

Airway obstruction secondary to vocal cord polyp

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ABSTRACT

Patients with vocal cord polyps commonly present with symptoms of hoarseness. Although rare, large polyps can cause shortness of breath and stridor and should be included in the differential for patients with airway obstruction. Dysphonia or hoarseness can be a symptom of underlying disease, such as head and neck cancer. This case illustrates the importance of prompt and accurate diagnosis in a patient with persistent symptoms and a history of smoking. Obtaining a laryngoscopy is crucial to appropriately evaluate the larynx. Proper visualization of the laryngeal structures will help direct patient care toward further diagnostic imaging and medical or surgical intervention if indicated.

Keywords: hoarseness, dysphonia, vocal cord, polyp, laryngology, larynx

CASE

A 62-year-old woman with a 35 pack-year smoking history presented to the outpatient laryngology clinic for evaluation of a voice change.

History The patient reported a longstanding history of hoarseness with near-complete voice loss 1 month before this visit. In addition to dysphonia, she reported shortness of breath with speaking, physical exertion, and lying supine. She said she had resumed smoking 3 months before this visit, after not smoking for nearly 4 years. She denied otalgia, otorrhea, anosmia, facial pain, dysphagia, odynophagia, neck pain or neck mass, hemoptysis, or chest pain. Her past medical history was significant for obstructive sleep apnea and obesity.

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DOI:10.1097/01.JAA.0000000000000124

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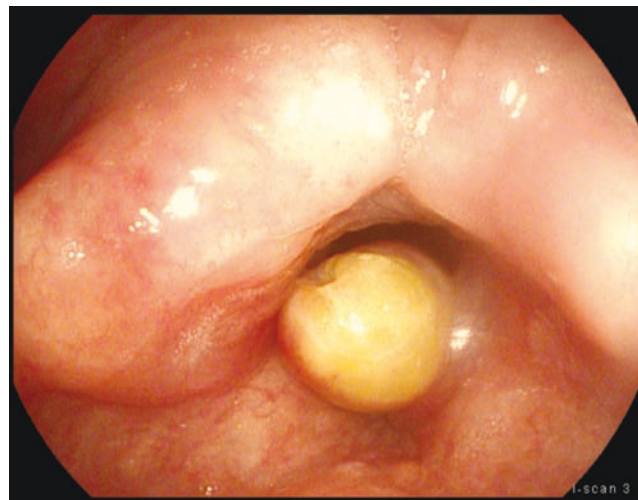


FIGURE 1. The patient's large vocal cord polyp ball-valving into the laryngeal inlet

Physical examination The patient was sitting upright in mild respiratory distress, with inspiratory and expiratory stridor. She was almost completely aphonic. Her ears, nose, and oral cavity were unremarkable. Her neck was symmetric without scarring, masses, or lymphadenopathy. On flexible laryngoscopy, the nasal cavity, nasopharynx, oropharynx, and hypopharynx were unremarkable. The supraglottis was moderately erythematous and edematous. The glottis revealed bilateral severe polypoid edema obstructing the glottic inlet. On expiration, a right vocal cord lesion was seen ball-valving into the laryngeal inlet (**Figure 1**). With inspiration, the mass was then sucked back into the airway as the vocal cords opened to allow air to travel into the lungs (**Figure 2**). With phonation, full mobility of the arytenoids and true vocal cords was noted with severe supraglottic squeezing. No mucosal wave was identified on video stroboscopy. The subglottic airway could not be evaluated because of the glottic edema and obstructing lesion.

Management The patient was taken to the OR and underwent a direct microlaryngoscopy with biopsy, potassium-titanyl-phosphate (KTP) laser excision of the right true vocal cord polypoid lesion, and KTP laser photoablation of bilateral true vocal fold polypoid edema. Surgical pathology revealed a 1.4x1 cm right true vocal fold lesion consistent with a vocal cord polyp with focal ulceration, acute inflammation, and focal squamous atypia with mild to moderate

Key points

- Dysphonia or hoarseness can be a symptom of underlying disease.
- Prompt and accurate diagnosis is crucial in patients who have been symptomatic for 4 weeks or longer.
- Smoking has been linked to development of large vocal cord polyps that can obstruct the airway.

squamous dysplasia. No evidence was found of invasion or dysplastic epithelium. Following the excision of the lesion, the patient was awakened from anesthesia and was discharged the same day.

Outcome At her 6-week postoperative visit, the patient reported that she had stopped smoking and that her dyspnea had significantly improved. Her conversational voice was significantly improved, and a repeat flexible laryngoscopy revealed erythematous true vocal folds with residual edema of the true left vocal fold (Figure 3). She was referred to speech and language pathology for post-operative voice therapy.

DISCUSSION

Dysphonia is defined as impaired voice production recognized by a clinician. This differs from hoarseness, which is altered voice quality reported by a patient. Dysphonia or hoarseness can be symptoms of underlying disease; this case illustrates the importance of prompt and accurate diagnosis in a patient with persistent symptoms for 4 or more weeks.

Patients with head and neck cancer can present with dysphonia. Failure to properly evaluate the larynx can delay cancer diagnosis. Other conditions that can cause dysphonia include neurologic conditions (vocal cord paresis or paralysis, Parkinson disease, multiple sclerosis), gastrointestinal conditions (gastroesophageal reflux disease [GERD], eosinophilic esophagitis), rheumatologic conditions (rheumatoid arthritis, Sjögren syndrome, sarcoidosis, amyloidosis), allergies, pulmonary conditions such as a lung mass, musculoskeletal conditions (muscle tension dysphonia, fibromyalgia), psychologic conditions (functional voice disorder, post-traumatic stress disorder), trauma (inhalation injury, intubation injury), and infections (viral laryngitis, candidiasis).

The American Academy of Otolaryngology-Head and Neck Surgery Foundation (AAO-HNSF) clinical practice guideline for hoarseness and dysphonia recommends that clinicians assess the history and physical examination findings of patients with dysphonia to identify factors that indicate a need for expedited laryngeal evaluation.¹ These factors include recent surgical procedures involving the head, neck, or chest; recent endotracheal intubation; presence of concomitant neck mass; respiratory distress or stridor; history of tobacco use; and if the patient is a

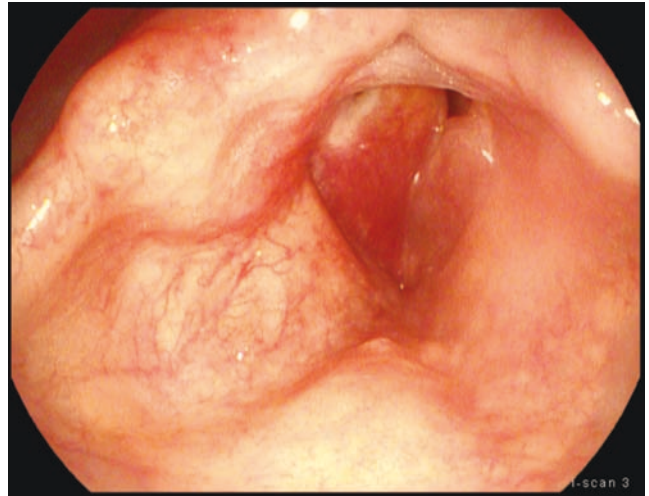


FIGURE 2. Bilateral vocal cord edema obstructing the glottis during inspiration. The vocal cord polyp has been sucked back into the airway.

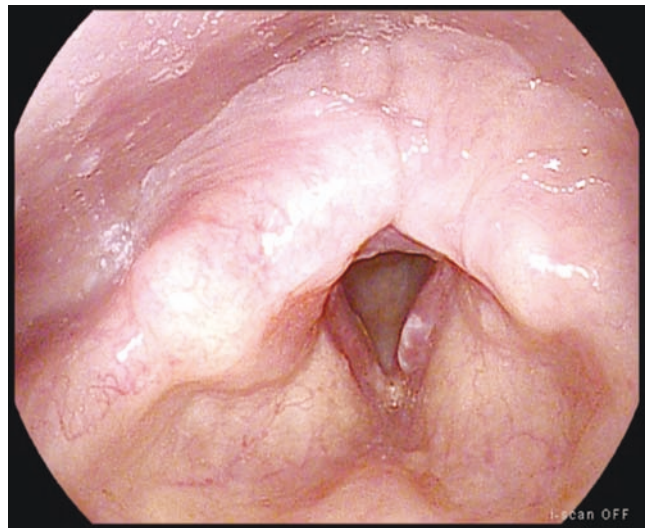


FIGURE 3. The patient's 6-week postoperative laryngoscopy

professional voice user.¹ Clinicians should perform a laryngoscopy, or refer patients to a clinician who can perform a laryngoscopy, when dysphonia fails to resolve or improve within 4 weeks, or irrespective of duration if a serious underlying cause is suspected.¹

The guideline strongly recommends visualizing the larynx before prescribing antibiotics to treat dysphonia, ordering CT or MRI, prescribing antireflux medication to treat suspected GERD or laryngopharyngeal reflux, or prescribing corticosteroids.¹

Vocal cord polyps are common lesions that often present as hoarseness; however, as in the case patient, large polyps can cause shortness of breath and stridor. The main cause of vocal cord lesions is phonotrauma, or vocal misuse or abuse such as excessive talking.² The relationship between tobacco smoking and vocal cord polyps has been widely studied, and smoking has been found to lead to the devel-

opment of large polyps, especially when combined with vocal misuse and abuse.³ Vocal cord polyps in patients who smoke are larger than those in patients who do not smoke, because tobacco compromises the vocal fold epithelium, causing increased hyaline degeneration.³

Vocal cord polyps should be included in the differential diagnosis for patients with airway obstruction. A retrospective study at Temple University Hospital in Philadelphia identified 10 patients with large airway-obstructing polyps.⁴ All of the patients were referred to an otolaryngologist by their primary physician for possible laryngeal malignancy because of their severe dysphonia and smoking history. The seven women and three men in the study all had a history of smoking, with a mean of 35.2 pack years.⁴ Four of the patients were diagnosed with GERD. All 10 patients presented with primary complaints of hoarseness for 1 to 5 years. Seven of the patients reported stridor and three reported dyspnea on exertion. Other complaints included throat pain, throat clearing, and globus. All patients underwent urgent direct microlaryngoscopy with excision of the lesions. None of the patients required a tracheostomy. A review of pathology revealed no moderate or severe dysplasia, carcinoma in situ, or invasive carcinoma in any specimen. After surgery, all patients reported relief of their stridor or dyspnea and improvement in their voices. About half of the patients had mild to moderate dysphonia with decreased mucosal wave on stroboscopy examination as judged by a laryngologist. The study concluded that smoking was a major contributor to the progression of airway obstruction.⁴ The researchers concluded that improvement in the airway can be expected but the voice may continue to be dysphonic in patients with diffuse inflammatory processes such as chronic laryngitis.⁴

Treatment alternatives to traditional laryngeal microsurgery for vocal cord polyps depend on patient medical history, severity of symptoms, and size of the lesion. Following evaluation with laryngoscopy as recommended by the AAO-HNSF guideline, conservative otolaryngologic treatment consists of speech therapy and/or antireflux medication, particularly for patients with small lesions.¹

Endoscopic laser treatment, which has photocoagulative properties, can be effective for larger vascular polyps.⁵ Percutaneous corticosteroid injection may be an alternative for patients with polyps who are not candidates for suspension laryngomicrosurgery, such as patients with cervical spine disease, trismus, or poor medical status.⁶

Prescribing speech therapy after laryngeal microsurgery for vocal cord polyps is common practice, and is essential to preventing polyp recurrence. Patients who had speech therapy after laser intervention had better vocal results than those who did not undergo vocal rehabilitation.¹

CONCLUSION

Patients with vocal cord polyps usually present with hoarseness. Although rare, large polyps can cause shortness of breath and stridor and should be included in the differential for airway obstruction. Dysphonia can result from a variety of benign or malignant processes and involve multiple body systems. Laryngoscopy is crucial to appropriately evaluate the larynx, especially in patients at risk for head and neck cancer. Proper visualization of the laryngeal structures will help direct patient care toward diagnostic imaging and medical or surgical management of identifiable cause. **JAAPA**

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