Principles of *Micro*-Phonosurgery

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Relevant History

- 19th century
  - Laryngeal mirror visualization and transoral laryngeal surgery
    - Bozzini 1807 (first report in medical literature)
    - Garcia 1855 reported on the origin of vocal production
    - Lewin 1861 transoral management of laryngeal tumors
    - ALA established ~1875
    - Fraenkel 1886 transoral excision of vocal fold cancer
    - Oertel 1878 laryngeal stroboscope
    - Mackenkie 1890s benign lesions were transformed into malignant lesions by introduction of infection from biopsy sites
Relevant History

- 20th century
  - Direct laryngoscopy
    - Kirsten introduces the concept of direct laryngoscopy 1895
    - 1900-1925 saw wide-spread acceptance
      - Sitting to supine positioning employed
      - Laryngeal counter pressure (cricoid)
      - Improved laryngeal exposure (bivalved speculum)
      - Anterior commissure speculum developed
      - Suspension laryngoscopy introduced
    - Jackson 1950 tubed laryngoscopes
    - 1950-1975 refinement of suspension mechanisms
• **20th century continued**
  • **Micro-direct laryngoscopy**
    • 1960 Scalo makes first report describing magnification and stereoscopic visualization
    • 1962 Jako reports on microlaryngeal surgery
      - General anesthesia with paralysis
    • 1970s Jako introduces the laser coupled to the operating microscope
    • 1950-1975 refinement of suspension mechanisms
    • 1960-present acceptance of laryngeal stroboscopy
    • 1975-present multidisciplinary voice teams
Phonosurgery: Current Concepts

1. Preservation of the vocal fold’s layered microstructure results in optimal post-op voice production
2. Elevated vector-suspension laryngoscopy is essential to visualization
3. Hemostasis and exposure are keys to good outcomes
4. Instrument selection enables the surgeon
5. Use of the laser is not the same as cold instrument techniques
Voice Surgery

- May be performed endoscopically or from an external approach
  - When benign lesions cannot be accessed endoscopically, consider “no treatment” rather than an external approach.
  - The risks may outweigh the potential for voice improvement.
  - Informed consent
Voice Surgery

- Documentation
  1. History
     - Onset is key to diagnosis
  2. Contributing risk factors
     - Lifestyle
  3. Voice recording (or detailed description
  4. Strobovideolaryngoscopy (fiberoptic laryngoscopy)
  5. Team evaluation promotes patient education
     - Agreement on treatment choice and roles
  6. Plan for assessing voice results
Voice Surgery

- **Timing**
  - You must know the vocal demands of your patient
    1. Post-op voice therapy
    2. Concurrent medical conditions
    3. Concurrent habits that may affect healing
    4. Psychological state (anxiety)
    5. Professional commitments
    6. Financial considerations
Voice Surgery

- Anesthesia
  - Local
    1. IV sedation
    2. Topical anesthesia
    3. Regional blocks require PATIENCE (which we do not have)
      - Superior laryngeal nerve (thyrohyoid membrane)
      - Glossopharyngeal nerve (lateral pharyngeal wall)
      - Tongue base anesthesia
      - Intratracheal
Voice Surgery

- Anesthesia
  - General
    1. Muscular relaxation
    2. Small endotracheal tube (5.0)
    3. Apneic technique
      - Through the laryngoscope
    4. Jet ventilation
      - Through the laryngoscope
Voice Surgery

• Pay attention to your position in relation to the patient
  • after you have paid attention to the patient’s position
• Be relaxed - consciously, meditate
  • Back, shoulders and arms. Pee before surgery.
• Be needy,.. Such as….
  • “Pretend you are an otologist”
• Feel your expertise, find the mood, be proud and privileged
• The magic of a speech pathologist cannot compensate for poor surgical technique
• STOP if unsure or you do not find the pathology you expected
  • Re-evaluate with your current information
Voice surgery

- Make the diagnosis, ask the questions
  - Are the findings consistent with your clinic evaluation?
  - Does the pathology appear on the side that you expect?
  - Is there new pathology?
  - Is your outcome still consistent with what you have counseled the patient and family?
  - Has your post-op plan for recovery changed?
Voice surgery

- Respect the vocal fold anatomy
Voice Surgery

- Vocal Fold Cysts
- Vocal Fold Polyps
- Vocal Fold Varicosities
- Vocal Fold Edema (Reinke’s edema)
- Vocal Cord Benign “other”
Voice Surgery- your patient

- What do you see?
  - What is the history?
  - What is the diagnosis?
  - Discuss treatment options.

Renkie’s edema
Voice Surgery- your patient

- What do you see?
  - What is the history?
  - What is the diagnosis?
  - Discuss treatment options.

Vocal cord nodules
Voice Surgery- your patient

- What do you see?
  - What is the history?
  - What is the diagnosis?
  - Discuss treatment options.

Laryngeal papillomas
Voice Surgery - your patient

- What do you see?
  - What is the history?
  - What is the diagnosis?
  - Discuss treatment options.

Amyloidosis of the larynx
Voice Surgery

- Primary form of communication
- Quality is what patient’s seek
- An accurate Dx leads to appropriate treatment
- Make your evaluation comprehensive
- Integrate your technique with your knowledge of
  - Function
  - Anatomy
  - Disease
  - Outcome