THE ROLE OF INHALANT ALLERGY IN CARING FOR THE CHRONIC LARYNGITIS PATIENT

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INTRODUCTION
The symptoms associated with chronic laryngitis, including sore throat, globus sensation, dysphonia, dysphagia, odynophagia, mucus accumulation accompanied by throat clearing and cough, are common otolaryngologic complaints. The inflammation associated with chronic laryngitis can have many etiologies including mechanical, contact, irritant, allergic and iatrogenic. Most often an interplay of these factors leads to persistent laryngitis and the precise inciting factor may be unknown.

METHODS AND MATERIALS
A retrospective review of the medical records of patients evaluated for chronic laryngitis or dysphonia who underwent allergy testing during August 2006 through August 2008 was performed. Patient’s records including ICD-9 codes 476.0 (chronic laryngitis), 784.49 (dysphonia), 477.9 (allergic rhinitis) and 472.0 (chronic rhinitis) were reviewed.

The following factors were examined: age, gender, ethnicity, comorbidities (diabetes, asthma, eczema), specific concomitant medications (angiotensin-converting-enzyme inhibitors, oral antihistamine, inhaled fluticasone/salmeterol, nasal corticosteroids and oral corticosteroids), or immunotherapy at the time of initial evaluation, allergy symptoms (rhinorrhea, sneezing, ocular itching, nasal congestion), prior history of allergy testing and patient’s record of subjective improvement in laryngitis symptoms with implementation of allergy treatment.

Allergy testing was performed by 2 otolaryngologists and included both in-vitro (Immunocap Specific IgE) and in-vivo (Multi-test II prick testing) methodologies.

Exclusion Criteria: Individuals with a history of vocal cord nodules, polyps, hemorrhage, edema, paralytic and laryngeal surgery. Those taking immunotherapy at the time of initial evaluation for chronic laryngitis were also excluded.

RESULTS
Of 1,260 patients who had a chronic laryngitis or dysphonia code, 66 met inclusion criteria including having had inhalant allergen testing (Figure 1). Overall, 23 of the 66 (35%) had a positive inhalant allergy test. Eighteen of the 66 had isolated laryngeal symptoms in the absence of allergic rhinitis symptoms. Five of these 18 (28%) chronic laryngitis patients without allergic symptoms had a positive allergy test. Forty-eight of the 66 had allergic rhinitis symptoms in addition to chronic rhinopharyngitis and 18 of the 48 (38%) had a positive test. This difference between positive allergy testing in the isolated chronic laryngitis patient and the combined rhinopharyngitis patient with additional allergic rhinitis symptoms (28% vs 38%) may demonstrate a trend but was not statistically significant with a p-value of 0.654.

The proportion of patients with a positive test who reported sore throat, excess phlegm, aphonia, dysphonia, cough, laryngeal irritation, nasal congestion and postnasal drip were 0.53, 0.49, 0.37, 0.31, 0.27, 0.20, 0.18 and 0 respectively (Table 1). Proportions for sneezing, rhinorrhea, ocular itching, nasal congestion and postnasal drip were 0.95, 0.46, 0.39, 0.35 and 0.32 (Table 2). These did not reach statistical significance and the p-values between the odds of isolated laryngeal, allergic and all symptoms taken together were 0.356, 0.417 and 0.644 respectively.

DISCUSSION
Allergy treatment for patients varied and included antihistamines, nasal corticosteroid sprays and immunotherapy. Seventeen of 23 with a positive test had a record of allergy treatment and 14 of the 17 had a record of follow up with laryngeal symptom status noted. Nine of the 14 (64%) who were treated and returned for follow-up reported symptom improvement and the remaining 5 (36%) reported stable or worse symptoms. Of the remaining 6 patients who had a positive test, but did not initiate allergy specific treatment, 4 were seen in follow up. One of 4 (25%) reported laryngeal symptom improvement. A Fisher-exact test showed a p-value of 0.2059 indicating that treatment status and symptom improvement were independent. Twenty seven of 43 with a negative test had a record of empiric allergy treatment and 23 of those had documentation of laryngeal symptom follow-up. Fourteen of these 23 (61%) reported subsequent symptom improvement.

Clarity, the majority of patients evaluated for chronic laryngitis or dysphonia coded for this visit were referred for formal allergy testing. While a large number of laryngitis patients may have been empirically treated for allergy, only 66 patients had actually undergone formal allergy testing, satisfying inclusion criteria for this study. Overall the prevalence of allergy in this chronic laryngitis cohort reflected the prevalence in the general population (35%). Interestingly, the prevalence of allergy in laryngitis patients with additional concomitant allergic rhinitis symptoms was a statistically insignificant 10% greater than in patients with isolated laryngeal symptoms. It stands to reason that patients with additional allergic rhinitis symptoms may be more likely to have positive allergy testing yet the ability to demonstrate significance may have been limited by sample size.

All patients with any laryngeal pathology on examination were excluded from this study. This not only reduced the statistical power, but may have also excluded patients with the most clinically significant disease. It is possible that the laryngeal pathology such as a polyp or nodule may have been the sequela of severe or chronic allergies. This reflects a limitation of this study design.

No symptoms, either laryngeal or classic allergic, were statistically better predictors of a positive test; however, generalizations can be derived. Sore throat, sneezing and rhinorrhea were the best predictors of a positive allergy test. Excess phlegm, aphonia, dysphonia and cough had predictive values similar to ocular itching, nasal congestion and postnasal drip. Odynophagia and neck pain were never associated with a positive allergy test and therefore likely indicate a distinct pharyngeal or muscular process.

The majority of patients noted improved laryngeal symptoms with allergy treatment, but at similar rates regardless of whether allergy testing was positive or negative. It is possible that this symptomatic improvement in both groups may correlate with the documented anti-inflammatory effects of antihistamines and nasal corticosteroids. The number of patients enrolled in immunotherapy was too small to derive meaningful data regarding symptomatic improvement. Nevertheless, many patients noted improvement with pharmaceutical allergy treatments after trials of other unsuccessful therapies, most often with PPIs, voice therapy and lifestyle changes such as increased hydration and decreased caffeine intake.

CONCLUSIONS
This study is the first to show the prevalence of positive allergy testing in patients with isolated laryngeal symptoms in comparison to those with concomitant classic allergic rhinitis symptoms. The prevalence of positive allergy testing in this cohort suggests that patients with chronic laryngitis, even in the absence of rhinitis symptoms, may have unrecognized inhalant allergies. This is supported by the similarity in predictive value for a positive allergy test for both chronic laryngitis and more classic allergic rhinitis symptoms. An awareness of the unified airway concept should evolve, as otolaryngologists should continue to consider allergy testing in patients with isolated laryngeal symptoms.

Although causality cannot be demonstrated in this retrospective study, the improvement noted with allergy treatment argues that allergy may be an important contributor to chronic laryngitis. A prospective study using a uniform allergy evaluation and treatment protocol with more objective measures of symptom improvement is certainly warranted.

REFERENCES