

The CNMC Aerodigestive Clinic

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Aerodigestive Clinic

- Goals
- Case Presentation
- Symptoms warranting referral
- Management of conditions commonly evaluated
 - Reactive airway disease
 - Eosinophilic esophagitis
 - Chronic sinusitis

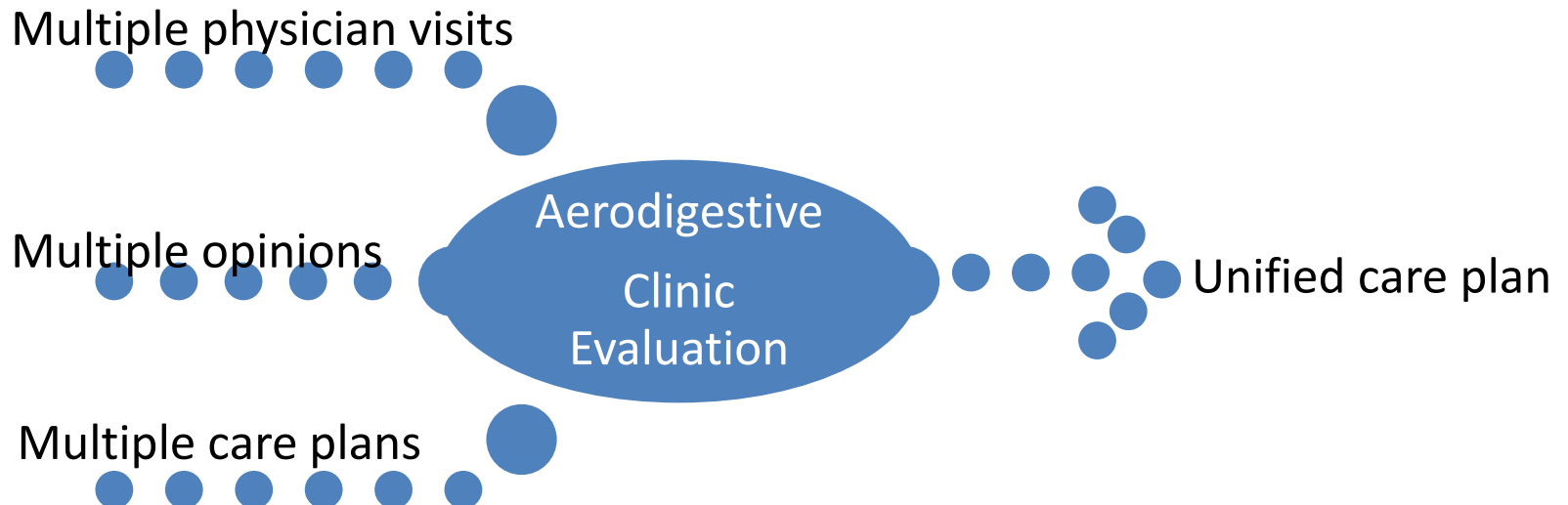
Aerodigestive Team



- Otolaryngology
- Pulmonology
- Residents/Fellows
- Gastroenterology
- Speech Pathology
- Administrative Support

Aerodigestive Clinic Goals

Optimize care of pediatric patients with chronic, recalcitrant conditions of the aerodigestive tract who see multiple specialists



Case Report

Aerodigestive Clinic

Typical Symptoms/Conditions Evaluated

- Chronic cough
- Chronic rhinorrhea/sinusitis
- Aspiration/dysphagia
- Recurrent pneumonia/bronchitis
- Exercise induced stridor/wheezing
- Vomiting

Potential Etiologies

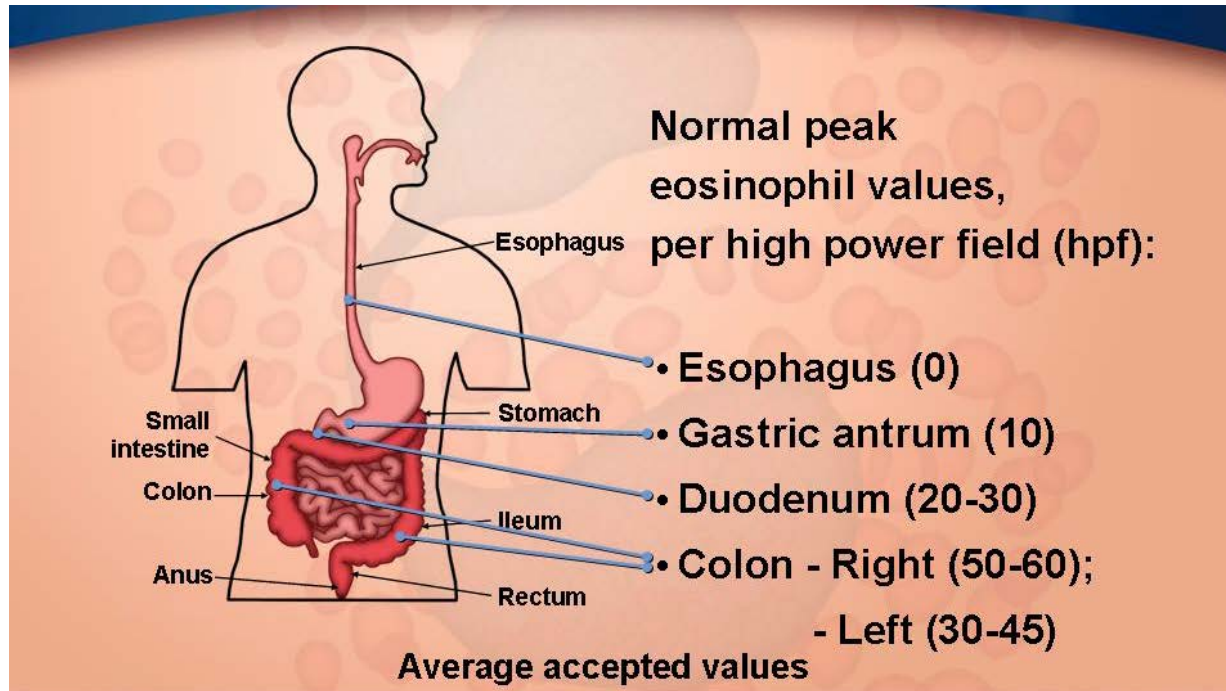
- Gastroesophageal or extraesophageal reflux disease
- Eosinophilic esophagitis (EoE)
- Environmental allergies
- Reactive airway disease
- Immune deficiency
- Chronic bacterial colonization of lungs
- Immotile ciliary syndrome
- Laryngeal/tracheal esophageal cleft
- Cystic fibrosis escaping newborn detection

Eosinophilic Esophagitis

Sona Sehgal MD

Gastroenterology

Gastrointestinal eosinophils



EoE-DEFINITION

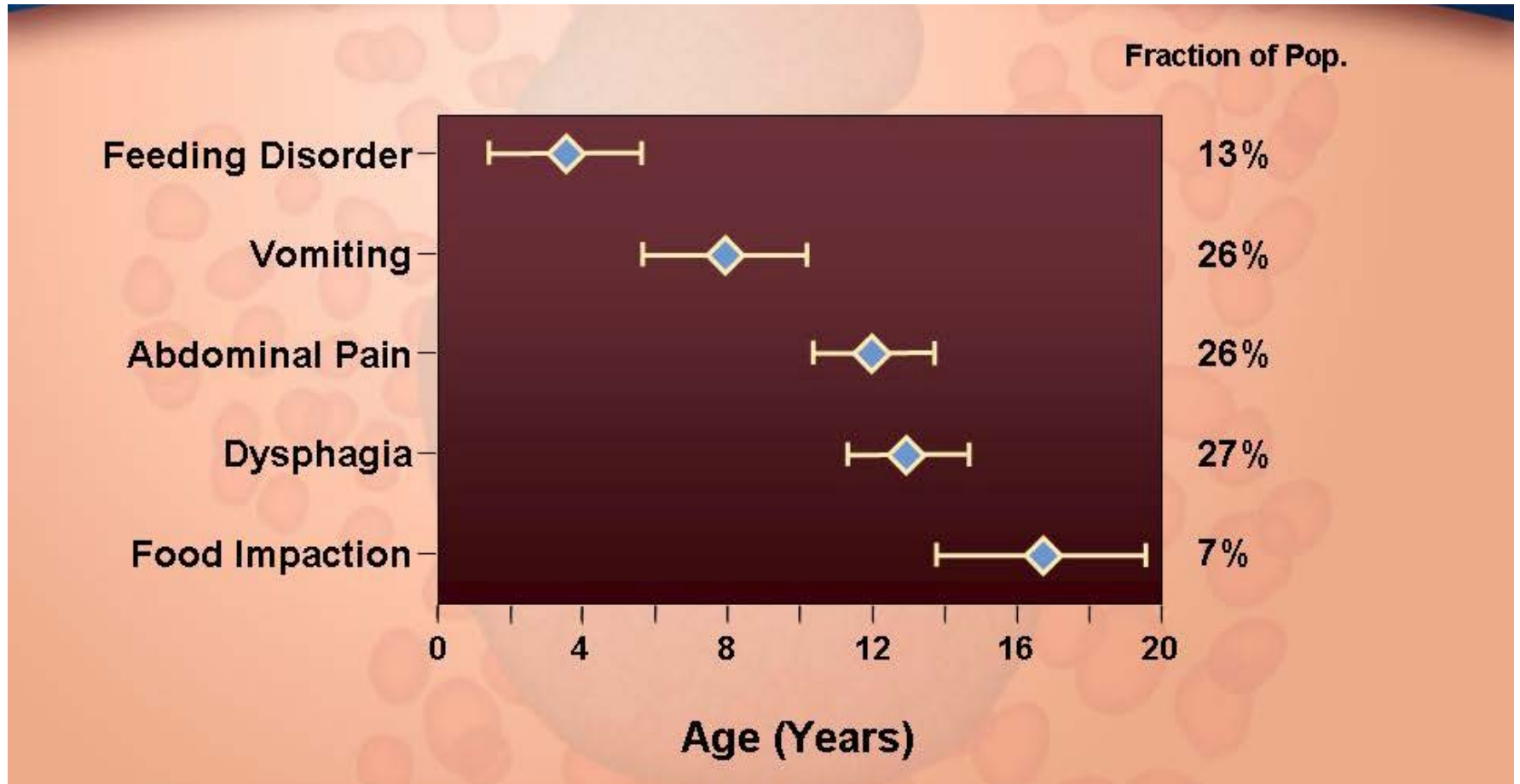
Clinicopathological diagnosis

- **Clinical symptoms related to esophageal dysfunction**
 - Feeding difficulty, vomiting, dysphagia, abdominal pain, heartburn,
- **Isolated esophageal eosinophilia**
 - 15 or more eosinophils per high power field
- **Exclusion of other GI disorder**
 - Lack of response to PPI therapy and normal pH probe

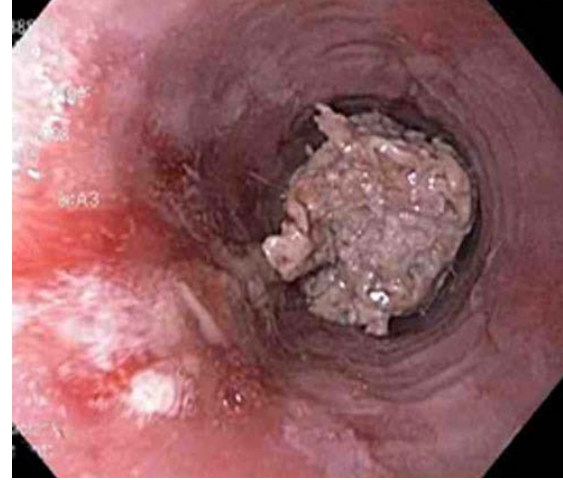
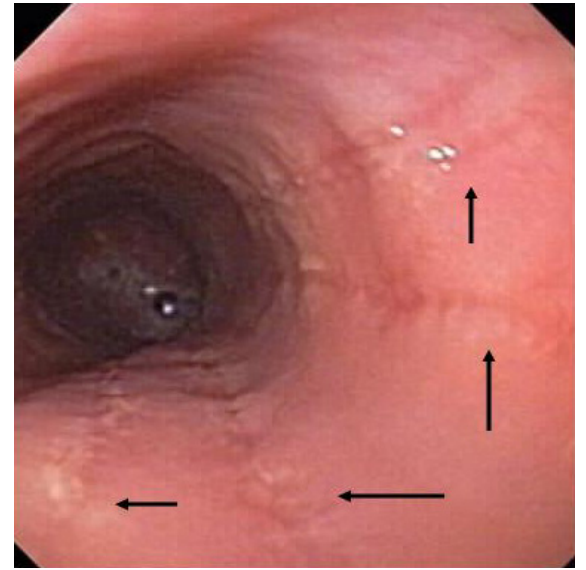
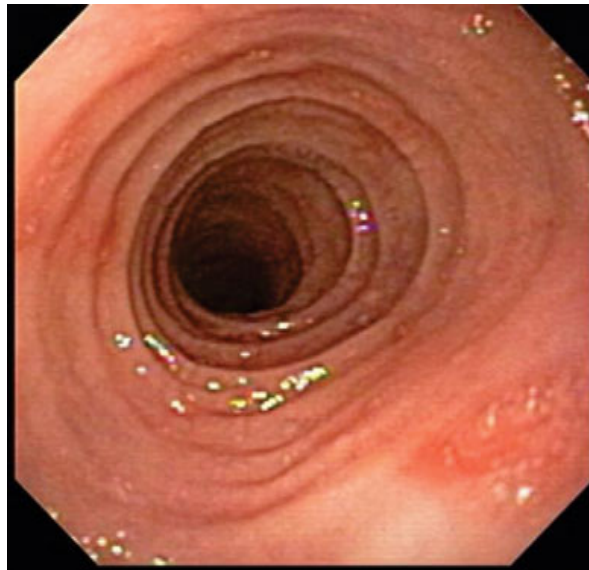
Clinical features

- Male predominance (3:1)
- 50-90% have atopy- food allergies, asthma, allergic rhinitis, atopic dermatitis
- 75% family history of atopy
- Chronic condition

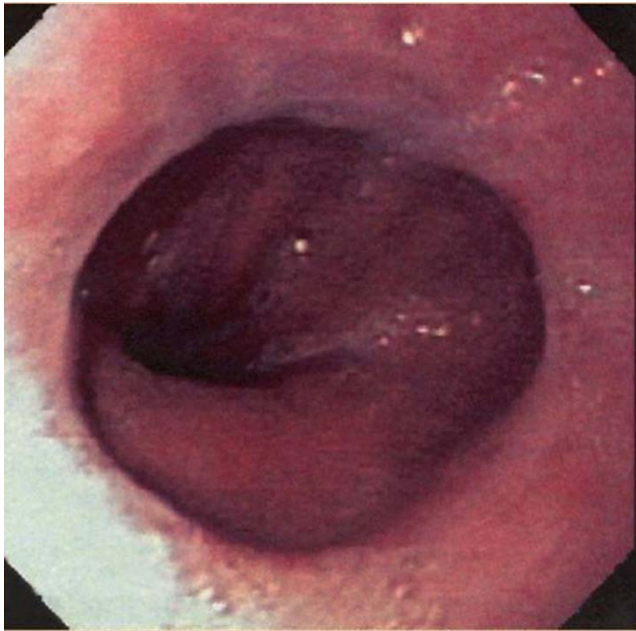
EoE presentation by age



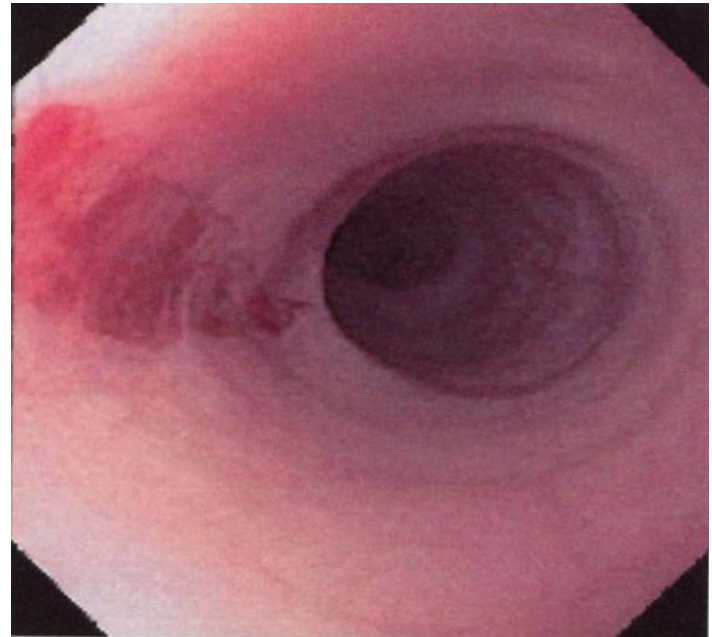
Endoscopic findings



Complications

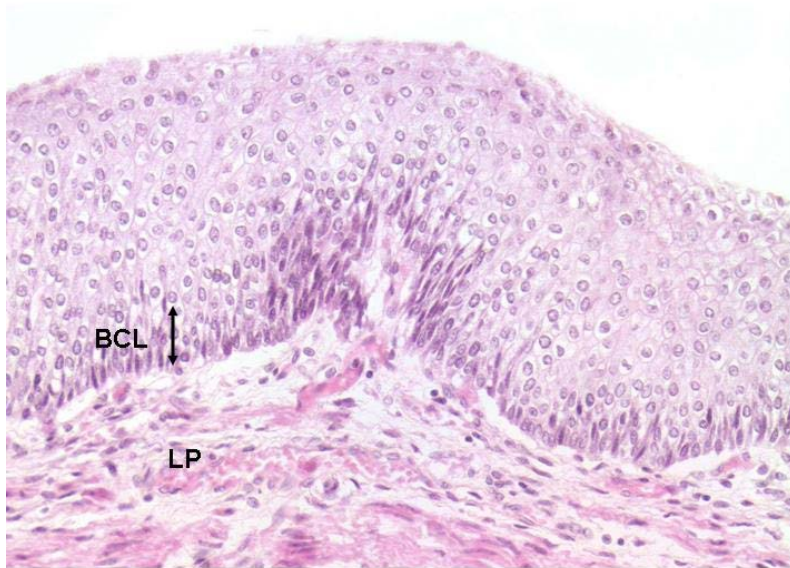


Stricture in distal esophagus

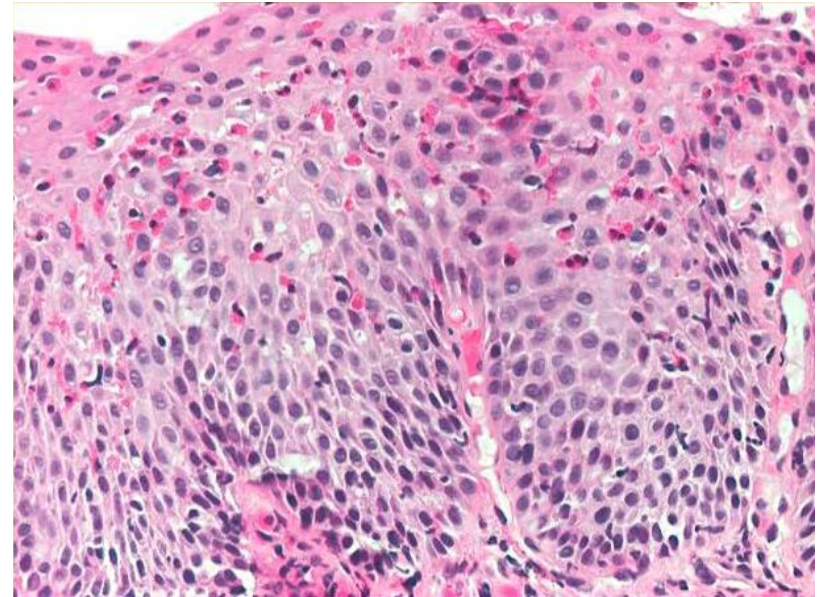


Small Caliber esophagus

Histopathology



Normal esophagus



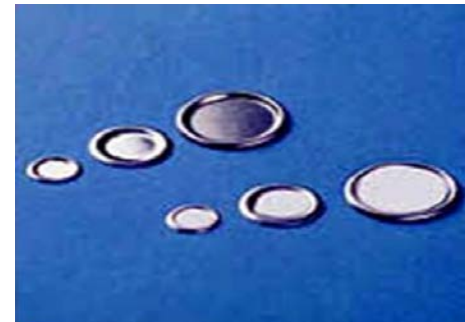
EoE

Treatment

☐ Diet

- Elemental diet
 - amino acid based
- Elimination diet
 - milk, soy, egg, peanut, wheat, fish, meats
 - react to 4-5 foods

Allergy testing



Treatment

❑ Steroids

- topical fluticasone, prednisone, liquid budesonide
- candidal overgrowth
- indefinite therapy

❑ Other treatments

- Biologics- anti IL-5 antibodies
- Mast cell stabilizers- cromolyn sodium, ketotifen
- Leukotriene receptor antagonist- monteleukast

❑ Proton pump inhibitors

- useful for making diagnosis of EoE
- treating GERD symptoms associated with EoE

Take Home Message

- **Suspect EoE –**
 - GERD patient has atopy
 - History of dysphagia
 - Not responding to PPI
 - History of impaction

Chronic Cough and Reactive Airway Disease (RAD)

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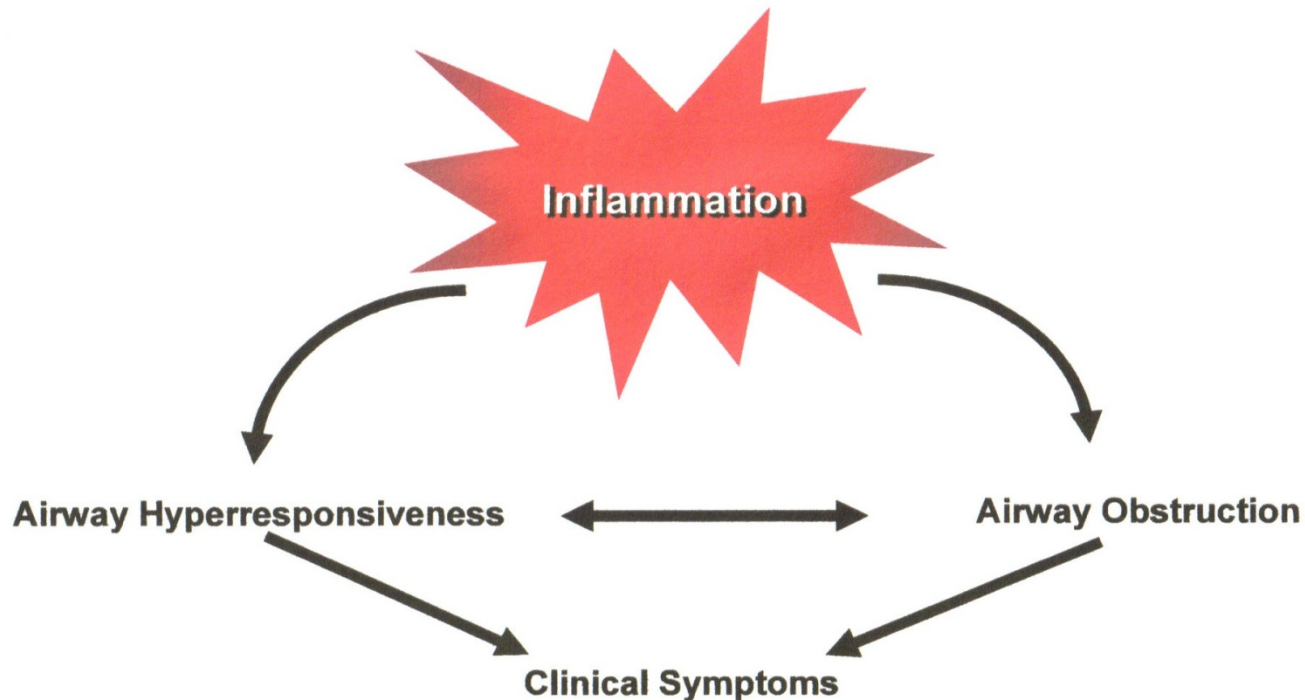
Assistant Professor of Pediatrics

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Medicine & Health Sciences

Complex Common Chronic Disorder of the Airways

Characterized by

FIGURE 2-1. THE INTERPLAY AND INTERACTION BETWEEN AIRWAY INFLAMMATION AND THE CLINICAL SYMPTOMS AND PATHOPHYSIOLOGY OF ASTHMA

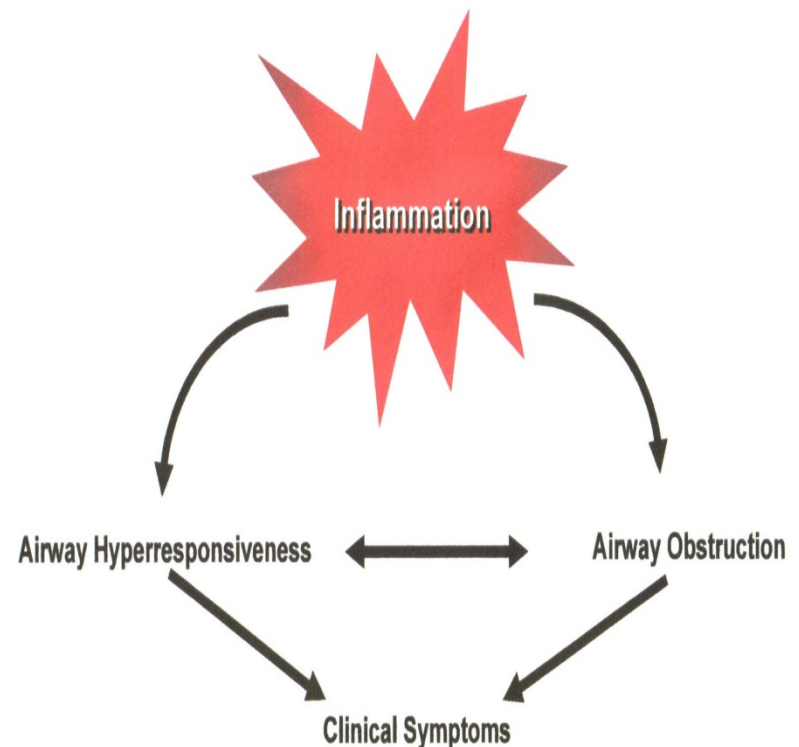


Introduction

Interaction of these features determines

- clinical manifestations
- severity of asthma
- response to treatment.

FIGURE 2-1. THE INTERPLAY AND INTERACTION BETWEEN AIRWAY INFLAMMATION AND THE CLINICAL SYMPTOMS AND PATHOPHYSIOLOGY OF ASTHMA



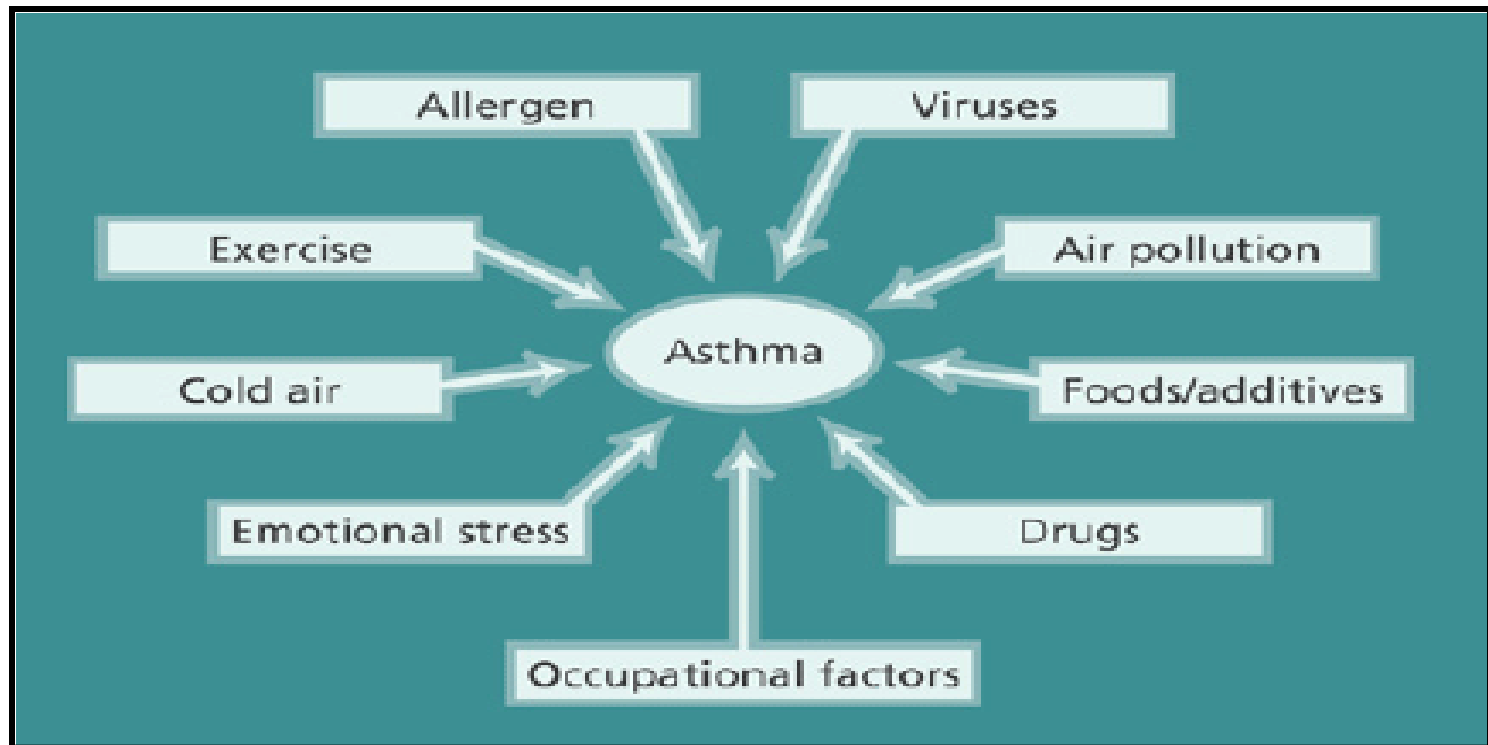
Presenting Symptoms

- One of the most common causes of ***persistent cough*** in children
- Suspect when ***cough*** improves with bronchodilator treatment
- Upper respiratory infection – with prolonged ***cough*** after infection resolves
- Recurrent episodes of cough and/or wheezing that resolve with steroid treatment

Diagnostic Criteria - Signs & Symptoms

- Recurrent wheezing
- **Cough, *especially worse or awakening patient at night***
- Recurrent difficulty breathing or shortness of breath
- Recurrent chest tightness

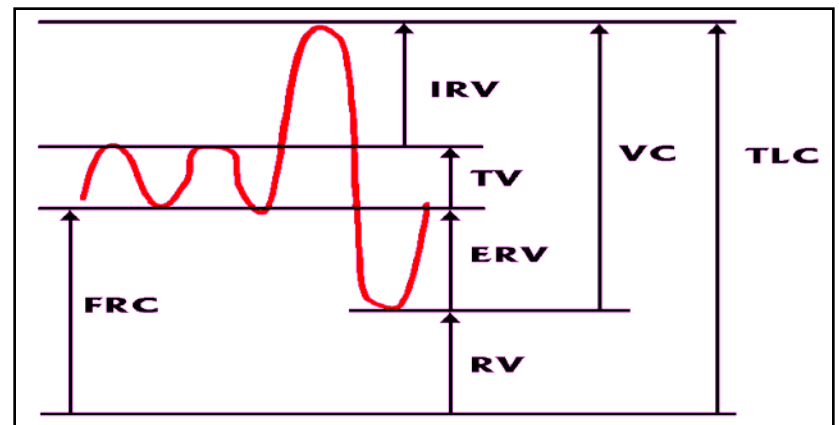
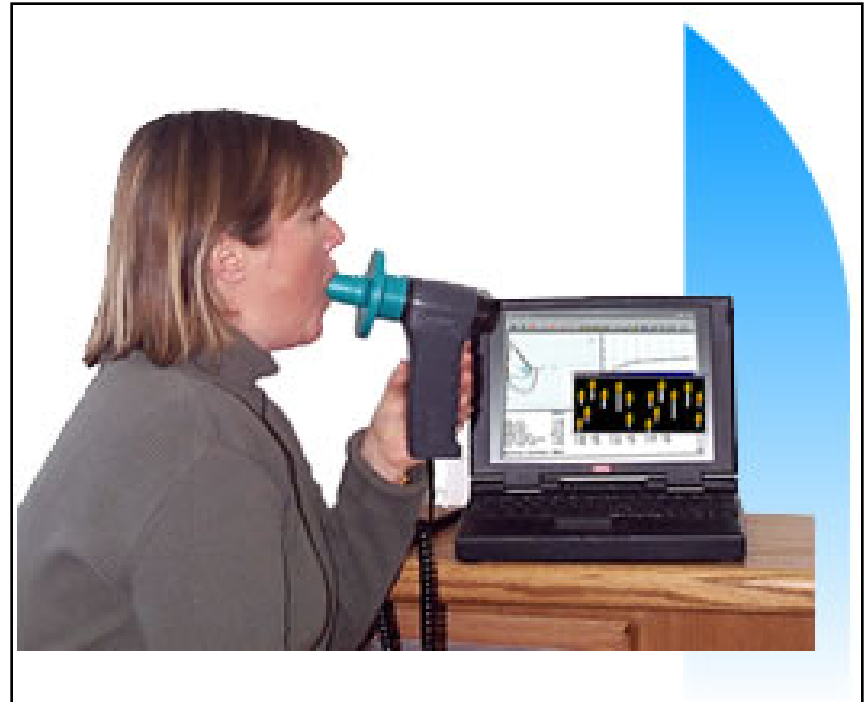
Triggers:



Diagnostic Work Up

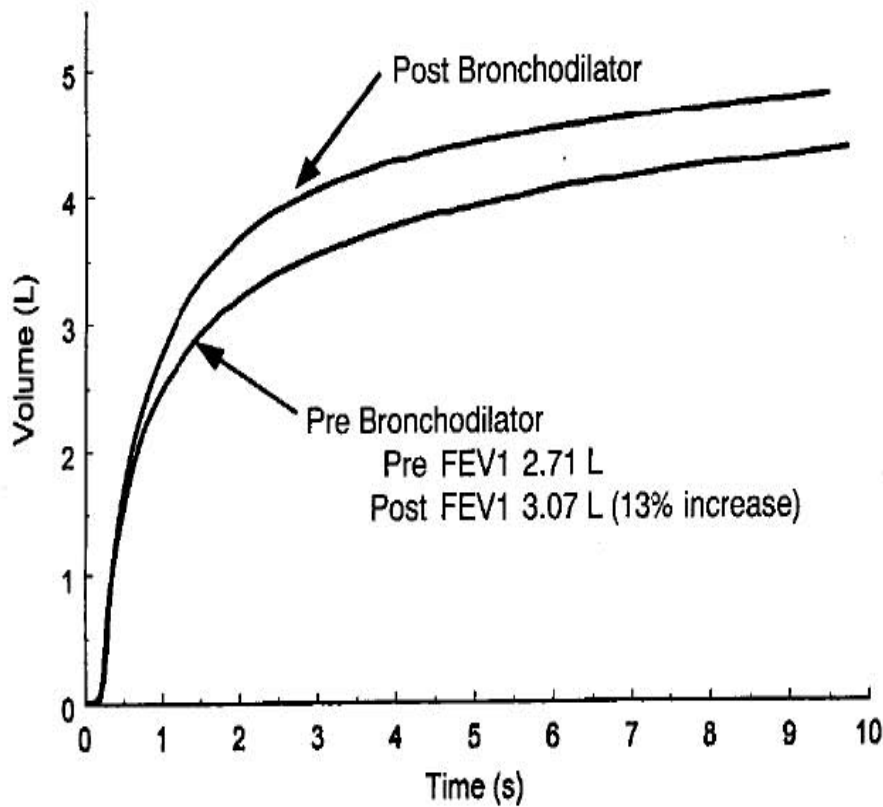
Spirometry

- Mechanical properties of the respiratory system by measuring expiratory volumes and flow rates
- Basic, quick & easy test
- Measures rate of change of lung volumes during forced breathing maneuvers
- Inhale to maximum lung capacity & forcefully exhale to RV

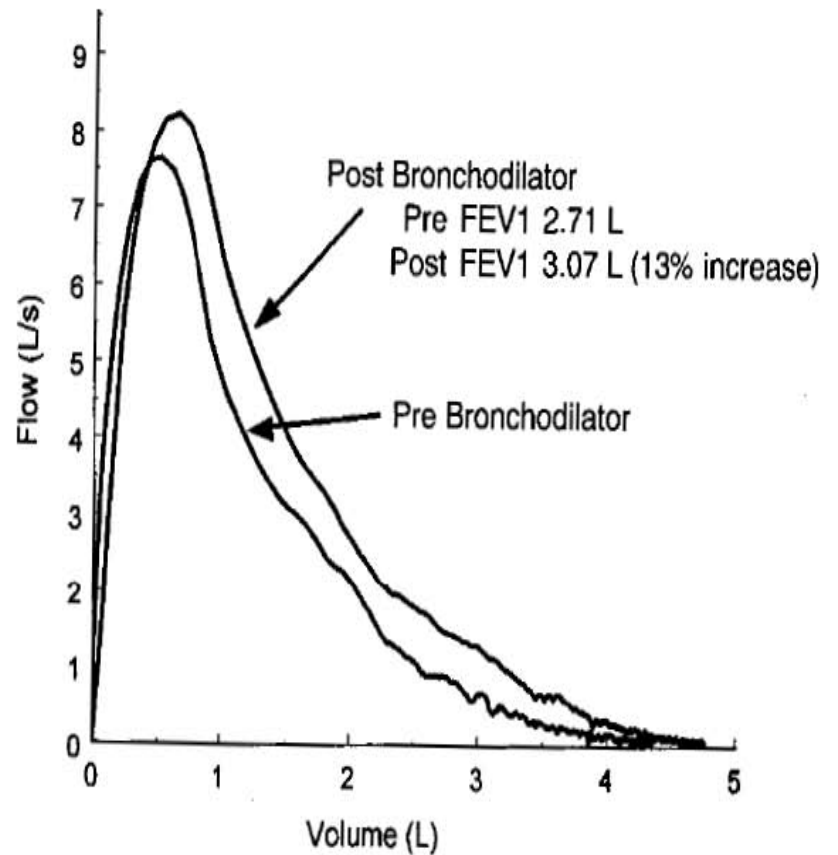


SPIROMETRY

VOLUME TIME CURVE



FLOW VOLUME CURVES



Cough Variant Asthma

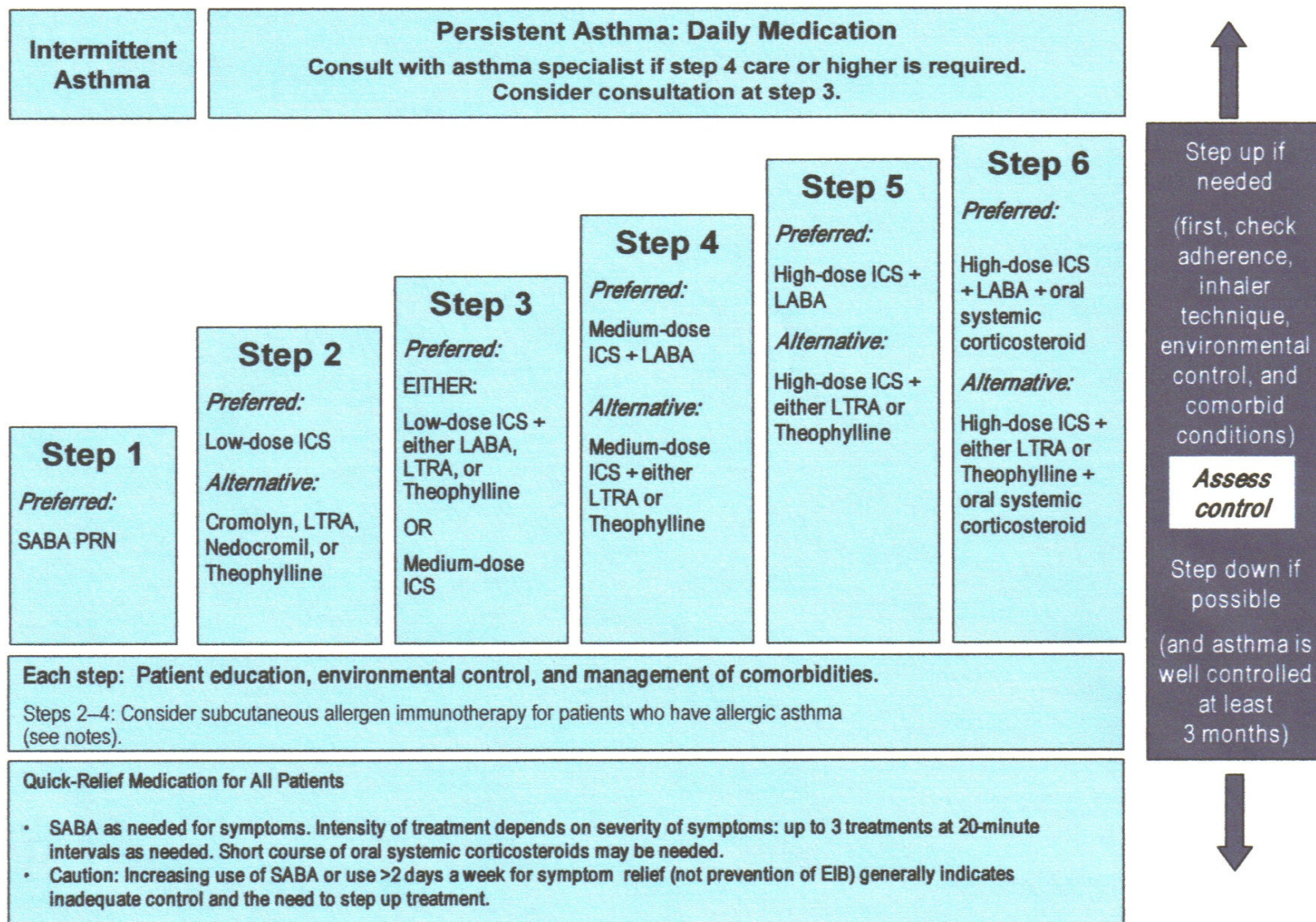
- Cough in young children - may be the principal or only manifestation of asthma
- Nonproductive cough
- TRIGGERS - exercise, cold air or environmental triggers
- Pulmonary Function tests or Methacholine inhalation challenge, may be helpful in diagnosis - to clarify whether there is bronchial hyperresponsiveness consistent with asthma,.
- Diagnosis - confirmed positive response to asthma medication
- Treatment - stepwise approach to long-term management of asthma.

Treatment
Co-management with Primary care
physician

Referral to a Specialist for Consultation or Co management

1. Patient has had life-threatening asthma exacerbation.
2. Patient not meeting the goals of asthma therapy after 3–6 months of treatment. An earlier referral or consultation if the physician concludes that the patient is unresponsive to therapy.
3. Atypical Signs and symptoms or problems in differential diagnosis.
4. Complicating conditions (e.g., sinusitis, nasal polyps, aspergillosis, severe rhinitis, VCD, GERD).
5. Additional diagnostic testing is indicated (e.g., allergy skin testing, rhinoscopy, complete pulmonary function studies, provocative challenge, bronchoscopy).

FIGURE 4-1b. STEPWISE APPROACH FOR MANAGING ASTHMA IN CHILDREN 5-11 YEARS OF AGE



Chronic Sinusitis Without Polyposis

- Diagnosis
- Evaluation
- Management
 - Medical
 - Surgical

Chronic Sinusitis

Diagnosis

- 2 or more symptoms present ≥ 12 weeks
 - Nasal congestion
 - Nasal discharge (anterior or posterior)
 - Cough
 - Facial pain/pressure
- No diagnostic tool that differentiates chronic adenoiditis from chronic rhinosinusitis
- Diagnosis is based on symptoms – NOT imaging
 - CT scan should NOT be obtained for diagnostic purposes.



Chronic Rhinosinusitis

Predisposing Factors

- Frequent upper respiratory tract infections
- Second hand cigarette smoke
- Environmental allergies
- Perhaps GERD/EoE

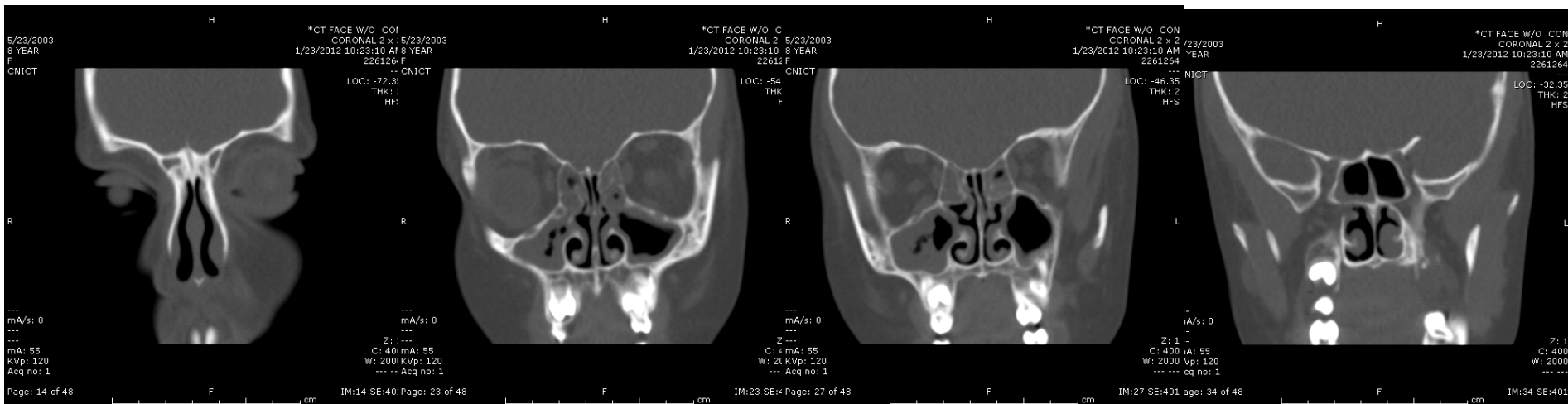
Chronic Rhinosinusitis

Medical Therapy

- Antibiotics – ≥ 21 days minimum
 - Culture middle meatus (difficult)
 - Empirically treat
 - Organisms of acute otitis media
 - H. flu
 - S. pneumo
 - M. cat
 - Anaerobes
 - S. Aureus
- Nasal steroid sprays
 - Instruct on proper and regular use for maximal efficacy
- Saline Irrigation
- Oral steroids 5-7 days
- Antihistamines
 - Only if environmental allergies present

Persistent Symptoms Despite Maximal Medical Therapy

- Surgical intervention considered
- CT scan
 - obtain at surgical facility so that image guidance can be used intra operatively if surgery indicated



Surgical Intervention

- Phase 1

- Adenoidectomy

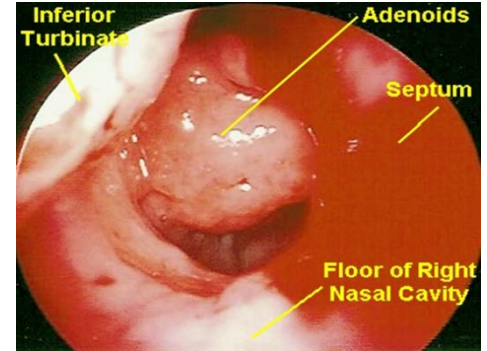
- Meta analysis improves symptoms in 69% or more patients
 - Remove bacterial reservoir for sinuses versus
 - Treats recurrent adenoiditis

- Sinus lavage

- Often combined with adenoidectomy
 - Adds therapeutic advantage to adenoidectomy alone

- Ballon sinuplasty

- Unclear whether this imparts advantage over adenoidectomy and lavage alone



Surgical Intervention

- Phase 2
 - Endoscopic sinus surgery
 - Lack of prospective randomized series
 - Meta analysis successful in 85% of patients
 - 15% require revision surgery for adhesions, recurrent disease
 - » 25% of patients undergoing revision surgery have disease in originally non infected sinuses.
 - Predisposing to failures males, allergic rhinitis, polyposis

CRSsNP in young children management scheme for (ENT-) specialists

2 symptoms: one of which should be nasal obstruction
or discoloured discharge
+/- frontal pain, headache
+/- cough
ENT examination including endoscopy
consider CT scan
check for allergy
consider diagnosis and treatment of co-morbidities

consider other diagnosis
unilateral symptoms
bleeding
crusting
cacosmia

orbital symptoms:
peri-orbital oedema/erythema
displaced globe
double or reduced vision
ophthalmoplegia

severe frontal headache
frontal swelling
signs of meningitis
neurological signs

mild
VAS 0-3

moderate - severe
VAS >3-10

nasal irrigation
nasal steroids

failure after 3 months

+ consider culture
+ consider long term antibiotics

urgent investigation
and intervention

CT scan

consider adenoidectomy
and sinus irrigation

consider FESS

follow-up +
nasal irrigation
topical steroids

follow-up +
nasal irrigation
topical steroids
consider long term antibiotics