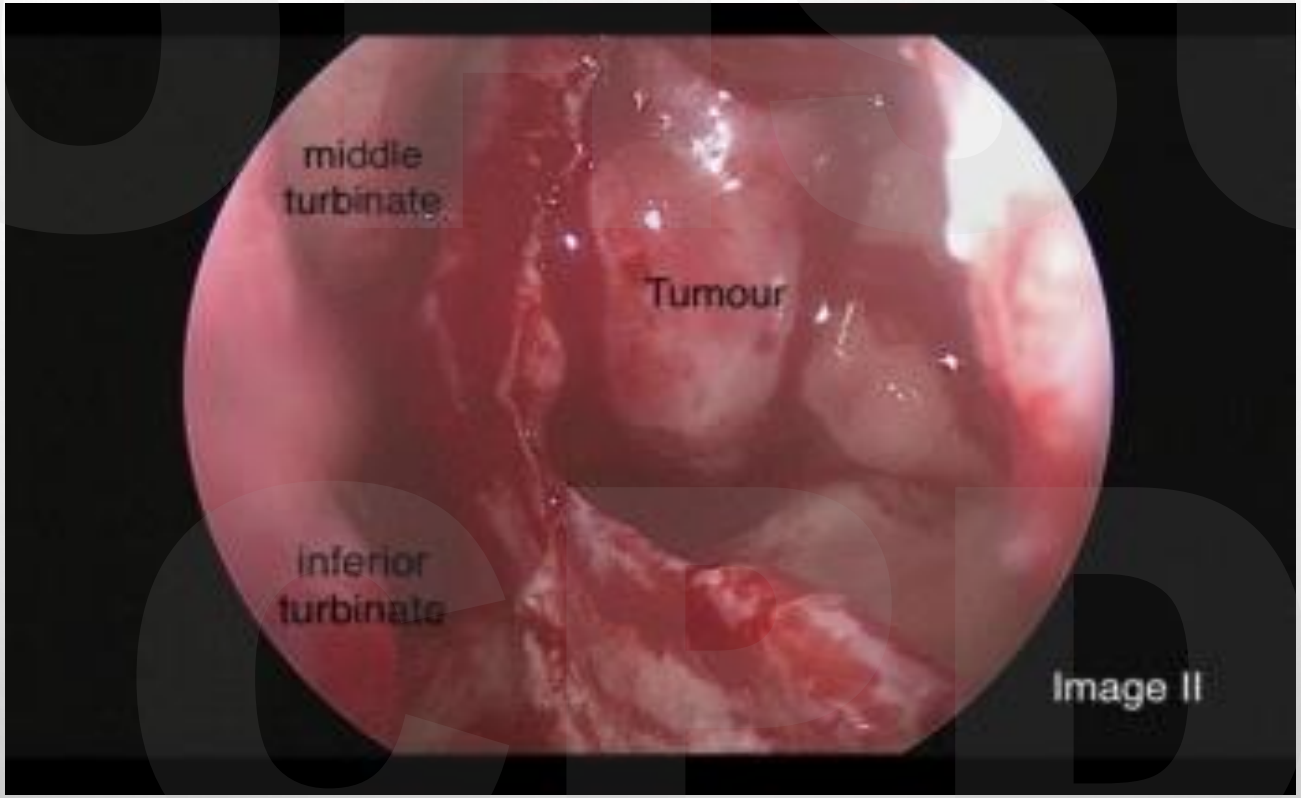
- 14 Y/O MALE WITH RECURRENT EPISTAXIS ASSOCIATED WITH NASAL CONGESTION. NO HISTORY OF NOSE PACKED OR BEING TRANSFUSED. HAS BEEN ON FLONASE WITHOUT IMPROVEMENT. WHAT DO YOU DO?
- 1. MUPIROICN AND SALINE GEL

  2. INCREASE FLONASE

  3. LATERAL NECK X-RAY

  4. ENT REFERRAL

JNA



HOW MANY SORE THROATS IS TOO MUCH???

Case study – Do you refer to ENT?

8 y/o presents with 4 strep throats in the last 6-7 months

No previous strep throat

No history of PTA

Guidelines for tonsillectomy in children for recurrent throat infections 7-5-3

Clinicians should recommend watchful waiting for recurrent throat infection if there have been fewer than seven episodes in the past year, or fewer than 5 episodes per year in the past 2 years, or fewer than three episodes per year in the past 3 years. **Strong recommendation** based on systematic reviews of randomized controlled trials with limitations and observational studies with a preponderance of benefit over harm.

Benefit: Avoid unnecessary surgery with potential complications of vomiting, bleeding, pain, infection or anesthesia problems

Case study - Do you refer to ENT

8 y/o with 4 episodes of strep throat in the last 12 months

1 of those episodes was a PTA (Peritonsillar abscess)

Case study

- 3 year old comes in with fevers every 2 months lasting 7 days, accompanied by sore throat, mouth sores, and swollen lymph nodes. Asymptomatic between symptoms
- Has had 5 episodes of sore-throats with accompanying symptoms
- Do you offer tonsillectomy?

Periodic
Fever
Aphthous stomatitis
Pharyngitis
Adenitis

(Morgenstern, 2020)

Treatment for PFAPA

- Steroids help reduce fevers

- Tonsillectomy is over 90% effective in treatment.

THANK YOU!!!

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