

Asthma and Allergic Rhinitis

What is the Connection?

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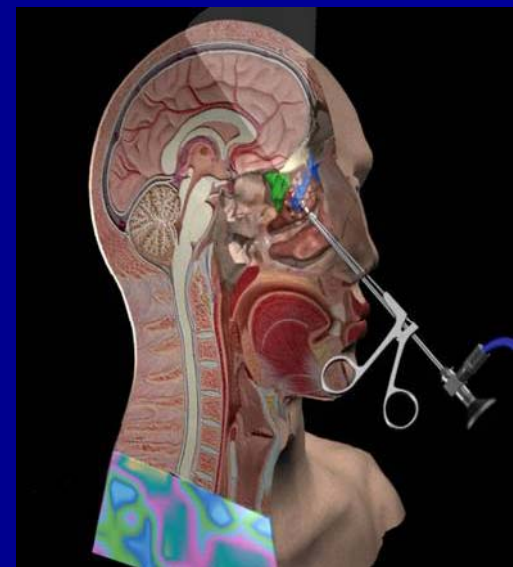
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Allergic Rhinitis and Asthma

- Definition
- Pathophysiology
- Diagnostic Approach
- Allergic Rhinitis and Asthma
- Treatment Strategies
- When is an ENT Referral Required?
- Discussion

Allergic Rhinitis- Definition

- A symptomatic disorder of the nose, induced after allergen exposure by an IgE- mediated inflammation of the nasal membrane

Asthma

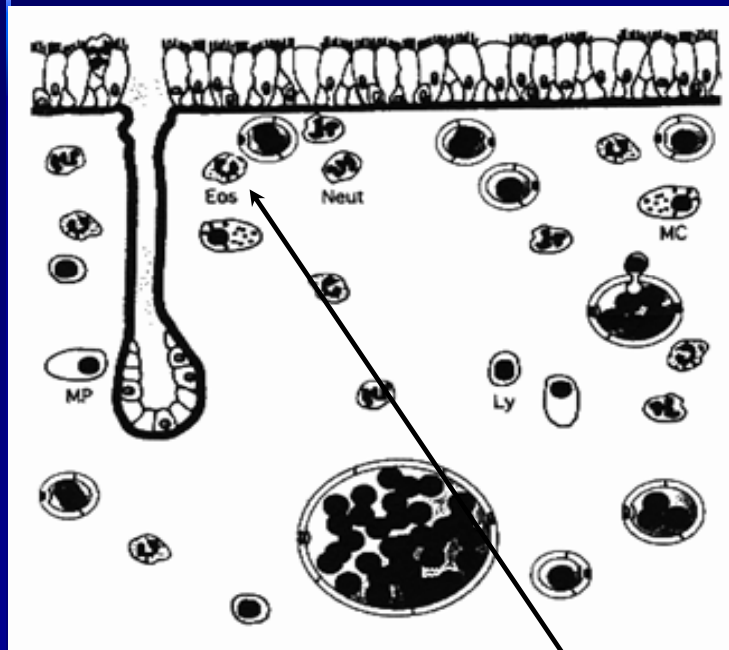
- **Asthma is a chronic inflammatory pulmonary disorder that is characterized by reversible obstruction of the airways.**

Allergic Rhinitis- Epidemiology

- ❑ **Affects 10-15% UK population**
- ❑ **Family atopic history common.**
- ❑ **Can develop at any age but 80% cases appear by age 20 years.**
- ❑ **Alters social life, affects school performance and work**

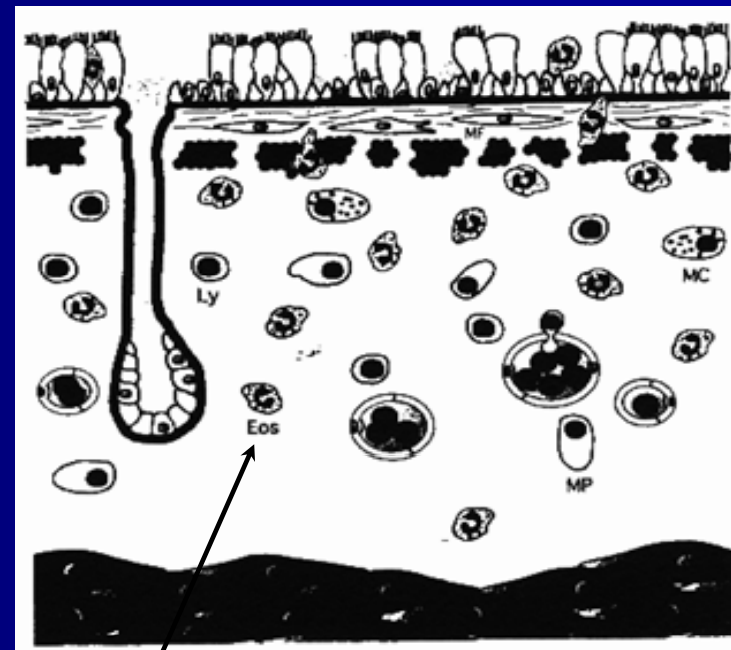
Pathophysiology

Allergic Rhinitis



Nasal mucosa

Asthma



Bronchial mucosa

Eosinophil infiltration

Eos=eosinophils; neut=neutrophils; MC=mast cells; Ly=lymphocytes; MP=macrophages

Adapted from Bousquet J et al *J Allergy Clin Immunol* 2001;108(suppl 5):S148-S149.

Arachidonic Acid

```
graph TD; A[Arachidonic Acid] -- COX --> B[Prostaglandins]; A -- Lipoxygenase --> C[Leukotrienes];
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The diagram is a flowchart on a dark blue background. At the top center is a light blue rounded rectangle containing the text 'Arachidonic Acid'. A vertical line descends from the bottom center of this box. This line meets a horizontal line that branches into two vertical lines. The left vertical line is labeled 'COX' and leads to a light blue rounded rectangle containing the text 'Prostaglandins'. The right vertical line is labeled 'Lipoxygenase' and leads to a light blue rounded rectangle containing the text 'Leukotrienes'.

COX

Lipoxygenase

Prostaglandins

Leukotrienes

Allergic Rhinitis

```
graph TD; A[Allergic Rhinitis] --> B[Intermittent]; A --> C[Persistent]; B --> D["• < 4 days/week<br>• < 4 weeks"]; C --> E["• > 4 days/week<br>• and > 4 weeks"]
```

Intermittent

- < 4 days/week
- < 4 weeks

Persistent

- > 4 days/week
- and > 4 weeks

Mild/Moderate-Severe

Intermittent Rhinitis

Common Allergens

- Grass pollens
- Tree pollens
- Weed pollens
- Mold spores

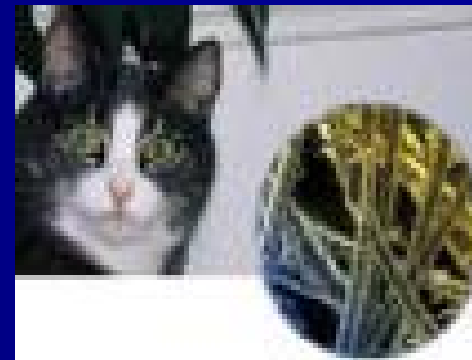


Symptoms

- Watery nasal drainage
- Nasal congestion
- Repetitive sneezing
- Itchy eyes, nose, ears, and throat
- Nose rubbing
- Allergic salute

Persistent Allergic Rhinitis

- No seasonal variation
- Symptoms continuous throughout the year
- Watery nasal drainage and sneezing less prominent
- Nasal congestion is often the primary symptom



Other Symptoms

- Dry irritated or sore throat
- Snoring
- Pain around eye
- Mouth breathing
- Orthodontic disturbances
- Frontal headaches/sinusitis
- Chronic cough

Other Symptoms

- Otitis media/possible hearing loss
- Altered smell and/or taste
- Sleep disturbance, with or without daytime fatigue
- Asthma exacerbation

General Symptoms

- Weakness
- Discomfort or uneasiness
- Irritability
- Fatigue
- Difficulty concentrating
- Decreased appetite



Diagnostic Approach

Diagnostic Approach

- **History**
- **Examination**
- **Investigations**

Examination



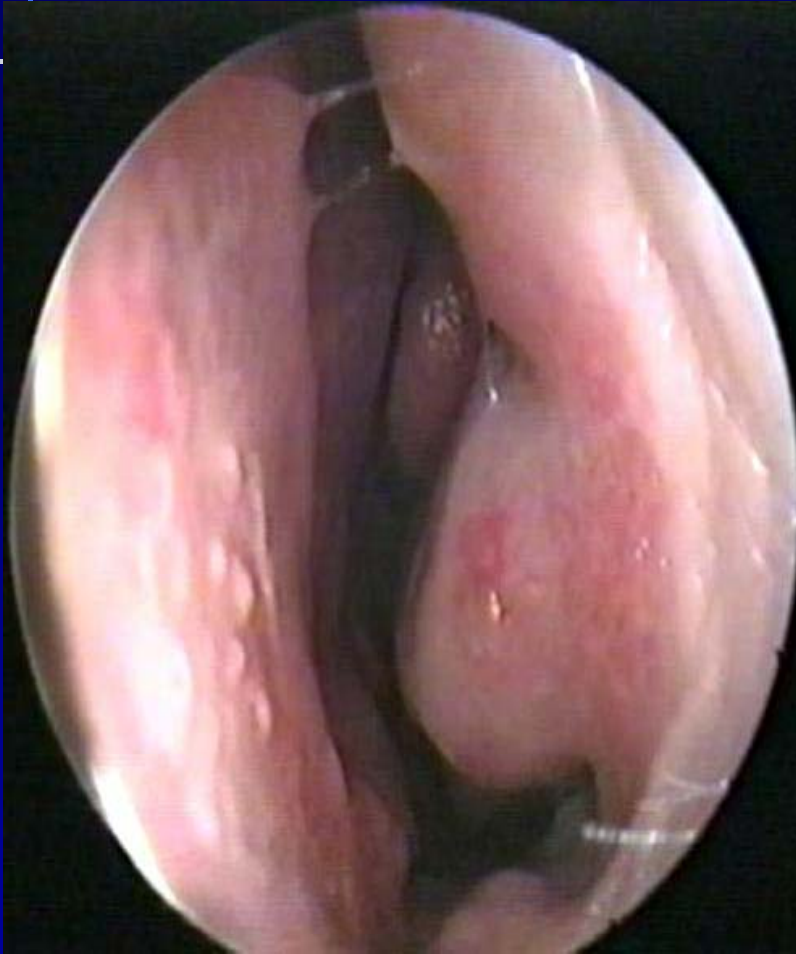
Flexible Nasendoscopy



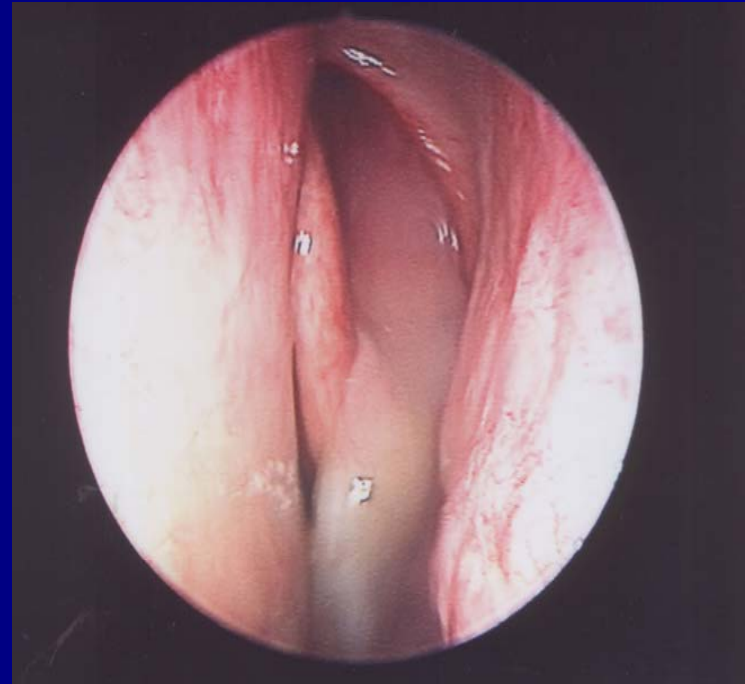
Signs of Allergic Rhinitis



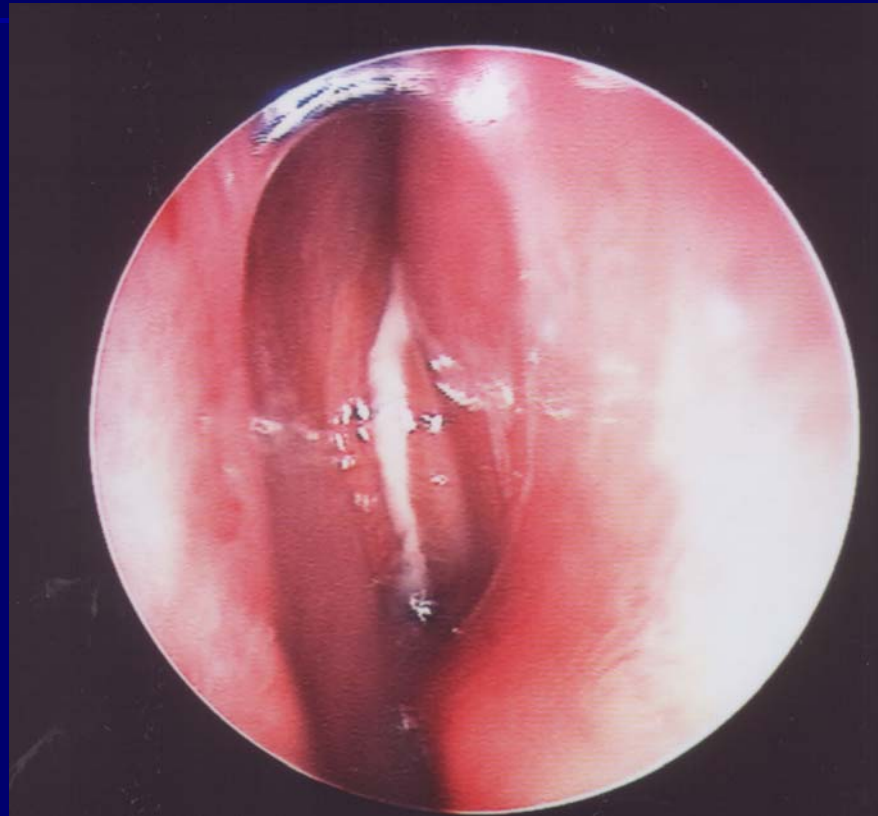
Signs of Allergic Rhinitis



Nasal Polyps



Rhinosinusitis



Allergic Rhinitis and Asthma

A One Airway Disease?

Allergic Rhinitis and Asthma

- Frequently overlapping conditions
- Involvement of the same tissues
- Common inflammatory processes
- Common inflammatory cells
- Common inflammatory mediators

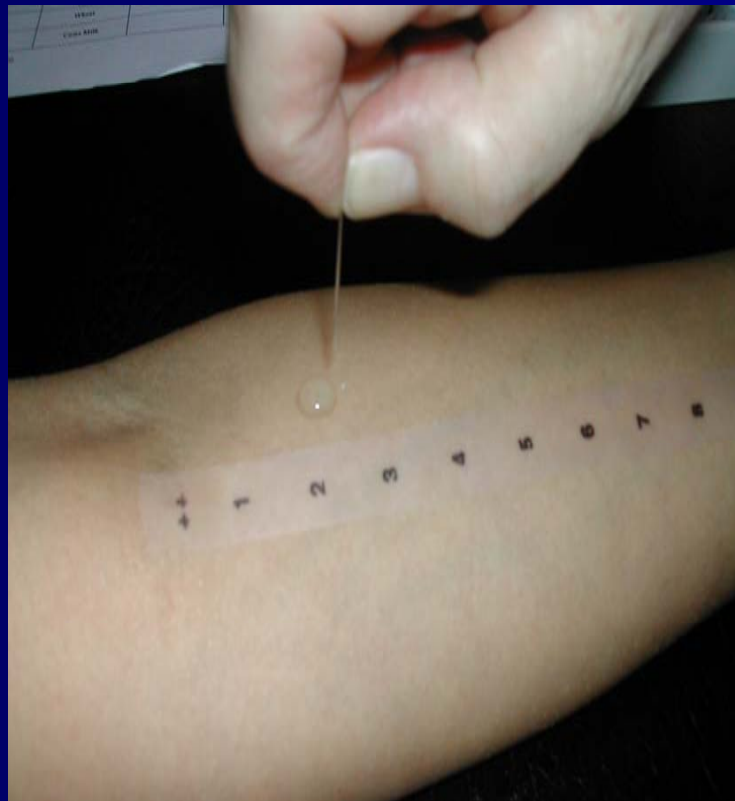
Samter's Triad

- Nasal polyps
- Asthma
- Aspirin sensitivity
- Preponderance of Leukotrienes in the nasal and bronchial mucosa



Investigations

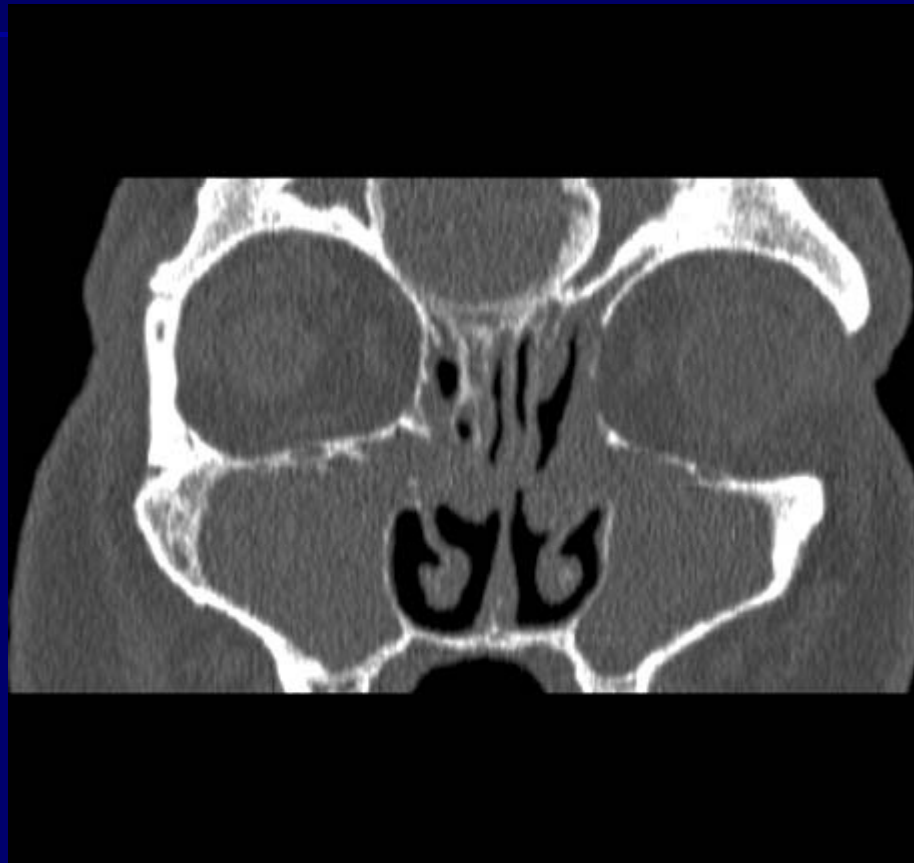
Skin Tests



Other Investigations

- **RAST**
- **Nasal Challenge**
- **Olfactory test**
- **Peak Inspiratory Nasal Air Flow**
- **CT Sinuses (d.d rhino-sinusitis)**

CT Scan Sinuses



Treatment

Treatment Strategies

- Avoidance of Allergens
- Medical treatment
- Immunotherapy
- Surgery

Medical Treatment

- **Antihistamines**
- **Decongestants**
- **Steroid nasal sprays**
- **Anticholinergic nasal sprays**
- **Antileukotrienes**

H1 Receptor Blockers (A)

- Prevent action of histamine receptors
- Relieve runny nose, sneezing, itching.
- Do not control inflammation.
- Small effect on nasal congestion.

Systemic Decongestants

- Pseudo-ephedrine
- Work well for congestion, some for runny nose
- No effect on itching or sneezing
- Side effects: insomnia, increased activity, irritability

Topical Nasal Corticosteroids

- Reduce all nasal symptoms.
- Use at the lowest effective dose
- Prolonged use > nasal dryness / epistaxis

Anticholinergic Sprays

- **Ipratropium**
- **Effective for rhinorrhoea**
- **Mainly used for non-allergic 'autonomic rhinitis'**

Antileukotrienes

- **Montelukast**
- **Second line in asthma/rhinitis patients when oral steroids are ineffective**
- **Samter's triad**
- **Decreased polyp recurrence**

Stepped Approach

Mild Intermittent Symptoms

- Avoidance of allergens
- Oral antihistamines +/- decongestants

Persistent Mild to Moderate Symptoms

- **Intranasal steroid starting therapy 1-2 weeks prior to season**
- **Non-sedating antihistamine and or decongestant as needed**
- **Topical ocular (eye) antihistamine with or without vasoconstrictor or topical eye mast cell stabilizer**

Severe Symptoms

- **Topical nasal corticosteroids**
- **Non-sedating antihistamine**
- **Short term burst of oral corticosteroids**

Severe Symptoms

- Consider other treatments
 - Antileukotrienes
 - Immunotherapy
 - Surgery

Allergic Rhinitis

Intervention	Intermittent		Persistent	
	Adults	Children	Adults	Children
Oral H1 antihistamines	A	A	A	A
Intranasal corticosteroids	A	A	A	A
Antileukotrienes	A			
Subcutaneous SIT	A	A	A	
Sublingual SIT	A	A	A	
Allergen avoidance	D	D	D	D

When Is an ENT Referral Required?

ENT Referral

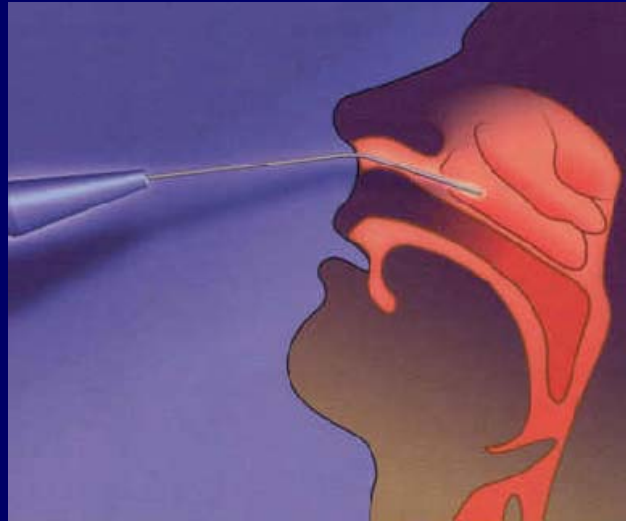
- Persistent nasal obstruction
- OSA
- Associated nasal pathology:
 - * Hypertrophied inferior turbinates
 - * Nasal polyps
 - * Deviated nasal septum

Surgical Treatment

Turbinate Surgery

- Diathermy of Inferior turbinates
- Submucous Diathermy
- Turbinectomy
- Submucous conchopexy

Turbinate Surgery



Nasal Polypectomy



Septal Surgery

Septoplasty



Septoplasty



Septoplasty



Discussion

Presentation on

www.entplymouth.com