Evaluation of a Patient with Hoarseness

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No disclosures

Hoarseness

- Symptom: any deviation from normal voice quality as perceived by self or others; vague and nonspecific
- Breathy quality, roughness, pitch change
- Lifetime prevalence of 30%
- ~25% of working population depend on voice as critical aspect of their jobs in US

Normal Voice

- Human voice produced by passive vibrations of vocal folds in an air stream
- Change in vibrating edge of VF, distance between 2 vibrating edges, or internal tension of VF can change voice quality

Assessment

- Specialty referral unnecessary if condition is thought be temporary or reversible in nature (URTI, reflux, allergies)
- Vital that pt understands the importance of timely follow up visit to verify resolution
- Referral is indicated:
  - When hoarseness fails to resolve by 3 months after onset
  - When condition is unclear or hoarseness warrants further assessment by laryngoscopy
  - Irrespective of duration if serious cause is suspected

Assessment

- Laryngoscopy
  - Flexible transnasal scope most widely used in offices
- Laryngostroboscopy
  - Stroboscopic light source to discriminate vibratory edge motion of the vocal folds in "slow motion"
  - Assess vibratory properties of VF
  - Visualize small lesions that interfere with vibrations
Causes of Hoarseness

- Discrete VF Edge aberrations
  - Benign lesions related to phonotrauma (VF nodules, polyps, cysts)
  - Papillomas
  - Neoplasms (SCCa) – must-not-miss diagnosis
  - Leukoplakia
- Diffuse change in VF Tissue Elastic Vibratory Properties
  - Upper Respiratory Tract Infection (acute laryngitis): m/c cause of hoarseness
  - Reflux
  - Allergic rhinitis
  - Smoking
  - Hypothyroidism
- Inappropriate Posturing of VF
  - Vocal Cord Paralysis/Paralysis
  - Functional dysphonia (muscle tension dysphonia)
  - Spastic dysphonia
  - Essential tremor

Imaging Work-up

- Most patients with hoarseness do not require imaging
- Neck CT with intravenous contrast:
  - Assess extent of mass lesions
  - Vocal Cord Paralysis
- Skull base/brain MR imaging if VCP associated with other cranial nerve palsies or intracranial process suspected

Vocal Cord Paralysis

Injury of recurrent laryngeal nerve (CN X)

Causes: Richardson and Bastian 2004; 1403 pts
- Neoplasm (35%)
- Trauma, including surgery, intubation (32%)
- Idiopathic (16%)
- Medical/inflammatory (13%)
- CNS disease (6%)
- Aneurysms

- TAM atrophy
  - Enlarged laryngeal ventricle

- Posterior cricoarytenoid muscle atrophy
  - Medialization of arytenoid
  - AE fold medially deviated, thickened
  - Enlarged piriform sinus
PET CT VCP finding

Compensatory increased metabolic activity of contralateral cord and other laryngeal muscles

Treatment of VCP

- Teflon can be injected into the paraglottic space to add bulk to a paralyzed cord
- Teflon is radiopaque
- Plastic prostheses also used
- May develop laryngoceles

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Follow the path of the vagus and recurrent laryngeal nerves in the neck

Pharyngeal Branch of the Vagus Nerve

Insult to the vagus nerve proximal to the origin of the pharyngeal plexus (level of nasopharynx) will demonstrate paralysis of the soft palate ipsilateral to side of VCP
Summary

- Most patients with hoarseness do not require imaging
- Neck CT with intravenous contrast
- Brain/skull base MR imaging if VCP associated with palsies of the other cranial nerves/pharyngeal plexus.
- VCP: Look at the entire course of the vagus and recurrent laryngeal nerves in the neck