Rhinitis: The Runny Nose that Won’t Stop

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Objectives

- Definitions
- Anatomy and Physiology
- Classification
- Clinical Practice Guidelines
  – Referral and Treatment

Rhinitis is a syndrome defined by nasal congestion

Symptoms
- Post nasal drip
- Rhinorrhea
- Cough
- Poor sleep
- Difficulty eating
- Sneezing
- Itching

Findings
- Clear rhinorrhea
- Nasal congestion
  – Turbinate Edema
  – Turbinate Hyperemia
- Pale discoloration of the nasal mucosa
- Red and watery eyes

Sinonasal Anatomy

- Turbinates
- Sinus and Sinus Ostia
- Nasopharynx/Ch oanae
- Adenoid
- Eustachian Tube Orifice

Sinonasal Physiology

- Mucous production
- Ciliary Function
- Ostia
- Commensal Nasal Flora
Pathophysiology of Rhinitis

**Function**
- Mucous production
- Ciliary Function
- Ostia
- Commensal Nasal Flora

**Dysfunction**
- Increased mucous production
- Dysfunctional Cilia
- Narrowed Ostia
- Pathogenic Bacteria/Bacterial overgrowth

Rhinitis Otherwise Specified

**Infectious**
- Allergic
- Non Allergic a.k.a. Vasomotor Rhinitis
- Idiopathic
- Medicamentosa

Anatomical Causes of Rhinitis

**Nasal Obstruction**
- Turbinate hypertrophy
- Septal Deviation
- Adenoid hypertrophy
- Piriform Aperture Stenosis
- Choanal stenosis or Atresia
  - Down’s, Treacher Collins, Crouzon’s, Familial, CHARGE
- Mass: Polyp, Encephalocele, Hemangioma, FOREIGN BODY

**Nasal Drainage**
- Dysfunctional Cilia
- Abnormal Mucous – SINUS INFECTION

Case Presentation

2 week old with
- “Snorting” and increased work of breathing
- Difficulty feeding and nasal obstruction
- Rhinorrhea
- Inability to pass suction at birth

Flexible scope

Neonatal/ Infant Nasal Obstruction

- Small Nasal Anatomy
- Neonatal Rhinitis
- Viral Upper Respiratory Tract infections
- Milk/soy allergies
- Gastroesophageal Reflux
- Why is nasal congestion so bad in infants?
  - Unable to blow nose
  - Obligate nasal breathers
  - Disturbed sleep and OSA
  - Feeding difficulties due to weak suction

Same Case Presentation without abnormal anatomy

- Feeding/ growing disturbance
  - Bottle feeding over breast feeding
  - Nasogastric Feeding
  - Nutrition evaluation
- Apneas/Cyanosis/Increased Work of Breathing
  - Laryngoscopy and/or Complete Airway evaluation
  - Admit or apnea monitors or Polysomnogram
  - Discuss Nasopharyngeal Airway
- Discuss Nasal aspirators and pharmacologic intervention
Case Presentation

Five year old with nasal obstruction and...
• Itchy eyes, ears and Episodic sneezing
• Allergic Salute
• Allergic Shiners
• Failed antihistamine and flonase trial

Allergic Rhinitis

• MOST common chronic disease in children in USA
• FIFTH most common chronic disease in the United States overall
• Non-Nasal symptoms
  – Burning, itching and watery eyes
  – Itching ears
  – Rubbing tongue on roof of mouth
• Eosinophils: biopsy specimens

Otolaryngology Clinical Practice Guidelines

• Diagnosis if 1 or more:
  – Symptoms: nasal congestion, runny nose, itchy nose, or sneezing.
  – Signs: clear rhinorrhea, nasal congestion, pale discoloration of the nasal mucosa, and red and watery eyes.
• Document Atopic Patient Characteristics/Sequellae: Asthma, Atopic dermatitis, Sleep-disordered breathing, Conjunctivitis, Sinusitis, and Otitis media.

Case Presentation: What should I do next?

• Scope patient?
• Review proper technique for nasal steroid?
• Discuss Nasal Saline Irrigations?
• Switch oral antihistamine?
• Initiate Topical Antihistamine?
• Order IgE?
• Refer to Allergist?

Otolaryngology Clinical Practice Guidelines

• Order IgE (*not in isolation and be prepared to interpret)
  – Do not respond to empiric treatment
  – Diagnosis is uncertain
  – Desire targeted immunotherapy
• Refer for immunotherapy when patients have inadequate response to pharmacologic therapy with or without environmental controls.

Otolaryngology Clinical Practice Guidelines

– Strong Recommendation for Environmental controls
  • Removal of pets
  • Air filtration systems
  • Bed covers
  • Acaricides
• REQUIRE TEACHING & TIME & RESOURCES!
Non-Allergic Rhinitis

- No identified allergic reaction
- More common
  - <4 years old
  - >20 years old
- Perennial symptoms

Environmental triggers of Non-Allergic Rhinitis

- Car exhaust
- Chlorine
- Cigarette smoke
- Cleaning solutions
- Glues
- Hair spray
- Latex
- Laundry detergents
- Perfume
- Smog
- Wood dust
- Foods and beverages
  - Hot foods, such as soup
  - Spicy foods
  - Alcoholic beverages
- Illegal drugs
- Weather changes

Goal of Treatment

- Eliminate excess mucous
- Reduce congestion
- Improve breathing
- Improve feeding/swallowing
- Prevent sequellae

Non-Pharmacologic Options

Saline Irrigations
- Rids inflammatory mediators
- Possibly increases Ciliary beat frequency
- Removal of infectious agent
- Reduces cough
- Reduces medication use in kids with allergies
  - (Gravello, Int Arch Allergy Immunol 2005)
- Compliance is an issue!

Nasal Aspirators
- Treatment diaries: better sleep quality, feeding and respiration, and use of any drugs.
- Psychologic/Physical Trauma?
- Non-physiologic?
- Cross-contamination
- Mother’s Kiss?

Pharmacologic Options

- Topical Nasal Corticosteroids
- Antihistamines
- Antibiotics
- Leukotriene Receptor Agonists
- Decongestants/Mucolytics
- Expectorants
- Antipyretics

Nasal Steroids

- Beclamethasone
- Flunisolide
- Budesonide (Atrovent)
- Fluticasone propionate
- Ciclesonide

Approved by FDA for use in children ≥2 years.
- Mometasone Furoate (Nasonex)
- Triamcinolone acetonide (Nasocort)
- Fluticasone furoate (Flonase)

Otolaryngology Clinical Practice Guidelines:
Intranasal steroids for patients with a clinical diagnosis of allergic rhinitis whose symptoms affect their quality of life.
Oral Antihistamines
(Not for use in children < 2 years old)

**FIRST GENERATION**
- Good place to start
- Familiar to patients
- No Prescription needed
- Occasional symptoms
- Adverse effects
  - Sedation
  - Agitation

**SECOND GENERATION**
- Good Long Term Plan
  - Less Potent
  - Longer onset of action
  - Less Side Effects
- Cetirizine (Zyrtec)
- Levocetirizine (Xyzal)
- Loratadine (Claritin)
- Desloratadine (Clarinex)
- Fexofenadine (Allegra)

Otolaryngology Clinical Practice Guidelines: Use for symptoms of SNEEZING AND ITCHING...Eczema too!

Topical Antihistamines

- Azelastine (Astelin)
- Olapatadine (Patanase)
- Symptoms:
  - Postnasal drip
  - Congestion
  - Sneezing
- OK for dual therapy with Nasal Steroid

- Instant gratification
  However, Most effective when used on a regular basis.
- Allergic conjunctivitis: antihistamine eye drop

Frequently Asked Questions

- With and Without Answers…

What is the difference between Rhinitis and Sinusitis?

When do you get CT?

**DO**
- If you are planning surgery and medical management has failed.
- If there is a complication
- Communicate with radiologist
- Get a “Well CT”

**DON’T**
- Don’t use to diagnose
- No role for plain radiographs
- Don’t get during cold and flu/season
- Imaging in patients presenting with symptoms consistent with a diagnosis of Allergic Rhinitis

What is a Runny Nose Just A Sign of Teething?

- Does teething cause sleep disorders, loss of appetite, diarrhea, runny nose, and irritability?
  - MAYBE
- Prospective and Retrospective design: correlation of symptoms and signs during pediatric dentist visits.
- Statistically significant differences were found between the prospective and retrospective studies. Increased salivation ($P<.04$) and runny nose ($P<.001$) were reported less often and fever was reported more often ($P<.001$) in the retrospective evaluation.

Setzen et al. (2012)
Do you Recommend Complementary /Alternative Medicines?

We do not Recommend:

- Capsaicin – not recommended in children
- Allergen-absorbing ointment: petrolatum-based ointment blocks allergen absorption
- Cellulose powder – blocks mucosal allergen absorption
- Herbal Remedies: “Very few studies of herbal therapies have been conducted on infants and children or in pregnant and lactating women. Issues of particular concern include proper dosing in young children and greater susceptibility of fetuses and children to potential contaminants. We therefore discourage the use of herbal therapies in these patient groups.”
- Up to date online “Allergic Rhinitis” data accessed 6/20/2015

When to Refer to Otolaryngology?

- Children <2 years old
  - And Concerning Symptoms
- Unusual diagnosis is a consideration
  - Foreign body
- Obvious anatomical abnormality
- If you are considering imaging…send to us first!

When to Refer to Allergy?

- Failed antihistamines and nasal steroids
  - If patient has Comorbidities
    - Asthma
    - Eczema
  - If you are considering Allergy testing
    - No global screening
    - No one less than 4 years of age if seasonal symptoms

Thank You!

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Resources

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- Wei J. Safety and efficacy of once daily nasal irrigation for the treatment of pediatric chronic rhinosinusitis. Laryngoscope. 2011 Dec;121(23):4099-4100
- UP TO DATE: Date accessed June 20, 2015. “Allergic Rhinitis”