

The Nose

Arne Høst

- Rhinitis is a common symptom in food allergic patients, but rhinitis is rarely the only symptom.
- Rhinitis due to adverse reactions to preservatives and colorants is very rare.
- In anaphylactic systemic reactions to foods the rhinitis symptoms are caused by inflammatory mediators transported by the circulation.
- In non-anaphylactic reactions, the nasal inflammation and symptoms are probably induced by interaction with food allergens transported to the nasal mucosa via the blood circulation.

Key words: Rhinitis, colorants, preservatives, food allergy, aspirin

Rhinitis

Symptoms such as nasal congestion, rhinorrhea, sneezing and itching can be produced by adverse reactions to foods in different ways (3, 10).

Specific allergic (IgE-mediated) reactions occur after oral intake of food allergens. The symptoms may be a part of an anaphylactic reaction immediately (seconds to a few minutes) after intake of the food in question - or occur after several minutes to a few hours. In rare cases even a late phase reaction after more than ten hours may occur (2).

In anaphylactic systemic reactions to foods, the rhinitis symptoms are caused by inflammatory mediators transported by the blood stream. In non-anaphylactic reactions the nasal inflammation and symptoms are probably induced by interaction with allergens transported to the nasal mucosa via the blood circulation after absorption (2).

Non immunologic reactions may also occur due to colorants (about 3%) and preservatives (about 2%) in children and adults with rhinitis (13).

Hypersensitivity to aspirin (acetylsalicylic acid) may induce rhinitis symptoms with or without nasal polyps and asthma. Aspirin may block the cyclooxygenase pathway and thus shifting the arachidonic acid metabolism towards the lipoxygenase pathway resulting in production of

leukotrienes producing nasal symptoms (4).

Neurogenic mechanisms may also play a role in food-induced rhinitis by provoking watery rhinorrhea after hot and spicy foods - gustatory rhinorrhea (5, 12).

Psychosomatic or emotional factors associated with intake of foods may also play a role in some patients with rhinitis, probably due to autonomic stimulation (9).

Occupational rhinitis can be caused by inhalation of food proteins, e.g. milk proteins and grain dusts (bakers and agricultural workers) (9).

Alcohol produces a physiological vasodilation and nasal congestion but may also provoke symptoms due to allergy or intolerance to components in alcoholic drinks (10).

Nasal polyposis may occur as part of aspirin hypersensitivity (14). Previously allergy has not been suspected to predispose to nasal polyposis, but data from a recent study indicate that sensitization to predominantly aeroallergens and in a few cases also food allergens (corn, egg-yolk and milk) may play a role via local production of specific IgE provoking chronic inflammation and polyp formation, especially after continuous exposure (perennial) to the allergen in question (11).

The prevalence of rhinitis in infants with cow's milk protein allergy verified by controlled food challenge varies between 21% (7, 8) and 39% (6). The majority have symptoms from two or more organ systems (skin, lungs, gastrointestinal tract).

The prevalence of double-blind placebo-controlled food challenge proven rhinitis in older children allergic to peanuts or nuts, milk, egg or soy varies between 31% (15) and 39% (3).

In food-allergic adults the prevalence of rhinitis confirmed by double-blind placebo-controlled food challenges varies between 0% and 80% (2).

Arne Høst, M.D.
Head of Department of Pediatrics
Odense University Hospital
DK 5000 Odense C
Denmark

The Nose

Symptoms

nasal congestion
rhinorrhea
sneezing
itching

Triggering factors

specific

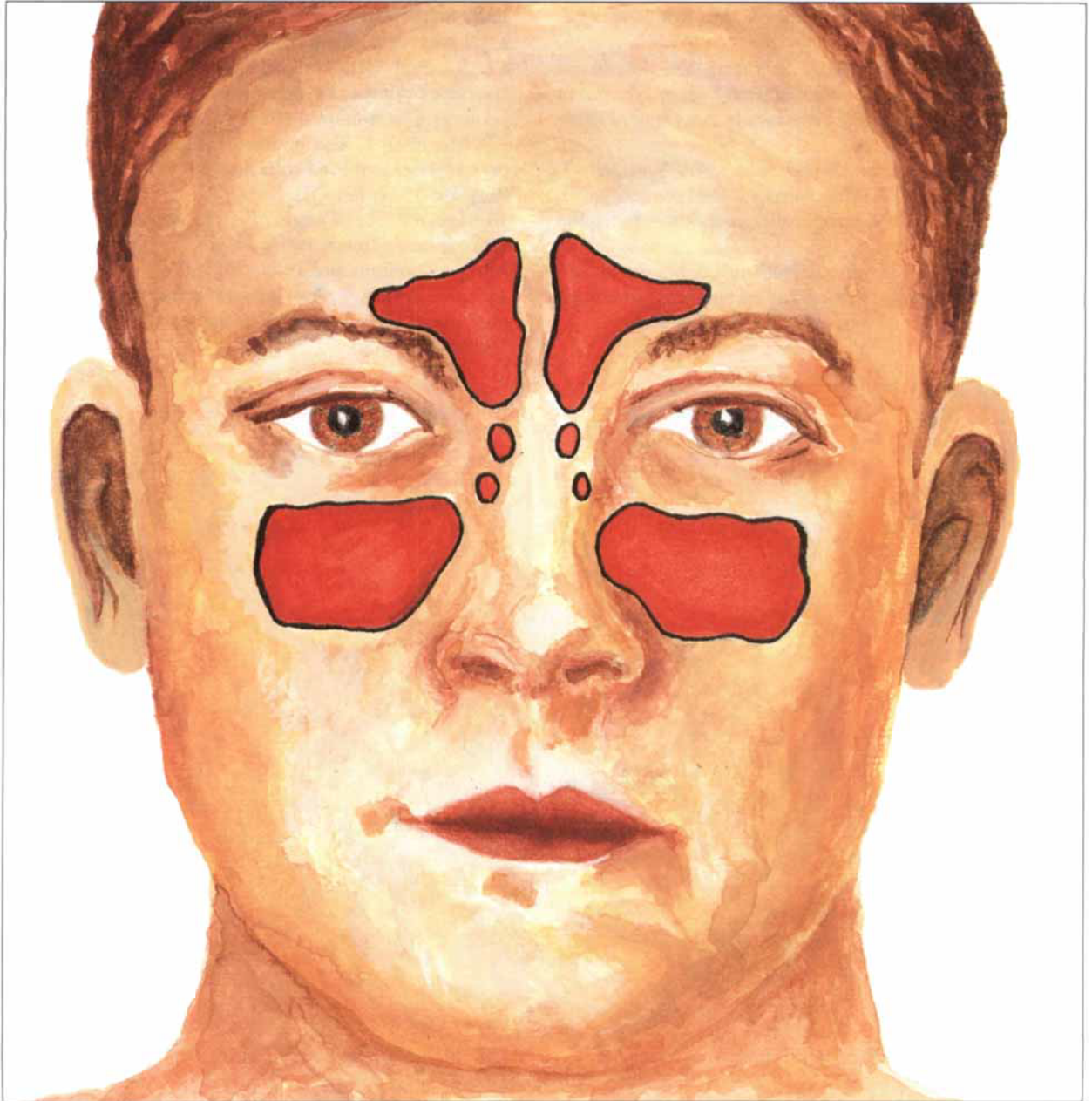
allergens, especially
inhalant allergens
less often food allergens

unspecific

hot or spicy foods
aspirin
tobacco smoke
noxious smells
exercise
viral infections

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A. Kjellman M.D.
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