

Corridor Consult

# The Hoarse Patient: Asking the Right Questions

Ji-Eon Kim, MD  
Barry Rasgon, MD

## Introduction

### Case 1

A man, age 64 years, reports that he has had hoarseness and throat pain for the preceding three months. His symptoms have been constant and gradually worsening in intensity. He has lost approximately 15 lb (6.8 kg) and reports a 60 pack-year history of smoking, in addition to consuming three to four alcoholic drinks daily for the preceding 40 years. How would you treat this patient?

### Case 2

A woman, age 56 years, reports that she has had intermittent hoarseness for six months that seems to be worse when she wakes up in the morning. In addition, she states that she feels as if a lump is stuck in her throat and she is constantly clearing her throat. She says that she does not smoke or drink alcoholic beverages excessively but reports that she experiences heartburn “every once in a while.” She is very anxious and concerned because her uncle died from cancer of the throat. How would you treat this patient?

## Discussion

*Hoarseness* is the term often used by patients to describe a change in the quality of their voices. It is a common complaint among patients presenting in the ambulatory care setting. Possible causes of hoarseness are numerous and stem from

many sources: anatomic, functional, neurologic, infectious, environmental, and neoplastic. Many common causes of hoarseness, such as voice abuse or viral laryngitis, can be benign and self-limited, but other causes, such as laryngeal cancer, can be life-threatening. These factors make the evaluation and treatment of a hoarse patient challenging and, at times, downright daunting.

Adding to the difficulty of diagnosis is the inability to easily examine the larynx. In a clinic, usually only an otolaryngologist has the ability and resources to perform flexible fiberoptic laryngoscopy or indirect laryngoscopy with a mirror. Although the mirror laryngeal examination can be extremely helpful,<sup>1</sup> most primary-care physicians are not properly trained or adept in the technique. This often leads to reluctance in taking on the challenge of evaluating a patient with hoarseness.

Early training instills in most physicians the mantra “A good history is 90% of the diagnosis.” Although this may not always be true, a good history is essential in the evaluation of a patient with hoarseness. At the very least, a carefully directed set of questions can greatly narrow the differential diagnosis. It also enables the primary-care physician to better assess the need for specialty referral, which in turn leads to improved patient counseling and satisfaction. The following are

some key issues to bring up when evaluating a hoarse patient.

### Onset of Hoarseness

The onset of hoarseness can be broadly categorized into acute versus chronic. Many causes of acute hoarseness, such as viral and bacterial laryngitis, are self-limited or medically responsive. Others are accompanied by characteristic symptoms, such as the high fevers, sore throat, and drooling found in epiglottitis, or follow a sentinel event such as surgery or ingestion of a foreign body.

Chronic hoarseness has many possible causes, including voice abuse, smoke exposure, gastroesophageal or laryngopharyngeal reflux, and neoplasm. As the onset is usually insidious and progression gradual, recovery can often be gradual as well, which is important in counseling patients. Any patient with a significant history of smoking and drinking alcoholic beverages who has *unremitting* and worsening hoarseness accompanied by throat pain should be considered to have laryngeal cancer until it is proven otherwise and should be referred to an otolaryngologist.

### Timing of Hoarseness

The timing of a patient's hoarseness is revealing. Some patients complain that their hoarseness is worst in the morning; others notice

**Ji-Eon Kim, MD**, is a fifth-year otolaryngology resident at the Oakland Medical Center in CA. E-mail: jieon@yahoo.com.  
**Barry Rasgon, MD**, is a Head and Neck Surgeon at the Oakland Medical Center in CA. E-mail: barry.rasgon@kp.org.

a gradual worsening as the day progresses. For some patients, the hoarseness is constant (ie, “all the time”); for others it is intermittent. Hoarseness that is worst in the morning often can be attributed to gastroesophageal or laryngopharyngeal reflux. Sometimes, a history of heartburn, regurgitation, or globus can serve as reinforcing findings to suggest reflux. However, the results of several studies have indicated that the majority of patients with laryngopharyngeal reflux may not have some of the classic findings of gastroesophageal reflux such as heartburn.<sup>2-4</sup> Hoarseness that progressively worsens throughout the day can usually be attributed to voice abuse, especially in someone who speaks a lot

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or in the presence of a neurologic problem such as myasthenia gravis.<sup>5</sup>

Hoarseness that is constant usually indicates an anatomic deficit, such as benign vocal cord lesions (eg, nodules, polyps) or malignant lesions (eg, squamous-cell carcinoma of the larynx). Traumatic injury to the vocal cords can also produce a constant hoarseness. Rarely, behavioral disorders such as functional aphonia<sup>6</sup> can cause a constant change in the quality of the voice. Intermittent or fluctuating hoarseness, however, can be found in patients with periodic voice abuse, as exemplified by the improved Monday-morning voice of someone whose weekday job requires frequent voice use. Postnasal drip can also cause intermittent hoarseness.

### Voice Quality

Careful observation of the patient’s voice quality can reveal the source of hoarseness. A voice

shaken by tremor can often be found in a patient with Parkinson disease or essential tremor. A rough or harsh voice can result from a lesion of the vocal cord, either benign or malignant. A patient with vocal cord paresis or abductor spasmodic dysphonia will speak with a breathy or weak voice as the vocal cords fail to meet at midline. Adductor spasmodic dysphonia will produce a tense, high-pitched voice with frequent breaks. A patient with laryngitis will often talk with a whisper because of the pain and discomfort associated with it.

### Medical History

When determining an obvious cause of hoarseness is difficult, a detailed medical history can sometimes help point to that elusive diagnosis. Many medical conditions are known to cause a change in the voice. Hypothyroidism is an often-overlooked cause of hoarseness.<sup>7</sup> Several autoimmune disorders, such as rheumatoid arthritis,<sup>8</sup> gout, and systemic lupus erythematosus,<sup>9</sup> can cause fixation of the cricoarytenoid joint; other inflammatory disorders, such as amyloidosis,<sup>10</sup> sarcoidosis,<sup>11</sup> and Wegener granulomatosis,<sup>12</sup> can cause deposits or growth of lesions in the airway, leading to hoarseness. A detailed neurologic history can often expose neurodegenerative disorders, such as myasthenia gravis and diabetic neuropathy. As already mentioned, gastroesophageal or laryngopharyngeal reflux disease is a very common cause of hoarseness.

### Surgical History

One important fact to remember is that *any* surgery requiring an endotracheal tube or laryngeal mask airway<sup>13</sup> can lead to hoarseness by causing vocal cord immobility. Many times, such hoarseness is

caused by direct trauma to the vocal cords (ie, scarring of the cords or subluxation of the cartilage structures), but sometimes it is due to pressure-induced neurapraxia to the recurrent laryngeal nerve, highlighting the common misconception that only a traumatic intubation can lead to hoarseness. Rarely, esophageal stethoscopes or nasogastric tubes can also cause hoarseness.<sup>14</sup> The majority of hoarseness due to intubation is of short duration (usually less than two weeks). However, if a patient reports persistent or unrelenting hoarseness after intubation, an otolaryngology referral is warranted.

Another cause of hoarseness related to surgery is direct injury to the recurrent laryngeal nerve during a procedure. The nerve has an extended anatomic course, starting from the skull base above and extending down around the aortic arch (on the left) and finally entering the larynx at approximately the cricothyroid notch. Understandably, any surgery involving these areas, such as thyroid surgery, can lead to injury to the recurrent laryngeal nerve or vagus nerve (see Sidebar), which can lead to permanent hoarseness. It is important to note, however, that even when the recurrent laryngeal nerve is preserved during surgery, temporary paresis and hoarseness frequently occur and ultimately resolve within six months.

### Common surgeries that can cause vocal cord paralysis from injuries of the recurrent laryngeal or vagus nerve

- Carotid surgery
- Neck dissection
- Thyroid/parathyroid
- Mediastinal surgery
- Cervical spine surgery

## Social History

Practitioners of certain professions are predisposed to voice overuse. Teachers, public speakers, singers, and people who work in a noisy environment and have to speak loudly often develop hoarseness, with some developing vocal nodules or polyps. Many of these patients report voice fatigue as the day progresses. The proper treatment for these patients is voice rest, but this often conflicts with their work schedule. Adding to the difficulty in treatment is that many of these patients develop unhealthy voice habits that predispose them to further hoarseness. Excessive tobacco use is also well known to cause hoarseness, but, perhaps more important, it can significantly increase the risk for laryngeal carcinoma.

## Management of Case Scenarios

### Case Scenario 1

Several findings for this patient suggest the possibility of cancer. The patient's age and sex should not be ignored, just as his extensive history of smoking and alcohol use should not. The presence of pain, its constant nature, and constitutional symptoms should immediately alert physicians to the possibility of malignancy. Such patients should be referred to an otolaryngologist, who will conduct laryngoscopy and biopsy that will confirm the diagnosis.

### Case Scenario 2

Although it is important to note that a suspicion of malignancy should never be dismissed, no matter how slight, this patient has several findings that warrant considering gastroesophageal reflux disease. The intermittent nature of hoarseness (periods of normal voice) and the

salient lack of pain are findings that seem to point the diagnosis away from malignancy. In addition, the presence of globus, frequent throat clearing, lack of smoking history, and occasional heartburn heavily favor gastroesophageal reflux as the most likely diagnosis. Such patients should be taught about proper dietary and sleep habits, and their clinicians should consider providing medical therapy using proton-pump inhibitors or H<sub>2</sub>-blockers. With close monitoring, these patients will start to experience symptom relief at anywhere between four and eight weeks of treatment.

## Conclusion

Knowing the right questions to ask a hoarse patient will not only improve the chances of a correct diagnosis but will also improve physicians' ability to design a more appropriate treatment plan. In many cases, obtaining a detailed history alone will greatly narrow the differential diagnosis and enable physicians to know when to treat and when to refer. For any patients who have unremitting hoarseness as well as risk factors for malignancy, a timely referral to an otolaryngologist is important. ❖

## Disclosure Statement

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