Role of the Speech Pathologist in the Management of Irritable Larynx Syndrome

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Irritable Larynx Syndrome by any other name

- Terms used include:
  - Vocal Cord Dysfunction
  - Laryngospasm
  - Anxiety Disorder
  - Non-organic Wheezing
  - Episodic Laryngeal Dyskinesia
  - Spasmic Croup
  - Hyperreflexivity Syndrome

- Paradoxical Vocal Cord Movement
- Globus Pharyngeus
- Munchausen’s Stridor
- Pseudoasthma
- Emotional Laryngeal Wheezing
- Hyperkinetic Laryngeal Dysfunction

(Ibrahim 2007; Murry 2009)

Symptoms of ILS

- Symptoms may include:
  - Chronic Cough
  - Dysphagia
  - Laryngospasm
  - Hoarseness
  - Globus Pharyngeus
  - Chronic Persistent Throat Clearing Behavior
  - Paradoxical Vocal Cord Movement

Evaluation

- ILS is a multifactorial disorder and diagnosis requires assessment of each patient’s described symptoms. Listed are common assessment tools/strategies utilized:
  - Laryngeal Videostroboscopy
  - pH Probe
  - Chest x-ray
  - Videofluoroscopic Evaluation of Swallowing
  - Pulmonary Function Studies
  - Allergy Testing
  - Voice Evaluation to include use of VHI, CSI, RIS
- **Critical to have ENT evaluation to visualize the larynx before initiating treatment.

AOC ILS Evaluation Protocol

- Patient is scheduled in the AOC Voice, Swallowing and Airway Clinic
- On appointment day the patient will be asked to fill out the following forms:
  - Voice Handicap Index - VHI-10
  - Reflux Index Scale - RIS
  - Koughman Cough Index
  - Cough Severity Index - CSI
  - Voice History Sheet
  - Maximum Phonation Time
- A detailed medical history is taken by physician and speech pathologist
- The physician performs a thorough exam of the ear, nose and throat to include indirect exam with mirror
- A laryngeal videostroboscopy is performed and reviewed with patient
AOC ILS Evaluation Protocol con’t

A voice Evaluation is completed and trial of therapy initiated if appropriate and time allows.

Patient may undergo hearing evaluation and/or CT if medically warranted.

A medical treatment plan is created with the patient that may include:

- Swallow study
- GI referral
- Pulmonary referral
- Allergy referral
- Speech therapy
- Physical therapy
- Pharmacology
- pH probe
- The patient is scheduled for a follow up-3 months typically.

Voice Handicap Index-10

0=Never     1=Almost Never     2=Sometimes     3=Almost Always     4=Always

Always

1. My voice makes it difficult for people to hear me. 0 1 2 3 4
2. People have difficulty understanding me in a noisy room. 0 1 2 3 4
3. My voice difficulties restrict personal and social life. 0 1 2 3 4
4. I feel left out of conversations because of my voice. 0 1 2 3 4
5. My voice problem causes me to lose income. 0 1 2 3 4
6. I feel as though I have to strain to produce voice. 0 1 2 3 4
7. The clarity of my voice is unpredictable. 0 1 2 3 4
8. My voice problem upsets me. 0 1 2 3 4
9. My voice makes me feel handicapped. 0 1 2 3 4
10. People ask, “What’s wrong with your voice?” 0 1 2 3 4

Reflux Index Scale

Within the last MONTH, how did the following problems affect you?

0= no problem  5= severe problem

1. Hoarseness or a problem with your voice. 0 1 2 3 4 5
2. Clearing your throat. 0 1 2 3 4 5
3. Excess throat mucus or postnasal drip. 0 1 2 3 4 5
4. Difficulty swallowing food, liquids, or pills. 0 1 2 3 4 5
5. Coughing after you ate or after lying down. 0 1 2 3 4 5
6. Breathing difficulties or choking episodes. 0 1 2 3 4 5
7. Troublesome or annoying cough. 0 1 2 3 4 5
8. Sensations of something sticking in your throat/lump in your throat? 0 1 2 3 4 5
9. Heartburn, chest pain, indigestion, or stomach acid coming up 0 1 2 3 4 5

Cough Severity Index

0 = NEVER  1 = ALMOST NEVER  2 = SOMETIMES  3 = ALMOST ALWAYS  4 = ALWAYS

MY COUGH IS WORSE WHEN I LIE DOWN.

MY COUGHING PROBLEM CAUSES ME TO RESTRICT MY PERSONAL AND SOCIAL LIFE.

I TEND TO AVOID PLACES BECAUSE OF MY COUGH PROBLEM.

I FEEL EMBARRASSED BECAUSE OF MY COUGHING PROBLEM.

PEOPLE ASK, “WHAT’S WRONG?” BECAUSE I COUGH A LOT.

I RUN OUT OF AIR WHEN I COUGH.

MY COUGHING PROBLEM AFFECTS MY VOICE.

I FEEL SICK WHEN I COUGH.

Koufman Chronic Cough Index

Is the main reason you are here CHRONIC COUGH? ___________________; If so, for how many years? ____________

When your cough began, had you had a respiratory infection, cold, the flu, or other illness? ________________________

Have you had a chest x-ray within the last two (2) years?  Y   N; was it normal? _________________________________

Have you seen a pulmonologist (lung doctor)?  Y   N; if so, date and name of physician ___________________________

Have you seen a cardiologist (heart doctor)?  Y   N; if so, date and name of physician _____________________________

Are you on a blood pressure medicine? Y  N; if so, which & dose? ____________________________________________

Have you seen an allergist?  Y   N; if so, date & name of physician & allergies identified___________________________
Koufman Chronic Cough Index con’t

- Do you awaken from a sound sleep coughing? Yes No ______________________________
- How often? With trouble or every night? Yes No ______________________________
- Do you cough after meals, when you bend over? Yes No ______________________________
- Do you have it when you lie down? Yes No ______________________________
- Does change of position make your cough worse? Yes No ______________________________
- Does sneezing or swallowing cause your cough? Yes No ______________________________
- Does any action (e.g., bending over, talking, etc.) cause your cough? Yes No ______________________________
- Does speaking, singing, or talking on the phone cause your cough? Yes No ______________________________

Chronic cough form H 2-7-12 (R=Reflux, N=Neurogenic)

pH Probe

Normal pH probe

Abnormal pH probe

Cough Management

- Four Components to treatment of cough:
  - Education
  - Cough Control Techniques
  - Vocal Health Training
  - Psychoeducational Counselling

Vertigan 2011
Cough Education

- Critical component to treatment
- Patients require a strong rationale to change their behavior.
- Working with the concept that there is nothing in the airways that requires expectoration despite the sensation is key
- Behavioral Management of cough suppression is the goal despite the triggering sensation
- There is capacity for voluntary control over the cough. While the brainstem has a vital role in cough so does the cerebral cortex. We aim to strengthen that during treatment.
- May not always find a cause for the cough, once the major causes have been excluded, we focus on symptom control rather than cause.

(Chamberlain 2011; Vertigan 2011)

Cough Control Techniques

- The goal is to prevent or interrupt the cough despite the triggering sensation.
- Teach patients to identify warning signals, triggering sensations or urge to cough and then substitute a competing response.
- Competing responses can include:
  - cough suppression swallow  relaxed throat breathing
  - pursed lip breathing  distraction techniques.

(Chamberlain 2011; Vertigan 2011)

Cough Suppression Swallow

- At the very FIRST sign of a cough:
  - Swallow with your hands pushed together
  - Head down towards your chest
  - Effortful Swallow (lips together; lift tongue towards roof of mouth, swallow)
  - Dry swallow
  - With water
  - With a sucker

Encourage the patient to perform the cough suppression swallow at any sign of a cough. Even if it’s just a small tickle. Tell them not to wait until the irritation is severe enough to cause the coughing.

(Vertigan, 2008)

Relaxed Throat Breath

- Inhale with relaxed throat
  - Tongue on floor of mouth
  - Lips gently closed
  - Jaw gently released
- Exhale or gentle /s/ with abdominal support, or /sh/ or /f/ in public
  - Hand on abdomen (above the belt, below the belt or both)
  - Inhale into abdomen— the abdomen comes in
  - Exhale from abdomen—abdomen comes in
  - As you pull in abdomen, exhale on gentle /s/
- If more comfortable, use gentle sip of inhale and gentle blow for exhale, feeling the air on the lips

(Blager, 2008)
**Pursed Lip Breathing**

- Breathe in through your nose (as if you are smelling something) for about 2 seconds.
- Pucker your lips like you're getting ready to blow out candles on a birthday cake.
- Breathe out very slowly through pursed-lips, two to three times as long as you breathed in.
- Repeat.

**Distraction Techniques to Control Cough**

- Distraction
- Chewing gum
- Swallow your saliva
- Eat moist food
- Sip Water
- Suck on ice chips
- Wait five seconds and see whether the urge passes

**Vocal Health Guidelines for Cough**

- Seven Ways to reduce irritation that causes coughing:
  - Avoid exposure to smoke
  - Breathe through your nose
  - Minimize intake of dehydrating substances
  - Lifestyle strategies for reflux
  - Inhale steam
  - Drink adequate quantities of water
  - Suck on non-medicated lozenges

**Management of Reflux**

- Patient Education
  - difference between LPR and GERD
  - Review pH probe findings
  - Use of PPI's and H2 blockers - pros and cons
  - LPR Guidelines

**LPR Guidelines**

- Avoid juices, soda’s, alcohol, chocolate, vinegar based products, fatty foods, spicy foods
- Do enjoy lean meats, vegetables, fruits, nuts/seeds, whole grains, olive oil, water
- “Diet” of choice – Mediterranean Diet
- Elevate the head of your bed 2-3 inches
- Eat before 7:00 pm - do not lie down for at least 2 hours after each meal
- Casually walk for 5 to 10 minutes after each meal

**Psychoeducational Counselling**

- Success of intervention is dependent upon patient compliance.
- Psychoeducational counseling aims to:
  - 1. Increase adherence and motivation of treatment strategies
  - 2. Facilitate the patient’s acceptance of the behavioral approach
  - 3. Validation of condition- words of affirmation that they are not malingering
  - 4. Appropriate referrals made if emotional issues are triggered

  *(Aminger 2013)*
Laryngospasm

- Sudden onset
- Forceful contraction of the laryngeal sphincter
- Resulting in airway obstruction or complete glottic closure and apnea for up to 20 seconds
- Considered Emergent

Pursed Lip Breathing

- Encourage the patient and those in immediate surroundings to remain calm
- Patient sits and leans slightly forward at the waist
- Small breaths in through the nose (place finger beside nares and feel air movement)
- Small exhale through rounded (pursed) lips
- Have patient perform this for 2-5 minutes.
- Encourage them to NOT swallow or attempt to talk while performing

Straw Breathing

- Patient breaths in and out through straw cut in half or cocktail size straw for 2-5 minutes.
- Same principles apply as pursed lip breathing:
  - Remain Calm
  - No talking
  - No swallowing
- Test after 2-5 minutes with /mmm/ 4x. If patient is able to vocalize without difficulty breathing then they may swallow and talk normally. The most likely will experience hoarseness after episode but this should pass in several hours.

Paradoxical Vocal Cord Movement

- PVCM is a laryngeal disorder that affects respiratory function through obstructing the airway in the closing or partial closing of the vocal folds during inspiration.
- This will have a direct impact on breathing and voice production.

Common Symptoms of PVCM

- Throat clearing
- Throat mucus
- Hoarseness
- Annoying cough
- Something sticking in the throat
- Breathing difficulties
- Coughing after lying down
- Heartburn/ chest pain
- Difficulty swallowing
Example of straw breathing

Behavioral Management of PVCM

- Respiratory Retraining
  - Quiet rhythmic breathing
    - Exhaling w/shoulders relaxed, abdominal movement in/out consistent w/continuous exhalation/inhalation
    - Breathing w/vocal resistance
    - Exhaling while sustaining (shh, /h/ /h/) for increasing lengths of time
    - Pursed exhalation
    - Produce pulse of air using (ha/ or /h/ha) followed by sniffing in through the nose w/closed mouth
    - Abdominal focus at rest
  - Lie flat w/small book on stomach, focus on elevation of book w/inhalation and lowering of book w/exhalation; when successful, straw breathing initiated to increase resistance while focusing on abdominal movement; exercise expanded to include sitting/sitting

- Respiratory Retraining continued
  - All exercises practiced in one-minute increments
  - Reduces patient boredom
  - Allows for Patient control over laryngeal function repeatedly during the day
  - Exercises #1-5 practiced 2x/day for 3 weeks
  - Exercise #6 practiced 10x day for 3 weeks
  - 1st week in isolation (no distractions), always sitting down, using clock as timing device
  - Emphasize slow emptying of lungs during exhalation before repeating sequence to minimize risk of hyperventilation
  - Monitor # of repetitions achieved in one minute

- Respiratory Retraining continued
  - Week # 2
    - Pattern of sniff/blow transitioned into activities of daily living (not driving at this time)
    - Focus now on practicing # of repetitions 10x/day
    - Maintain focus of complete exhalation before beginning new repetition
    - Week 3
    - As above but pattern can now be practiced while driving

- Respiratory Retraining continued
  - Week # 4 and beyond
    - Patient begins to experiment with all of the above techniques during episodes of cough or PVCM (determine which strategy (ies) are most beneficial in managing episodes)
    - Continue to maximize patient adherence to other interventions
    - Schedule therapy sessions at 4, 6, 8, and 12 weeks
    - If progress demonstrated by 12 week mark, gradually schedule f/u at greater intervals or discharge
    - If not, f/u at 4 week intervals; recommend f/u with referring physician

(Murray, Sapienza, 2010)

(Haxer, 2009)
Treatment for Hoarseness as Result of ILS
- Stretch Flow exercises
- Cup Bubble blowing
- Straw Phonation
- Resonant Voice Techniques
- Vocal Rest/Confidential Voice if patient presents with TVC ulcers or hemorrhage from chronic cough/throat clearing behavior
- Vocal Function Exercises

Case Studies

Case Study 1
- MR - 48 yo female who is a professor at small college
- Presents as a new patient to Voice Clinic with a 1 year hx of right arytenoid granuloma and vocal fatigue
- Laryngeal videostroboscopy shows left TVC paralysis, muscle tension dysphonia, diffuse edema, R arytenoid granuloma
- Mild breathy vocal quality with decreased intensity
- VHI-16 MPT -12
- Recommended pH probe, voice therapy, placed on PPI

Case Study con’t
- Patient did not return for further testing or voice therapy
- She returns to us 3 years later with same presentation and the addition of laryngospasms, lump/tightness in throat, sharp shooting pain with speech
- Her voice issues directly affecting her job performance - professor and has advanced to President of the College. Heavy voice user
- Plan: pH probe, voice therapy. Gabapentin 200 mg at bedtime, 100 mg at breakfast. Patient chose to avoid Gabapentin-concern for side effects
- pH probe showed significant LPR-treated with 40mg PPI bid
- Voice therapy initiated - respiratory exercises for laryngospasm, cup bubble stretch/flow exercises, straw phonation to break tension followed by 12 weeks of Stemple’s Vocal Function Exercises to address vocal fatigue
- Following PPI treatment, GI workup and voice therapy she had resolution of symptoms

MR
February 2015
Case Study 2-EW

- 17 yo female-runner
- Having episodes while running of tightness in throat followed by difficulty breathing and excessive foamy mucus in her throat that forces her to stop running. Odors will trigger tightness in throat when not running as well as stress.
- The episodes happen when she is practicing or competing.
- Had an episode at a track meet and ended up at ACH where she underwent a full cardiac and allergy workups that were both (-).
- She denies dysphagia and heartburn but positive for hoarseness after running and belching.

Case Study 2 con’t

- Laryngeal videostroboscopy showed mild diffuse edema. Subtle weakness of left TVC but no paralysis. Asymmetric glottic opening with good laryngeal closure and supraglottic tension.
- Plan: pH probe, Gabapentin, Voice therapy
- pH probe showed LPR-placed on PPI bid and alginate (Gaviscon Advance)
- Voice therapy- PVCM breathing tech, pacing with running (worked with coach), straw breathing, Vocal health to include hydration and LPR guidelines, counselling (asked mom to leave the room for few minutes).
- Complete resolution of symptoms- patient weaned off meds after 3 months.
- She continued to run and had the fastest 2 mile run in state history. Full track scholarship to UCA

Bibliography


