Disclosure

- None
Vocal Fold Motion Impairment
The SLP Perspective

Evaluation
- Voice
- Swallowing
- Breathing

Therapy Candidacy
- When to refer for voice therapy

Treatment
- Frequency
- Duration
- Therapy techniques

Glottic Insufficiency - Nomenclature

- **Vocal Fold Immobility/Hypomobility**
  - Absent/reduced movement due to unknown cause

- **Vocal Fold Paralysis/Paresis**
  - Absent/reduced movement due neurogenic etiology

- **Vocal fold Immobility/Hypomobility** related to the mechanical impairment of the cricoarytenoid joint
  - Includes posterior glottic scarring/stenosis

- **Vocal fold Immobility/Hypomobility** related to laryngeal malignant disease

Rosen et al 2016
Clinical Factors and Decision Making

- History
  - Medical history
  - Onset of symptoms
- Patient vs Clinician perception severity
- Complaints
- Laryngeal Examination
- Stimulability for behavioral change
- Readiness for change/motivation
- Patient and clinical expectations for recovery
- Candidacy for surgical intervention

Patient Intake/History

- Onset of Complaints – gradual, sudden
- Specific complaints
  - Voice
  - Swallowing
  - Breathing
- Vocal demand
- Medical/Surgical history
- Medications
- Relevant social history

Patient reported measures:
- Voice Handicap Index (VHI)-10
- Voice Related Quality of Life (VRQOL)
- Dyspnea Index (DI)
- Eating Assessment Tool (EAT)-10

Leder and Ross 2005
Perceptual Evaluation

- CAPE-V
  - Standard instructions
  - Standard tasks
- Common voice quality:
  - Breathiness
  - Asthenia
  - Diplophonia
  - May be worse at lower pitches

Assessing Peri-Laryngeal Tension

Peri-laryngeal Palpation

Tension and Tenderness
- Infrahyoid
- Sternocleidomastoid
- Suprahyoid
- Submental
- Lateral motion of the Larynx

*Assess at rest and during phonation

**Pressure to blanch the thumb nail on a firm surface
Acoustic and Aerodynamic Testing

- **Acoustic Measures** –
  - Jitter, shimmer, noise/ harmonic ratio
    - Time based acoustic measures unreliable with dysphonic voices
  - CSID and CPP speech – statistically significant improvement pre- and post treatment in this population (Gillespie et al 2014)

- **Aerodynamic Measures**
  - Speech Aerodynamics. (Gillespie et al.)
    - Can be done with or without equipment
    - Duration of the first 4 sentences of the Rainbow passage and count number of breaths
    - With equipment - analyze average airflow
Stimulability and Self-awareness

*Important for the success of behavioral intervention*

- **Stimulability**
  - Are they able to alter the sound or feel of the voice?
  - Can they follow vocal direction?
- **Self-awareness**
  - Is the patient aware of voice use patterns?
  - Can they identify changes in voice ease or quality?
  - With therapy and practice, can this skill develop?


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**Laryngeal Examination**

**Position & Glottic Gap**

- **Vocal Fold Position**
  - Median – at midline
  - Paramedian – away from midline
  - Lateral - furthest away from midline
- **Resultant Glottal Gap**
  - Small, moderate, large
  - Height mismatch?

UCSF Voice and Swallowing Center
Laryngeal Examination – Jostle sign

Why is this important to the SLP??

- Passive movement of the arytenoid of the affected side due to contact from the other arytenoid (Sataloff 1987)
- The weak side cannot maintain resistance to pressure during adduction
- **Implications** – difficulty increasing intensity!

Candidate for Voice Therapy??
Candidacy for Voice Therapy
Putting together the pieces of the puzzle

Treatment

- **Physiologic Approach** informed by voice science and motor learning!
- **Goals of treatment**
  - Maximize voice use in the presence of the current glottic configuration
- **Guide expectations:**
  - Type of injury
  - Time from injury
  - Vocal fold position and Gap
  - Current voice use patterns/vocal demands
  - Stimulability for change
Efficacy of Voice Therapy

- Handful of studies that show improvement in various outcomes post-therapy
- Therapy techniques are inconsistently described
  - No efficacy data for specific techniques
- Single-group treatment designs
  - Nerve regeneration was not accounted for


Frequency and Duration of Voice Therapy

- **Frequency of therapy**
  - 4 sessions over 8 weeks
- **Duration of therapy**
  - Assess progress at each session
  - Discontinue if not progressing
  - Continue if trajectory for improvement
- **Therapy drop out**
  - Tends to be at ~4 sessions (Hapner et al)
Frequency and Duration of Practice

- Independent practice is crucial to success in voice therapy
- Little evidence to guide what practice should be

Therapy Techniques

- Semi-occluded Vocal Tract (SOVT) (Titze 2006)
- Resonant Voice Therapy (Verdolini)
- Stretch and Flow Therapy (Stone and Casteel)
- Vocal Function Exercises (Stemple 1993)
- Conversational Training Therapy (CTT) (Gartner-Schmidt et al 2016)
- Push/Pull Exercises???
Conclusions

- Comprehensive evaluation is necessary to guide therapeutic recommendations and ongoing decision making
- While efficacy data for types of therapy is missing, there is evidence that voice therapy is beneficial in the management of vocal fold immobility and hypomobility
- Considerations:
  - Timing and type of injury
  - Glottic gap
  - Voice use patterns and vocal demand
  - Stimulability for change assessed by SLP

Our Team!
References

References

- Schneider, SL. (2012). Behavioral Management of Unilateral Vocal Fold Paralysis and Paresis. Perspectives on Voice and Voice Disorders. 10.1044/vvd22.3.112

References