**HOARSENESS**

**IS IT SERIOUS?**

Sanford M. Archer, M.D.
Professor of Surgery & Pediatrics
Otolaryngology–Head & Neck Surgery

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**DISORDERS OF VOICE PRODUCTION**

- Pulmonary disorders - Lungs
- Hoarseness - Laryngeal
- Articulation disorders - Oral
- Resonance disorders - Oropharyngeal, Nasal

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**LISTENING TO YOUR PATIENT**

- Is there a weak or damped voice?
- Is the voice barely perceptible?
- Are the lungs or pulmonary tree restricted in movement?
- Does the patient have difficulty in articulating words?
- Is the voice hyper/hypo-nasal?
- Are the sounds muffled?
- Are the words dysarthric?

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**ETIOLOGY OF HOARSENESS**

- The most common cause of hoarseness in my practice is NOT malignancy, yet...
- All adults who use tobacco and have persistent hoarseness of greater than 3 weeks duration have a malignancy until proven otherwise!

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![Image](image-url)
ETIOLOGY OF HOARSENESS

- Congenital causes
- Inflammatory causes
- Tumors
- Trauma
- Neurologic disorders
- Psychogenic disorders
- Other causes

CONGENITAL CAUSES

- Congenital glottic webs
- Cysts
- Laryngomalacia
- Cri du chat

TUMORS

- Benign
  - Laryngeal papilloma
  - Hemangioma
- Malignant
  - Squamous cell carcinoma
  - Thyroid carcinoma
  - Others
TRAUMA

- Vocal abuse
- External trauma
  - Choking
  - Neck trauma (MVA, fisticuffs)
NEUROLOGIC DISORDERS
- Spasmodic dysphonia
- Benign essential tremor
- Vocal cord paralysis
- Myasthenia gravis
- Muscular dystrophy
- CVA
- ALS
- Functional dysphonia/aphonia

VOCAL CORD PARALYSIS
- Iatrogenic (neck, chest surgery)
- Thyroid malignancy
- Thoracic lesions
- Skull base tumors
- CV anamalies
- Laryngeal intubation/trauma
- CNS anamalies
- Idiopathic

PSYCHOGENIC VOICE DISORDERS
- Emotional Stress - (musculoskeletal tension)
  - Voice Disorders w/o 2° Laryngeal Pathology
  - Voice Disorders w/ 2° Laryngeal Pathology
    - Vocal nodule
    - Contact ulcer
  - Psychoneurosis
    - Conversion Reaction
    - Mutism
    - Aphonon
    - Dysphonia
  - Psychosexual Conflict
  - Iatrogenic

OTHER DISORDERS
- Hypothyroidism
- Hormonal disorders
- Rheumatoid arthritis
- SLE
- Polychondritis
- Amyloidosis

INFLAMMATORY CAUSES
- Smoking
- Foreign bodies
- Allergic angioneurotic edema
- Acute laryngitis (URI)
- Chronic laryngitis
- Laryngopharyngeal reflux
- Contact ulcers, vocal nodules & polyps
- Dysphonia plicae ventricularis
- Granulomatous diseases of the larynx
CHRONIC LARYNGITIS

- Smoking
- Vocal abuse
- Poor vocal technique
- Laryngopharyngeal reflux

WORKUP OF PERSISTENT HOARSENESS

- LISTEN to the voice
- Nasal exam (signs of allergy, sinus)
- Oral exam (PND, palate & tongue mobility)
- LOOK at the vocal folds
- Neck exam (muscle tension, masses, tracheal deviation, thyroid enlargement)

ONSET OF HOARSENESS

- Acute
- Chronic, intermittent
- Chronic, progressive

ACUTE ONSET OF HOARSENESS

- URI
- Vocal abuse
  - Inflammation
  - Hemorrhage
CHRONIC, PROGRESSIVE SYMPTOMS

- Tumors
- Vocal nodules
- Vocal polyps
- Spasmodic dysphonia
- Functional dysphonia
- Aging changes

CHRONIC, RECURRING SYMPTOMS

- Neurologic disorders
- Tumors
- Laryngopharyngeal reflux
- Postnasal discharge (PND)

REFLUX: Pathophysiology

<table>
<thead>
<tr>
<th>Normal Defensive Factors</th>
<th>Normal Aggressive Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>LES tone</td>
<td>Gastrin</td>
</tr>
<tr>
<td>Anatomic factors</td>
<td>Pepsin</td>
</tr>
<tr>
<td>Esophageal clearing</td>
<td>Bile acids</td>
</tr>
<tr>
<td>Mucosal resistance</td>
<td>Pancreatic enzymes</td>
</tr>
<tr>
<td>Gastric emptying</td>
<td>Gastric acid</td>
</tr>
<tr>
<td>Volume of gastric material</td>
<td></td>
</tr>
</tbody>
</table>

REFLUX: Pathophysiology – Critical Factors

- LES tone
- Frequency and duration of transient LES relaxations
- Acidity of the gastric contents
- Amount of time acid is in the esophagus/pharynx/larynx
## RELAXATION OF THE LES

<table>
<thead>
<tr>
<th><strong>Drugs</strong></th>
<th><strong>Foods</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Calcium channel blockers</td>
<td>- Caffeine</td>
</tr>
<tr>
<td>- Anticholinergic agents</td>
<td>- Fatty foods</td>
</tr>
<tr>
<td>- Narcotics</td>
<td>- Chocolate</td>
</tr>
<tr>
<td>- Estrogens</td>
<td>- Peppermint</td>
</tr>
<tr>
<td>- Nitrates</td>
<td>- Alcohol</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td><strong>Others</strong></td>
</tr>
<tr>
<td>- Smoking</td>
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</table>

## MUCOSAL INJURY & pH
- pH $< 4.0$ correlates highly with severity of mucosal injury
- pH $> 4.0$ correlates with leveling off of symptoms
- pH $< 4.0$ results in reduced ability for mucosa to heal +/- or repair itself

## GASTROESOPHAGEAL REFLUX: Symptoms
- Nighttime, supine symptoms are most common:
  - Dyspepsia or indigestion - Most common symptom
  - Heartburn
  - Dysphagia
  - Chest pain

## GASTROESOPHAGEAL REFLUX: Epidemiology
- Heartburn present in 11% of people daily
- Symptoms present in 1/3 of population every 3 days
- 2/3 of people experience dyspepsia at some point in their lives
- Prevalence of GERD-related symptoms increases with age

## LARYNGOPHARYNGAL REFLUX: Symptoms
- Daytime, upright symptoms are most common:
  - Hoarseness - most common symptom
  - Globus pharyngeus
  - Frequent throat clearing
  - Chronic cough
  - Dysphagia
  - Frequent sore throats
  - Paroxysmal laryngospasm
  - Prolonged vocal warm-up
  - Asthma
  - 80% do not have dyspepsia!

## LARYNGOPHARYNGAL REFLUX: Epidemiology
- Incidence of 4 - 10% of patients presenting to ORL practice
- Incidence of 1% of patients presenting to primary care practice
- 2/3 of patients with laryngeal & voice disorders have GERD as primary cause or significant cofactor

Kaufman, 1996
LARYNGOPHARYNGAL REFLUX: Laryngeal Examination

- Mild to moderate vocal fold edema (reflux laryngitis)
- Laryngeal granulomas & contact ulcerations
- Vocal nodules
- Paroxysmal laryngospasm
- Hyperplasia of the interarytenoid space
- Erythema of the posterior larynx or pharynx
- Laryngeal/subglottic stenosis

LARYNGOPHARYNGAL REFLUX: Evaluation

- Videostroboscopy
- Barium esophagram
  - Motility & peristalsis problems
  - Tumors, diverticula, strictures
  - Esophagitis
  - Spontaneous reflux
  - Hiatal hernia
  - LES integrity
- 24 hr ambulatory pH monitoring of esophagus & pharynx
- Acid suppressive therapy

CHRONIC LARYNGITIS & LPR

- 182/233 consecutive patients with chronic laryngitis → LPR
- Symptoms of persistent sore throat, PND w/ throat clearing, hoarseness, cough w/o pulmonary disease
- 96% of patients experienced relief of symptoms w/ treatment preventing reflux of gastric acid

Hanson et al., Ann Otol Laryngol 104, 1995

TREATMENT OF LARYNGOPHARYNGEAL REFLUX

- Lifestyle modifications
  - Dietary restrictions
  - Avoid late night snacks or meals
  - Tobacco use cessation
  - Reduction of alcohol intake
- Elevation of head of bed
- Medical therapy
OUTCOMES OF TREATMENT FOR LPR

- Outstanding results by those who recognize LPR and treat it effectively
- Need to educate other physicians and patients about LPR
- Must develop better methods to document causality of GER-related laryngeal disease

GOOD VOCAL CARE

- Humidification
- Warm mist vaporization
- Mucolytic agents
- Treatment of allergies
- Treatment of reflux laryngitis
- Cessation of smoking and tobacco use
- Avoidance of vocal abuse such as yelling, screaming, and whispering
- Often, a course of vocal rest may be worthwhile

SPEECH THERAPY

Useful for:

- Functional disorders
- Inflammatory disorders
- Neurologic disorders
- Pre-surgical evaluation

REFERRAL TO OTOLARYNGOLOGIST

- Abnormal finding on physical exam
- Normal laryngeal exam with persistent hoarseness
- Inability to visualize the vocal folds or larynx
WHAT CAN WE DO?

- Mirror exam
- Flexible fiberoptic exam
- Videostroscopy*
- Recommend a Neurology referral
- Early, quick feedback on YOUR patient

A smoker with persistent hoarseness of greater than 3 weeks duration has a malignancy until proven otherwise.

HOARSENESS

**IS IT SERIOUS?**

IT CERTAINLY CAN BE!