

Physical Findings in Allergy

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KEYWORDS

• Physical exam • Allergy diagnosis • Allergic rhinitis • Atopy

Nearly one-third of the population in the United States reports nasal and ocular symptoms of allergy.¹ As ear, nose, and throat physicians, we have a unique role in helping these patients. Many allergic symptoms manifest in the head and neck. The term allergic rhinitis is used as a diagnosis for patients with nose and eye symptoms secondary to IgE-mediated, or type 1 hypersensitivity reactions to various antigens.² Atopic IgE-mediated allergic reactions can occur throughout the body; however, inhalant allergy is usually limited to the nose, eyes, and lungs.

A thorough history of a patient's symptoms will often include symptoms both localized in areas such as the eyes or throat as well as systemic symptoms. History alone is often sufficient to make the diagnosis of allergic rhinitis. Confirmation can be obtained in the form of skin or in vitro testing for better-guided avoidance measures as well as appropriate institution of immunotherapy. Though arguably not as important as history, the physical examination can also be a helpful adjunct in diagnosing allergy. The authors present several head and neck physical examination findings the otolaryngologist will likely encounter in the examination of the allergic patient.

NASAL EXAMINATION

Optimal nasal examination for an allergic evaluation includes the use of a nasal speculum and headlight as well as inspection of the nasal skin and the patient's behavior. Nose blowing, wiping, sneezing, and sniffing are commonly seen in the allergic patient with acute symptom exacerbation.

Nasal Drip and Nasal Crease

Clear nasal secretions can be copious in allergic rhinitis (**Figs. 1** and **2**). Some patients develop a pattern of wiping the nose with the palm of their hand leading to the term the

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Fig. 1. Patient with nasal drip and modified “allergic salute” leading to the creation of a nasal crease.

“allergic salute.” These patients may also develop a horizontal crease in the nasal supratip area called an allergic nasal crease.²

Pale and Boggy Inferior Turbinates

The nasal mucosa of the inferior turbinates often becomes edematous without erythema after inhalant allergen exposure leading to a pale or blue appearing surface (**Fig. 3**). The turbinates can become significantly swollen and obstruct the nasal airway and are typically surrounded by copious clear mucus.³



Fig. 2. Horizontal skin crease above the nasal tip often found in allergic patients.



Fig. 3. Example of a pale, boggy inferior turbinate and associated clear rhinorrhea.

Red Inferior Turbinate

Reddened nasal mucosa is less frequently associated with inhalant allergy (**Fig. 4**). The differential diagnosis for red turbinates includes exposure to cigarette smoke (either active or second hand), overuse of topical decongestants, or (in the senior author's experience) food allergy.

Nasal Polyposis

Whereas atopy alone as the cause of nasal polyp development is controversial, the presence of IgE to various antigens has certainly been identified in nasal polyp specimens (**Fig. 5**). Many patients with nasal polyps also exhibit positive skin testing or in vitro IgE to inhalant allergens. Wise and colleagues⁴ discussed a population of patients with high nasal-IgE levels and nasal polyps and negative skin or in vitro allergy testing. The higher sensitivity of detecting local IgE production in the nose may allow better treatment of truly allergic nasal polyp patients with negative conventional testing.

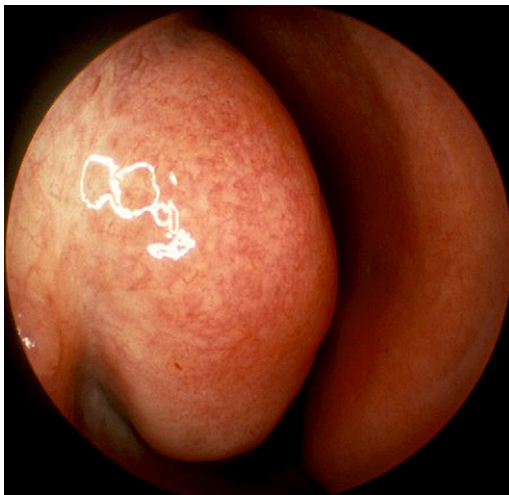


Fig. 4. Red inferior turbinate often associated with food allergy and sensitivity.

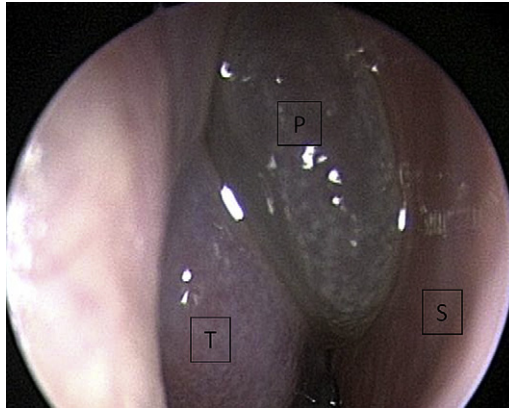


Fig. 5. Classic nasal polyp (P) appearance visualized between the septum (S) and an allergic-looking inferior turbinate (T) in a right nasal cavity.

Adenoid Hypertrophy

Inflammatory mediators in nasal secretions of the allergic patient can lead to enlargement of the lymphoid tissue within the nasopharynx also known as adenoid tissue (**Fig. 6**). This is more common in the pediatric patient and can be a significant source of nasal obstruction, sleep disordered breathing, and bacterial rhinosinusitis in untreated allergic children.⁵

EAR EXAMINATION

The ears can display a few different types of allergic pathology. Whether inflammation and edema in the nose and nasopharynx lead to eustachian tube blockage or whether a systemic allergic pathology is the cause, recognizing and appropriately treating these entities by control of underlying condition is important.



Fig. 6. Nasal endoscopic view of the nasopharynx exhibiting an enlarged and inflamed appearing adenoid.



Fig. 7. Serous middle ear effusion filling the middle ear space with the classic amber appearance.

Serous Otitis Media

Eustachian tube dysfunction resulting from allergic rhinitis is thought to contribute to the formation of a middle ear effusion without evidence of infection (**Fig. 7**).⁶ Middle ear mucosa is also thought to be a target organ for inflammation associated with the allergic process and subsequent development of fluid in the middle ear space.⁷

External Ear Canal Dermatitis

The dry, flaky skin of IgE-mediated atopic dermatitis can manifest in most any area of the body (**Fig. 8**). The external auditory canal is the only skin-lined invagination of the body, which lends itself to unique complications with interruptions in the skin barrier



Fig. 8. External auditory canal and conchal bowl atopic dermatitis.



Fig. 9. Posterior pharyngeal submucosal lymphoid tissue hypertrophy and cobblestoning appearance with the arytenoids in view inferiorly.

and skin debris that result from dermatitis allowing secondary bacterial and fungal infections. Recognizing and treating this allergic entity with antiinflammatory topicals can significantly contribute to control of bacterial colonization.⁸

THROAT EXAMINATION

The oropharynx can be the site of a few physical examination findings that are seen in the allergic population. Nasal secretions can drain in a postnasal fashion and elicit irritation or lymphoid response from the tissues that are contacted.



Fig. 10. Tonsillar hypertrophy in a pediatric patient undergoing tonsillectomy.

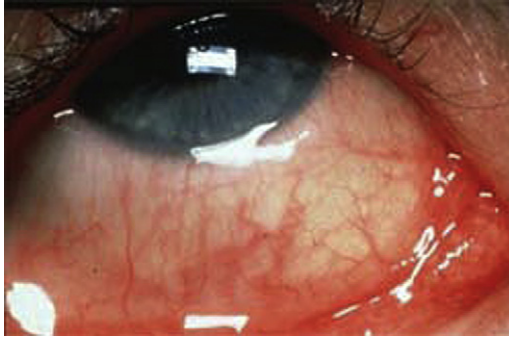


Fig. 11. Conjunctival injection and mild edema or chemosis in allergic conjunctivitis.

Posterior Pharyngeal Cobblestoning

The lateral pharyngeal tissue, where nasal secretions drain, may exhibit hypertrophy or lymphoid banding (**Fig. 9**). When the submucosal lymphoid tissues of the posterior pharynx are chronically exposed to inflammatory mediators of allergy in secretions, the development of cobblestoning is seen.⁹

Tonsillar Hypertrophy

Lymphoid hypertrophy of the upper airway from allergic rhinitis includes the palatine tonsils (**Fig. 10**). Children with tonsillar hypertrophy and sleep disordered breathing are significantly more likely to have allergic rhinitis than those with small tonsils.⁵

EYE EXAMINATION

Although detailed ocular examinations are outside of most otolaryngologists' field of practice, there are some aspects of evaluating the eyes that are simply observational and can provide helpful information. The periorbital skin can exhibit several classic patterns important to be aware of when caring for the allergic population.

Conjunctivitis

Unlike most of the other regions in the head and neck, the eye lacks a protective barrier to allergen exposure (**Fig. 11**). The mucosal surface of the eyelid and globe or conjunctiva may exhibit redness and swelling as well as inflammatory follicles or bumps.¹⁰ These are nonspecific findings, but may be confirmatory to a history suggesting allergy.

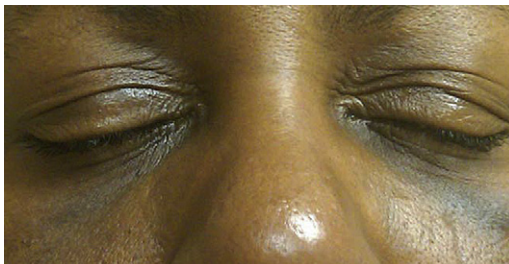


Fig. 12. Allergic shiner or dark circles in the lower eyelids of a patient with chronic nasal obstruction associated with allergic rhinitis.



Fig. 13. Dennie-Morgan (or Dennie's) lines. Creases paralleling the inferior eyelid margin thought to arise from Mueller muscle spasms.

Allergic Shiner

Discoloration of the loose lower eyelid skin results in the characteristic dark circles or allergic shiner (**Fig. 12**). This is thought to be the result of venous stasis and hemosiderin deposition in the skin resulting from chronic nasal congestion.⁹

Dennie-Morgan Lines

Typically slightly less prominent than the allergic shiner, these ocular findings are thought to result from similar pathology (**Fig. 13**). Vascular congestion of the nose and subsequently the periorbital tissue leads to the hypoxic spasms of the Muller muscle and, subsequently, creases in the lower eyelid parallel to the lid margin.²

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