Vocal Cord Polyp

• Pathophysiology
  • Shearing forces
  • Capillary rupture, focal accumulation of hematoma
  • Infiltration of inflammatory cells
  • New matrix

• Treatment
  • Dictated by size of polyps
    • Voice therapy for small polyps
    • Surgical excision for large or refractory polyps
    • Anti-reflux treatment
Vocal Cord Varices

- Vascular lesions or enlarged vessels on vibratory surface of cords
- Secondary to abuse, trauma
- Sudden hoarseness, often in singers
- Shearing stress along lateral fold near the termination and reversal point of the mucosal wave
- Treatment: d/c anticoagulation, voice rest, anti-reflux medication, surgery - laser
Vocal Cord Granuloma

- Often secondary to intubation trauma
- Posterior 1/3, cartilaginous portion
- Habitual throat clearing, chronic cough, reflux
- Inflammation leads to granulation tissue covered by hyperplastic squamous epithelium
- Treatment: speech therapy, anti-reflux medication, surgery for obstruction or biopsy
- Often recur (70%) if underlying cause is not addressed
Laryngeal Papilloma

- Benign non-keratinizing squamous cells
- HPV 6, 11 (16, 18 higher risk)
- Two types
  - Juvenile – more aggressive, bulky
    - 200 fold increased risk if mother is infected with genital HPV at time of birth
    - More common in first born
  - Adult onset – more localized, less exophytic
- Treatment: surgical, medical therapy with anti-virals, interferon, intralesional injection cidofovir
Reinke’s edema

- Bilateral diffuse polyposis
- Tobacco exposure, chronic irritation
- Typically middle-aged, talkative women with long-term tobacco use
- Lower pitch voice
Reinke’s Edema

• Decreased mucosal wave on videostroboscopy
• Treatment
  • Smoking cessation
  • Voice therapy
  • Anti-reflux
  • Surgery if failure to improve
Granular cell tumor

- Benign tumor of schwann cells
- YOUNG – average 37 yrs
- Half occur in H&N, 10% in larynx
- Treatment: surgical excision, usually endoscopic
Laryngopharyngeal Reflux

- Symptoms of hoarseness, globus sensation, chronic throat clearing, vocal fatigue, voice breaks, sore throat
- Neck pain, excessive mucous in throat, chronic cough, dysphagia, odynophagia, post-nasal drainage
- Halitosis, otalgia, laryngospasm, asthma exacerbation, heartburn
Laryngopharyngeal Reflux

• Pathophysiology
  • Traditional
    • Retrograde flow of gastric acid and pepsin leading to laryngeal mucosal damage, impaired mucociliary clearance
      • In the esophagus, up to 50 reflux events/day is normal and tolerated
      • In the larynx, as few as 3 reflux events/week can cause injury
Laryngopharyngeal Reflux

- Alternate mechanisms
  - Role of pepsin in non-acidic reflux
    - Post-cricoid epithelial cells contained pepsin in patients with symptoms of LPR, controls did not
    - Inactivated pepsin at pH 7 taken into cells and reactivated, leading to mitochondrial and overall cell damage
    - Cell damage was prevented by irreversible inactivation of pepsin prior to cell exposure or blockage of pepsin uptake

Laryngopharyngeal Reflux

• Alternate mechanisms
  • Heterotopic gastric mucosal patch (cervical inlet patch)
    • Congenital ectopic gastric mucosa between UES and LES
    • Found in 5.6% of 462 patients undergoing endoscopy in 18 month period
    • 73.1% of these patients experienced LPR symptoms (cough, globus, hoarseness) vs 25.9% of those without
  • Symptoms were typically mild, only 3 had been referred for LPR symptoms

Laryngopharyngeal Reflux

• 24-hour pH monitoring
  • Dual pH probe (esophageal and hypopharyngeal) was considered “gold standard” for diagnosis of LPR until recently
    • Poor sensitivity (75 – 80%)
    • False negative (up to 50%)
    • Poor predictor of response to PPI therapy
  • Combined multichannel intraluminal impedance and pH monitoring
    • Newer, preferred technique
    • Can distinguish between liquid, gas, or mixed events
    • Detection of acid and nonacid reflux
    • Improved diagnostic yield
Reflux Symptoms Index

Within the past month, how did the following problems affect you? Rank them from 0 (no problem) to 5 (severe problem).

1. Hoarseness or a problem with your voice
2. Clearing your throat
3. Excess throat mucus or postnasal drip
4. Difficulty swallowing food, liquids, or pills
5. Coughing after you have eaten or after lying down
6. Breathing difficulties or choking episodes
7. Troublesome or annoying cough
8. Sensations of something sticking in your throat or a lump in your throat
9. Heartburn, chest pain, indigestion, or stomach acid coming up

RSl > 13 highly predictive of positive pH probe

Reflux Findings Score

- Pseudosulcus (0 – 2)
- Ventricular obliteration (0 – 4)
- Erythema/hyperemia (0 – 4)
- Vocal fold edema (0 – 4)
- Diffuse laryngeal edema (0 – 4)
- Posterior comissure hypertrophy (0 – 4)
- Granuloma/granulation (0 – 2)
- Thick endolaryngeal mucus (0 – 2)

RFS > 7 highly predictive of positive pH probe

Treatment of LPR

• PPI
  • Esomeprazole 20 mg BID vs placebo
  • RSI and RFS measured at baseline, 6 weeks, 3 months
  • At 6 weeks, significant difference only in heartburn symptoms
  • At 3 months, significant decrease in RSI, RFS
  • Overall 78% of patients in treatment group reported complete resolution of symptoms at 3 months vs 42% in placebo group (P=0.006)

Treatment of LPR

- **PPI**
- **Addition of H2 blockers as needed**
  - Study of 16 patients with confirmed GERD vs 19 healthy controls
  - Omeprazole 20 mg BID x 4 weeks, then ranitidine 300 mg QHS x 4 weeks
  - Acid production suppressed on day 1, but returned to baseline PPI level by 1 month due to tolerance
  - Recommended use on as-needed basis rather than daily therapy

Treatment of LPR

• PPI
• Addition of H2 blockers
• Treatment of concurrent disorders
  • Review of 105 patients with voice disturbance, 95% failed initial management (78% on PPI, 22% on non-specified anti-reflux medication)
  • All of patients were ultimately diagnosed with other disorders, 28% with muscle tension dysphonia
  • After additional treatment, 61% had improvement (22% lost to followup, 6% no change, 3% refused treatment)

Muscle Tension Dysphonia

- Excessive tension of laryngeal musculature leads to disturbed voice
- History of vocal abuse
- Visible, palpable tension around the larynx
- Tightness of paralaryngeal musculature, laryngeal rise, decreased thyrohyoid space, focal tenderness
- Primary MTD
  - Dysphonia in the absence of concurrent organic vocal fold pathology
  - Excessive, atypical, or abnormal laryngeal movements during phonation without obvious psychogenic or neurologic etiology
  - More common in women
  - 10 – 40% of caseloads at a voice center
- Secondary MTD
  - Dysphonia in the presence of an underlying organic condition
Muscle Tension Dysphonia

• Treatment
  • Voice therapy
    • Breaks the cycle of decompensation and overcompensation of the voice
  • Circumlaryngeal manual therapy
    • Applying pressure and massage to sites of focal tenderness in the hyoid-laryngeal musculature while the patient hums or sustains vowels
  • Management of underlying organic disorders