

Allergic rhinitis

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RHINITIS

Describes diseases that involve **inflammation** of the nasal epithelium and is characterized by **sneezing, itching, rhinorrhea, and congestion.**

There are many different causes of rhinitis in children .

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Rhinitis

DIFFERENTIAL DIAGNOSIS



ANATOMIC

Adenoidal hypertrophy

Foreign body Nasal polyps

Septal deviation

CSF rhinorrhea

Choanal atresia

Congenital anomalies

NONANATOMIC

Infectious rhino sinusitis

Noninfectious rhinitis

ALLERGIC NON ALLERGIC

(Non allergic rhinitis with eosinophilia)

(formerly known as vasomotor rhinitis)

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Allergic rhinitis



- Commonly known as **hay fever**, is caused by an **IgE-mediated** allergic response. which leads to the development of **chronic nasal inflammation**
- **Approximately half of all cases of rhinitis are caused by allergies**

Allergic rhinitis can be seasonal, perennial, or episodic

- **Seasonal allergic rhinitis** is caused by airborne pollens, which have seasonal patterns. Typically **trees pollinate in the spring**
- **Grasses** in late spring to **summer**
- **Weeds** in the **summer and fall**.
- The pollen, microscopic in size, **can travel airborne hundreds of miles** and be inhaled easily into the respiratory tract

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- **Perennial allergic rhinitis** is primarily caused by indoor allergens , such as house dust mites, animal dander, mold, and cockroaches.
 - **Episodic rhinitis** occurs with intermittent exposure to allergens, such as visiting a friend's home where a pet dwells.

EPIDEMIOLOGY



Overall allergic rhinitis is observed in 10% -25% of the population

Children and adolescents more commonly affected than adults.

CLINICAL MANIFESTATIONS



☐ **Rhinorrhea**

☐ **Red Eye**

☐ **Cough**

☐ **Hoarseness**

The hallmarks of allergic rhinitis



- ☐ **Clear: thin rhinorrhea**
- ☐ **Nasal congestion**
- ☐ **Paroxysms of sneezing**
- ☐ **Pruritus of the eyes and nose, ears, and palate.**

- ☐ **Postnasal drip may result in frequent attempts to clear the throat, nocturnal cough, and hoarseness**

The physical examination




□ Physical findings may be subtle.


Classic physical findings include

pale pink or bluish gray,

swollen, boggy nasal turbinates' with clear,
watery secretions.

Frequent nasal itching and rubbing of the nose
with the palm of the hand

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- **allergic salute**, can lead to a transverse **nasal crease found across the lower bridge of the nose**.
 - **lymphoid hyperplasia** of the soft palate and posterior pharynx or visible mucus or both.
 - **Orthodontic abnormalities** may be seen in children with chronic mouth breathing.

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- **Allergic shiners, dark periorbital swollen** areas caused by venous congestion, along with swollen eyelids or conjunctival injection .
 - **Retracted tympanic membranes** from **eustachian tube dysfunction or serous otitis** media also may be present.
 - **Other atopic diseases**, such as **asthma or eczema**, may be present


LABORATORY

- Allergy testing can be performed by in vivo **skin tests**
- Or by in vitro **serum tests** (radioallergosorbent test [RAST])
- Fluorescent enzyme immunoassay [**FEIA**]
- or enzyme linked immunosorbent assay [**ELISA**])

Skin tests (prick/puncture)



- **Provide immediate and accurate results.** Positive tests correlate strongly with nasal and bronchial allergen.
- **In vitro serum tests are useful for patients with abnormal skin conditions, for those with a tendency for anaphylaxis ,or for those taking medications that interfere with skin testing**

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- **Measurement of total serum IgE or blood eosinophils generally is not helpful.**
 - **The presence of eosinophils on the nasal smear suggests a diagnosis of allergy, but eosinophils also can be found in patients with nonallergic rhinitis with eosinophilia.**
 - **Nasal smear eosinophilia is often predictive of a**
 - **good clinical response to nasal corticosteroid sprays.**

DIFFERENTIAL DIAGNOSIS

- Acute infectious rhinitis (**rhino sinusitis**) (the common cold) is caused by **viruses** resolves **within 7 to 10 days**
- Chronic infectious rhinosinusitis (sinusitis) should be suspected if there is **mucopurulent nasal discharge with symptoms that persist beyond 10 days**
- Nonallergic, noninfectious rhinitis (formerly known as *vasomotor rhinitis*)


TREATMENT


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- ☐ **Treatment modalities include**
 - ☐ **Allergen avoidance**
 - ☐ **Pharmacologic therapy**
 - ☐ **Immunotherapy**
 - ☐ **Environmental control and steps to minimize**
 - ☐ **allergen exposure, similar to preventive steps for asthma**

Pharmacotherapy

Pharmacologic therapy

- **Intranasal corticosteroids** are the most potent pharmacologic therapy for *treatment of allergic and nonallergic rhinitis* (mometasone:RESTANEX)
- Nasal corticosteroid sprays have been used *safely in long-term therapy*
- The most common adverse effects include *local irritation, burning, and sneezing, which occur in 10%* of patients
- *Nasal bleeding from improper technique* (spraying the nasal septum) can occur. Rare cases of nasal septal perforation have been reported

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- **Antihistamines** are the medications used most frequently to treat allergic rhinitis. They are useful in treating rhinorrhea, sneezing, nasal itching, and ocular itching but are less helpful in treating nasal congestion.
 - **First-generation antihistamines**, such as **diphenhydramine and hydroxyzine, easily**
 - **cross the blood-brain barrier**, with sedation as the most common reported adverse effect

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- **Second-generation antihistamines,**
 - such as cetirizine, loratadine, desloratadine, fexofenadine and levocetirizine, **are less likely to cross the blood-brain barrier,** resulting in less sedation
 - **Decongestants,** taken orally or intranasally, **may be used to relieve nasal congestion.**
 - Oral medications, such as pseudoephedrine and phenylephrine, are available either alone or in combination with antihistamines.
 - **Adverse effects of oral decongestants include insomnia, nervousness, irritability, Tachycardia, tremors, and palpitations**

Immunotherapy

- **If environmental control measures and medication intervention are only partially effective or produce unacceptable adverse effects, immunotherapy may be recommended**
- **Immunotherapy is effective for desensitization to pollens, dust mites, and cat and dog proteins**
- **Use in young children may be limited by the need for frequent injections.**
- **Immunotherapy must be administered in a physician's office**
- **with 20 to 30 minutes of observation after the allergen injection.**
- **Anaphylaxis may occur, and the physician must be experienced in the treatment of these severe adverse allergic reactions.**

COMPLICATIONS

- Approximately **60%** of children with allergic rhinitis have symptoms of **reactive airways disease/asthma**
- **chronic cough from postnasal drip**
- **Eustachian tube dysfunction and otitis media and Sinusitis**
- **Tonsillar and adenoid hypertrophy**
- **which may lead to obstructive sleep apnea. sleep disturbances, limitations of activity, irritability, and mood and cognitive disorders that adversely affect their performance at school and their sense of well-being.**

PROGNOSIS AND PREVENTION

- **Seasonal allergic rhinitis is a common and prominent condition that may not improve as children grow older. Patients become more adept at self-management.**
- Perennial allergic rhinitis improves with allergen control of indoor allergens.
- The **only effective measure** for minimizing animal allergens from **pets** is **removal of the pet from the home.**
- keeping windows and doors closed lower exposure to pollen.
- **High-efficiency particle air filters reduce exposure to allergens**
- **Sealing the mattress, pillow, and covers in allergen-proof encasings is the most effective strategy for reduction of mite allergen. Bedding should be washed in hot water (>130 °F) every week.**