

Nasal Allergy

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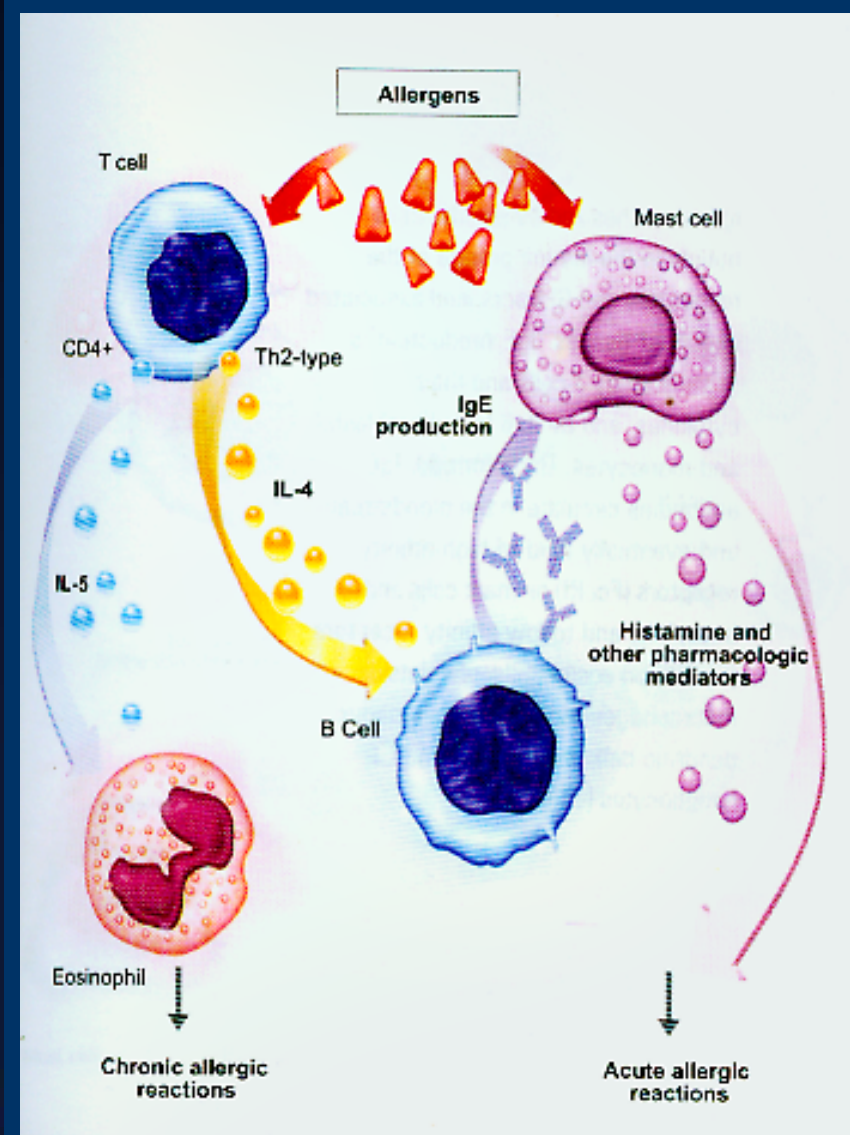
Allergic Rhinitis

- **Definition**

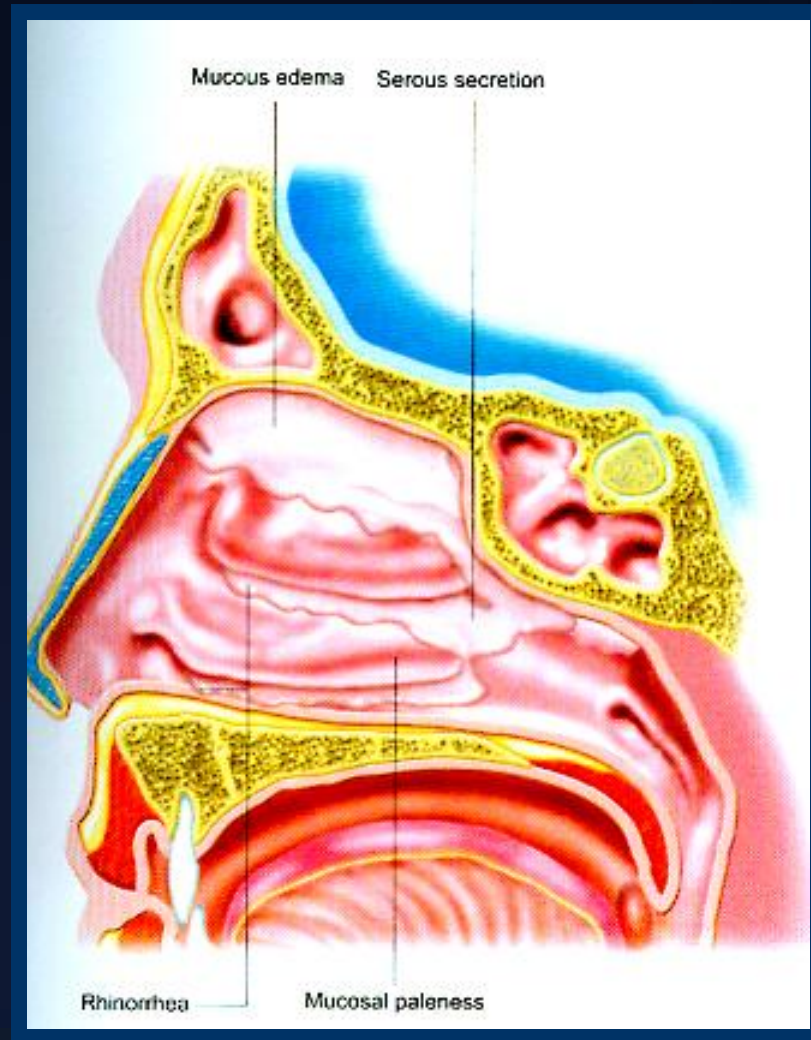
- Hypersensitivity of the nasal mucosa to foreign substances (**antigens**) mediated through **IgE antibodies**.
- The term “**atopy**” is used to designate the hereditary tendency which exists in about 30% of patients with allergic rhinitis.

• Pathophysiology

- **First time exposure (primary humoral response)** to an antigen leads to the formation of **IgE antibodies** which become fixed to the **mast cells** of the nasal mucosa.
- **On subsequent exposures to the same antigen (secondary humoral response)**, the antigen reacts with the antibodies on the mast cells leading to the release of **histamine**, cytokines, and other mediators.

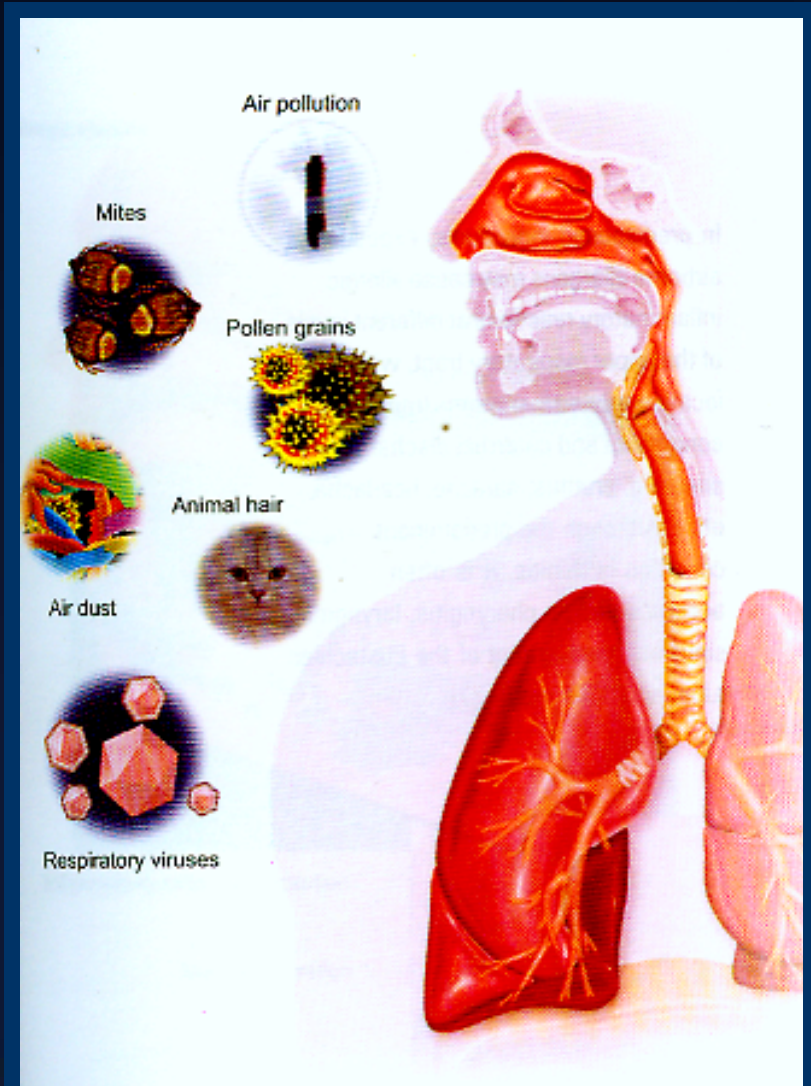


- The **released mediators** induce:
 1. **Vasodilatation** and **fluid transudation** (rhinorrhea and nasal blockage).
 2. **Neuronal stimulation** (sneezing and itching).



- **Nasal allergens**

- Most nasal antigens are **inhalants** such as dust, mites (common in household dust), fungi, and animal hairs, as well as pollens of weeds, trees, and grasses.
- Other types of allergens e.g. food are far less important.



- The allergic response frequently primes the patient to **nonspecific stimuli**, such as **strong odors, cold air**, and other irritants.

- **Types of Allergic Rhinitis:**

- A. Intermittent (Seasonal) allergic rhinitis** (hay fever, rose fever):

- This is due to seasonal inhalation of pollens of grasses and trees. The old term “hay fever” is a misnomer as there is no fever.

- B. Persistent (Perennial) allergic rhinitis:**

- This is the more common type where nasal hypersensitivity exists all through the year. Frequently it is superimposed over the seasonal type. Household dust mites, feathers, and animal dander are the more common perennial allergens.

- C. Persistent with seasonal exacerbations.**

- **Clinical Picture**

- A.Symptoms:**

1. **Sneezing** especially in the morning (**Sneezers**).
2. **Bilateral watery nasal discharge** (**Runners**).
3. **Nasal obstruction** (**Blockers**).
4. **Hyposmia** even in the absence of nasal obstruction.
5. **Itching in nose and throat.**
6. Irritant cough.
7. Itching and watering of the eyes are common in seasonal allergic rhinitis

B. Signs:

a. External signs:

a. **Allergic salute**: Frequent rubbing of the nose. A skin crease may be evident immediately above the nasal tip.

b. **Allergic shiners** :Puffiness and blue circles around the eyes.

c. **Allergic gap** : Open mouth

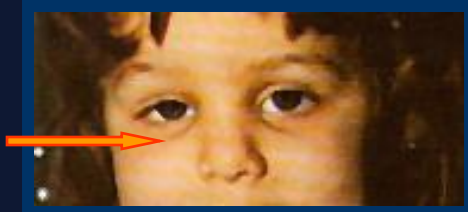
External signs



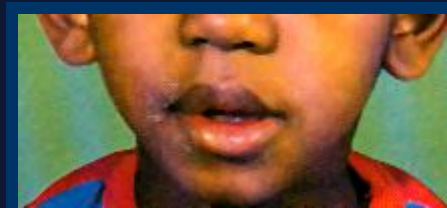
Allergic Salute



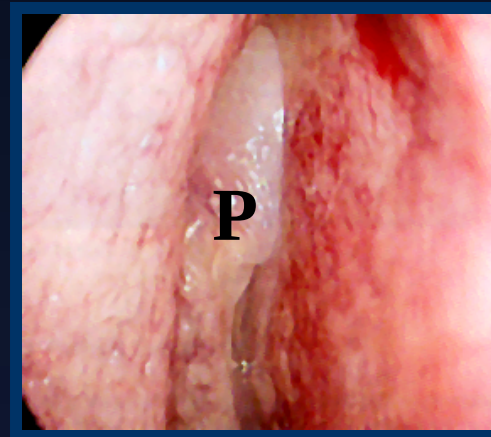
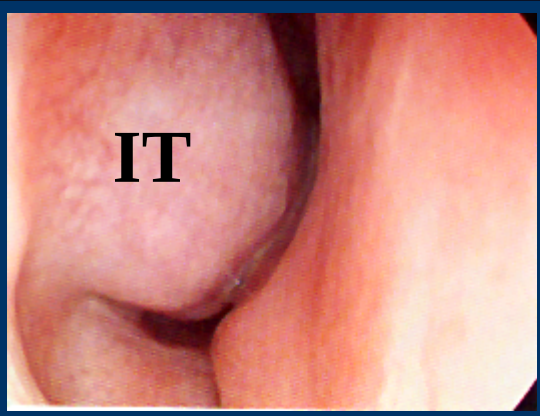
Skin Crease



Allergic Shiners



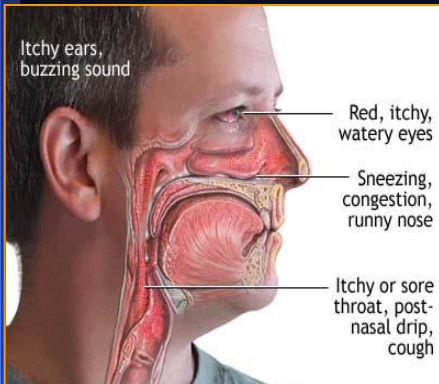
Allergic Gap



b. Internal signs:

1. Pale bluish, moist, **edematous** nasal mucosa.
2. Swollen inferior turbinates.
3. Occasionally there are nasal polypi.

Clinical Picture



- Sneezing & Itching
- Rhinorrhea
- Loss of taste and smell
- Associated sinusitis and Eustachian Dysfunction

Seasonal
allergic rhinitis

++++

Watery

+

+

Perennial
allergic rhinitis

+

Mucoid + PND

+++

+++

Positive personal and family history of other atopic diseases

Allergic Rhinitis

- **Diagnosis**

- 1. History:**

- 1. Family history.
 - 2. Surrounding environment.
 - 3. Occupation.
 - 4. Special habits.
 - 5. Seasonal variations.

- 2. Clinical picture:**

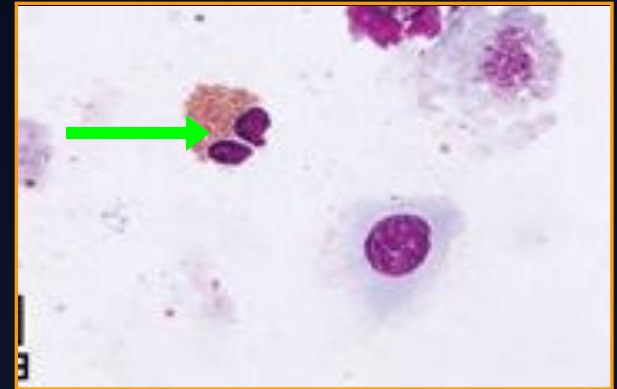
- 1. Symptoms.
 - 2. Signs.

3. Nasal smears (cytogram):

1. Eosinophilia.

4. Blood examination:

1. Eosinophilia.
2. Total IgE.



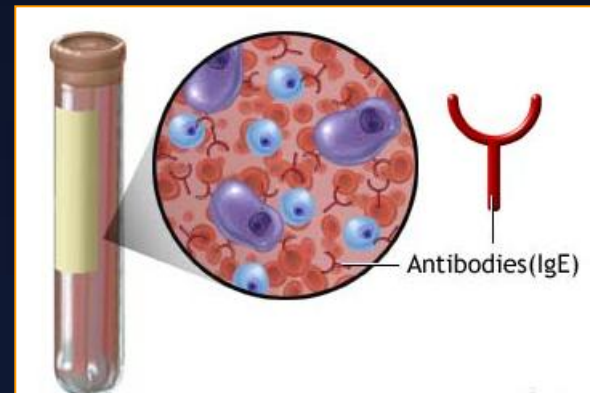
5. **Skin tests** (prick or intradermal).

6. **Nasal Challenge test:**
Application of a **specific antigen** to the nasal mucosa.



7. RAST

(Radioallergosorbent test)
test to measure
circulating IgE
antibodies for **specific
antigens**. It more
sensitive but much more
expensive than skin tests.



• Treatment

1. Avoidance and/or elimination of the offending allergens.
2. **Drug treatment:**
 1. Topical steroid sprays.
 2. Oral antihistamines. Antihistamines are occasionally mixed with decongestant preparations.
 3. Topical antihistamines.
 4. Topical sodium cromoglycate which is a mast cell stabilizing drug.
 5. Oral steroids (short courses)

3. Hyposenstization therapy:

Attenuation of the allergic response to a specific antigen by injection of the accused allergens in gradually rising concentrations in order to encourage the formation of blocking IgG antibodies . Success rates are generally low (around 30-40%).

4. **Surgery** has a **limited role** in allergic patients and is **better to be avoided** unless it is absolutely indicated, e.g. to relieve gross intolerable nasal obstruction or to open significantly obstructed drainage of the sinuses.

Complications of Allergic Rhinitis

1. Acute and chronic sinusitis.
2. Eustachian tube dysfunction , middle ear effusion, otitis media.
3. Lower respiratory tract infections.
4. Reduced productivity and quality of life.

Allergic rhinitis and bronchial asthma frequently coexist.



- Aspiration of secretions.
- Dryness of LRT.
- Increase vagal stimulation.
- Bacterial toxins.
- Inflammatory cytokines.

Treatment of rhinitis with improvement in nasal airway may also improve symptoms of bronchial asthma.

Vasomotor (Allergic-Like) Rhinitis

- **Definition**

- Increased reactivity of the nasal mucosa to **non-specific stimuli in the absence of the usual antigen-antibody reactions.**
- It is often **clinically identical** to true allergic rhinitis.
- Many cases may show **eosinophils** in their nasal smears.
- In vivo and in vitro **allergic tests** are characteristically *negative*.

- **Etiology**

- **Autonomic imbalance** with predominant cholinergic effect.
- **The precipitating factors include:**
 1. Sudden temperature and humidity changes.
 2. Cooling of the skin which is the cause of sneezing on getting out of bed.
 3. Non-specific irritants, such as fumes and smoke.
 4. Pregnancy probably due to increased levels of estrogens.

- **Clinical picture**

1. **Paroxysms of watery rhinorrhea and nasal obstruction.**
2. Itching and sneezing (less common).
3. **Pale bluish nasal mucosa.**
4. **Swollen turbinates.**



- **Diagnosis**

1. Negative allergy tests.

- **Treatment**

1. **Drug treatment** is similar to that of allergic rhinitis but with **less favorable** outcomes.

2. The **role of surgery** is the same as in cases with true allergy.