The Yale Larynx Laboratory

A Clinical Review

Benign Vocal Polyps, Nodules and Granulomas: What not to do

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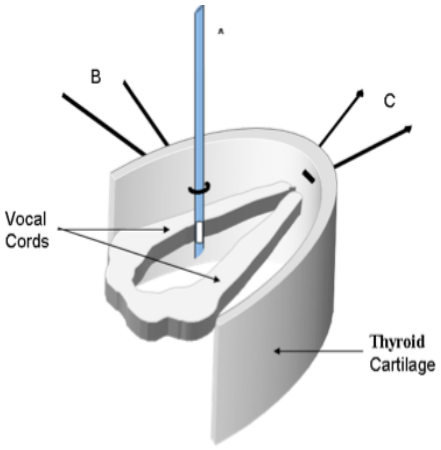

Laboratory Note

The purpose of this newsletter is to update our readers with the evidence-based management of certain Head & Neck disease presentations. In this issue we shall focus on common benign vocal lesions.

The Yale Larynx Laboratory was founded by John A. Kirchner in 1967. Since 1975 this laboratory has been in continuous operation under the direction of Clarence T. Sasaki, the Charles W. Ohse Professor and has been funded by the National Institutes of Health and by endowments of grateful patients.

Case Presentation

The patient is a 54-year-old man who presents with 1 month of progressive dysphonia. He is a motivational speaker using his voice frequently. He reports no prior history of voice changes.

For one month, he noticed progressive vocal instability. It began after significant yelling at a baseball game. It had since been slowly worsening with troublesome vocal fatigue after speaking events.

He denied acid reflux symptoms, smoking, drinking, dysphagia or recent endotracheal intubation. He had not experienced any respiratory distress.

Clinical Findings

His nasal passages were clear on anterior rhinoscopy and his oral cavity and oropharynx were clear without obstructive lesions. His neck was flat and soft without masses. His trachea was midline and his thyroid was without palpable abnormality. His breathing was non-labored. There was no inspiratory stridor. His voice was moderately unstable although he was able to speak in full sentences. Flexible fiberoptic laryngoscopy revealed a normal appearing nasopharynx, oropharynx, hypopharyx and supraglottis. His vocal cord mobility was symmetric and intact. However, at the middle third of his left membranous vocal cord there was a unilateral, 0.3cm pedunculated mass.

Course

The patient was subsequently taken to the OR for microlaryngoscopy. He was orotracheally intubated with a 6.0 ETT. The vocal cord mass was easily visualized under magnification (Figure 1). It was grasped with an angled cup forceps, retracted contralaterally, and removed with straight microlaryngeal

Figure 1 - Polyp

Figure 2 - Nodules

Figure 3 - Granuloma

scissors. Care was taken not to disrupt the native vocal cord tissue. A prominent feeding vessel was vaporized with a CO_2 laser.
The patient was discharged home on post-op day 0. One week later his voice was much improved, although not yet back to baseline. Surgical pathology identified a benign vocal polyp.
At 1 month post-op, his voice was back to baseline and he was giving motivational speeches without difficulty once again.

Discussion

The vocal folds are dynamic organs that function in respiration, phonation and deglutition. Rather than a homogenous unit, each vocal fold is composed of distinct layers. Hirano simplified their composition describing them as a body, a transition zone, and a cover. Since the mucosa (cover) has a different physiologic stiffness, it oscillates as a separate unit during phonation. While the vocal folds adduct, the mucosa is concurrently oscillating, thus representing the mucosal wave theory of phonation.
Benign vocal fold mucosal disorders are very common. Studies have shown that around 50% of patients presenting with dysphonia have a mucosal disorder. Their etiology is mucosal injury, most commonly vibratory trauma from excessive or inappropriate voice use. Expressive, talkative people are known to be at higher risk than people with sedate lifestyles. Other risk factors include acid reflux, smoking, and allergies.

Vocal fold polyps are typically unilateral. They are most commonly the result of acute phonatory trauma. In contrast to nodules, they tend to be larger, more protuberant, and have a prominent, superficial feeding vessel. Their initial treatment requires surgical excision rather than voice therapy.

Vocal fold nodules form secondary to chronic trauma, typically voice abuse. They appear at the anterior (membranous) two thirds of the vocal folds and are generally bilateral (Figure 2). Initial treatment is voice therapy, rather than surgery. Surgical excision is reserved for persistent, symptomatic nodules that have failed aggressive non-surgical treatment.

Vocal fold granulomas are the result of trauma to the

cartilaginous vocal cord by endotracheal intubation or acid reflux. Repeated trauma to the initially inflamed arytenoid cartilage results in a granuloma (Figure 3). Acid reflux, voice abuse and intubation are the main risk factors. Initial treatment is anti-reflux medications and reflux precautions rather than surgery. Lesions often mature and regress. If they persist after 3-6 months, intralesional steroid injection may be trialed. As a last resort, surgical excision may be performed, leaving the base undisturbed.

	Laryngeal Polyp	Nodules	Granuloma
Cause	acute trauma	chronic trauma (voice abuse)	repeated vocal abuse; reflux disease vs endotracheal intubation
Feature	unilateral membranous cord	bilateral membranous cord	often bilateral vocal process (posterior cord)
Treatment	surgical	behavioral modification, voice therapy	voice therapy, anti-reflux therapy

References

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Images courtesy of Eiji Yanagisawa, M.D.

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