Voice Disorders and VCD
Evaluation and Treatment of Common Dysphonia
Vocal Cord Dysfunction Evaluation and Treatment

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Defining the Voice
Voice Disorder (Dysphonia) is characterized by the abnormal production and/or absences of vocal quality, pitch, loudness, resonance, and/or duration, which is inappropriate for an individual's age and/or sex. [http://www.asha.org/policy/RP1993-00208/]

Voice assessment is provided to evaluate vocal structure and function (strengths and weaknesses), including identification of impairments, associated activity and participation limitations, and context barriers and facilitators. [http://www.asha.org/policy/PP2004-00191/#sec1.3.34]

Who diagnoses a Voice Disorder?
• An MD/Otolaryngologist, or a trained Speech-Language Pathologist may diagnose a Voice Disorder.
• Sometimes, a PCP will diagnose a Voice Disorder.
• Voice assessments are conducted by appropriately credentialed and trained speech-language pathologists. Specific dysphonia types may be identified by the trained SLP or otolaryngologist (ENT).

What is identified during an Assessment?
• Vocal strengths and deficits affecting respiration and communication performance.
• The effect of the disorder on the individual's ability to participate in activities of daily living (ADLs).
• Barriers and facilitators/compensations of successful communication and participation in ADLs.

Standard Evaluation Components
• Review of medical record.
• Review of auditory, visual, motor, and cognitive status.
• Relevant case history, including vocal use history, medical status, education, vocation, social use of voice, and cultural and linguistic backgrounds.
• Ask about dysphagia/history of dysphagia.
• Ask about reflux/signs and symptoms of reflux.
• Subjective and Objective measures of vocal performance. 
Standard Evaluation Components - Subjective

- Subjective Measures (Patient/Family/SLP descriptors)
  - VHI (also bridges into objective, as it measures patient use in response to function)
    - See here: [http://oregon.providence.org/~/media/Files/Providence%20OR%20Migrated%20PDFs/Patients%20Toolkit/RehabVoiceHandicapIndex.pdf](http://oregon.providence.org/~/media/Files/Providence%20OR%20Migrated%20PDFs/Patients%20Toolkit/RehabVoiceHandicapIndex.pdf)
  - Common patient/family descriptors: Raspy, Froggy, Gravelly, Croaky, Squeaky, Quiet, Low, High, Nasal, Breathy, etc.
  - Trained SLP description of voice includes, but is not limited to: Glottal Fry/Vocal Fry, Diplophonia, Tension, Hypernasal, Hyponasal, Breathy, pitch breaks

Standard Evaluation Components - Objective

- Objective Measures
  - Acoustic Parameters (e.g., VisiPitch. RAP .68 or lower is WNL, Shimmer of 3.81 or lower is WNL)
  - S:Z (1.4:1 = indicator of potential pathology)
  - Physiologic, or Visual/Perceptual Aspects (e.g., videostroboscopy)
  - Can include CAPE-V, which was developed to standardize characteristics of vocal function.

Examples

- Glottal Fry/Vocal Fry/Creaky Voice: [https://youtu.be/YEqVgtLQ7qM](https://youtu.be/YEqVgtLQ7qM)
- Hypernasal
- Hyponasal
- Breathy/Air Wasting: [http://laryngopedia.com/air-wasting-dysphonia/](http://laryngopedia.com/air-wasting-dysphonia/)
- Pitch breaks
- “Hyperfunction” can be a catch-all phrase. May include overuse, abuse, glottal fry, OR it can be tension as a result of compensation for an underlying pathology.

Other crucial components of Documentation – both for Evaluation and Treatment

- Patient’s ability to modify behavior or stimulability for change.
- Patient’s potential to make progress
- Barriers to progress
- Consequences of the voice disorder

Treatment

Consider each treatment to be a continual reassessment of function with application of technique and exercise to improve function.
Treatment – Hyperfunctional voice use/ Vocal Abuse

- FOCUS on the cause.
- Vocal Hygiene – Patient MUST acknowledge his/her role in self-healing!
  - Voice Journal
  - Reflux Management and/or Allergy Management
  - Hydration
  - Smoking/Alcohol intake
  - Abusive behaviors
  - Breath Support
  - Relaxation Exercises
  - Commitment from Patient to adhere to rules of good vocal hygiene

Treatment – Paresis/Paralysis

- Paresis vs Paralysis: Definitive diagnosis is conducted by Laryngeal Electromyography (LEMG). Adducted paralysis/paresis requires monitoring for patent airway.
  - MD diagnoses paresis/paralysis. SLP conducting laryngoscopy/videostroboscopy notes mobility of vocal folds for function of voicing.
  - May be UMN or LMN. May be permanent or temporary.
  - It is IMPERATIVE that a voice therapist work closely with the physician to determine potential for return of movement.

  Treatment may end up being limited to finding compensations to obtain the "best possible voice."

Treatment – Disorders of Resonance

- FOCUS on underlying cause.
  - Hypernasality from Velopharyngeal Dysfunction (VPD) or Velopharyngeal Insufficiency (VPI) is not usually overcome by therapy alone. Remain a part of a comprehensive team for VPI remediation.
  - Hyponasality – physician must rule out obstructive etiologies.

  Resource:
  http://www.ohioslha.org/pdf/Convention/2011%20Handouts/MS38VoiceBerge\n
Treatment – Disorders of Resonance (Hypernasality)

- Hypernasality: Once underlying cause is determined, palatal obturator may be indicated, and/or palatal strengthening exercises may be indicated.
  - /ng/ to /a/, plosives against tissue; Nasometer (KayPentax) or See-Scape
  - Education/homework for patient resource:
    https://www.youtube.com/watch?v=rXgnHfHg
  - Have patient feel airflow while blowing, though blowing itself is not the most effective method of strengthening palate.
Treatment – Disorders of Resonance (Hyponasality)

• Again, obstructive etiology must be handled first by physician/surgeon. After medical/surgical intervention, and patient can end up with hypernasality.

• If patient continues to display hyponasality:
  • Nasal breathing
  • Humming
  • /a/ to /ng/

Treatment – Air Wasting/Breathiness/Bowing

• Confirmation by physician needed. Determination of position, symmetry, and size of gap is highly useful.

• Asymmetrical gap needs combination adduction/strengthening exercise and compensatory head turn.

• Posterior gap – glottal chink

• Medial, symmetrical gap (often seen in those with the aging voice OR, to a greater degree, those with Parkinson Disease)

Treatment – Air Wasting/Breathiness/Bowing

• Etiology: Confirmed Parkinson Disease with muscle wasting/bowing of VF

  • LSVT is the only known efficacious application of voice treatment for those with Parkinson Disease
  • 4x/week, 4 weeks, no deviation
  • Rigorous, routine exercise
  • Homework is required.

Treatment – Air Wasting/Breathiness/Bowing

• Etiology: Aging Voice

  • Ensure adequate respiration for phonation. Train respiration if needed.

  • Gentle VF Adduction exercises
    — Breath hold and release
    — “Pepsi” swallow
    — Gentle /a – a – a/

  • Sustained phonation
    — Gradation of volume

  • Singing exercises

STRETCH!!!!

• Stand up! Stretch out!
• Take a drink!
• Swing your arms! Stretch each across your chest!
• Bend at your waist if you are able. Make sure you breathe!
• Neck exercise
• Shoulder exercise

Vocal Cord Dysfunction

• Defined: Vocal Cord Dysfunction (VCD) occurs when the vocal cords (voice box) do not open correctly. This disorder is also referred to as paradoxical vocal fold movement.

• VCD is sometimes confused with asthma because some of the symptoms are similar.

• In asthma, the airways (bronchial tubes) tighten, making breathing difficult. With VCD, the vocal cord muscles tighten, which also makes breathing difficult. Unlike asthma, VCD is not an allergic response starting in the immune system.

• To add to the confusion, many people with asthma also have VCD.

• Oxygen saturation typically remains normal for those in a VCD episode.

* Source: American Academy of Asthma and Immunology
Vocal Cord Dysfunction

- Video: https://www.youtube.com/watch?v=gmNwqJf1zUQ
- Anatomy: Image credit: what-when-how.com

Vocal Cord Dysfunction Symptoms
- Feeling short of breath or feeling that it is hard to get air into or out of your lungs.
- A feeling of tightness in the throat or chest.
- Frequent cough or clearing your throat.
- Sensation of excess mucus / sensation of something “stuck” in the throat.
- A feeling of choking or suffocation
- Noisy breathing (wheezing or raspy sound/stridor)
- Hoarse voice

Vocal Cord Dysfunction Triggers
- Untreated/poorly managed reflux (can be LPR or Silent Reflux, not just standard GERD!)
- Untreated/poorly managed allergies/nasal drainage
- Abrupt change in temperature, or temperature extremes/humidity changes
- Physical activity/exercise
- Laughing/singing/extended talking
- Bending over
- Climbing stairs
- Odors/scents/exposure to chemicals/smoke
- Anxiety/stress

Vocal Cord Dysfunction Diagnosis
- Definitive Diagnosis is done with scope placement while the patient is symptomatic. Unfortunately, this is often not possible or likely to be able to occur due to the sudden onset and/or activity needed to bring on an episode.
- Differential Diagnosis is often used, in combination with the diagnosis provided by a skilled physician.
- Physicians often provide Pulmonary Function Test (PFT), which is most useful if a patient was symptomatic at the time of the PFT.
Vocal Cord Dysfunction Differential Diagnosis

- Careful history is obtained, including the following:
  - Symptoms, by patient description
  - Triggers
  - Response of patient to triggers and symptoms
  - If asthma meds are prescribed, patient description of effectiveness of asthma meds
  - Frequency and duration of episodes
  - Rating of severity of discomfort during episodes

Vocal Cord Dysfunction Education and Exercises

- Educate patient/family on importance of maintaining good vocal hygiene and hydration, as well as management of actual asthma, reflux and allergies, as well as chronic/habitual cough and throat clear.
  - Diaphragmatic Breathing — is patient stimulabel?
  - Relaxed Throat Breathing
    - Demonstration - Practice

Vocal Cord Dysfunction Treatment

- VCD Journal — identifies triggers patients didn’t know they had, or the more subtle or “gateway” triggers.
- Vocal Hygiene
- Breathing while supine, seated, standing, walking, and then in ADLs
- Different applications for runners, swimmers, those involved in other sports.
- Treatment MUST be tailored to the patient; there is no ONE application that works for everyone.

Summary

- There is no substitute for a thorough evaluation with complete history taken.
- Make and keep good relationships with your local ENTs.
- Do not be afraid to refer back to ENT, or other professionals.
- Develop a network of other colleagues interested in voice.
- No one approach for treating any voice disorder works for absolutely everyone. Think outside the box if needed.
- Relate all treatment and goals to FUNCTION!

THANK YOU!!

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