Variable Presentations of Laryngospasm

Thomas Murray, PhD
Lucian Sulica, MD
Lowell Gurey, MD
Weill Cornell Medical College
New York, New York

Laryngospasm:
Sudden-onset, rapid and forceful contraction of the laryngeal sphincter resulting in airway obstruction or complete glottic closure and apnea for up to 20 seconds

Presentation differs from:
- Paradoxical vocal fold motion (VCD)
- Chronic cough
- Choking
- Patient symptoms may overlap

Maceri, D. et al. L'scope 2001
Vertigan, J. Voice, 2007

Recent literature describing symptoms associated with Laryngospasm, CC and PVFM

<table>
<thead>
<tr>
<th>Condition</th>
<th>PVFM</th>
<th>CC</th>
<th>L'spasm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocal cord dysfunction</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Munchausen's stridor</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Functional airway obstruction</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Episodic paroxysmal laryngospasm</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Adult onset asthma</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Factitious Asthma</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Breathing Abnormalities</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Psychogenic stridor</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Irritable laryngeal syndrome</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Trigeminal neuralgia</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Laryngeal dyskinesia</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Sudden onset/offset</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Laryngospasm and Asthma

- Asthma - implicated in up to 25% of CC and 30% of L’spasm
  May be the only asthma feature identified
  Desai D, Brightling C. Oto. Clinics NA :Feb 2010

- Spirometry with methacholine challenge
  Negative methacholine should exclude asthma from the differential
  Desai D, Brightling C. Oto. Clinics NA :Feb 2010
**Typical Example**

- **Recent History:**
  - Sudden 1-2 minute episodes of choking for past 6 months
  - 18 month hx. of
    - Cough
    - Shortness of breath
  - Asthma ruled out with MC challenge 2 mo. Ago
  - No improvement with
    - PPI
    - Seravent
    - Singulair

**Purpose of Present Study**

- To identify various presentations of conditions associated with laryngospasm in a group of patients with multiple diagnoses

- Patients with multiple diagnoses including laryngospasm seen without resolution of the condition

**Subjects**

- N = 39 (Females = 28 Males = 11)
  - (From a review of 88 patients)
  - Patients referred or self-referred to WCMC
  - Presence of problem for at least 5 months
    - Range 5 mo. to 17 years
  - All patients had at least one previous diagnosis of laryngospasm
  - Records/data obtained from previous referral sources-directly or via patient
    - Multiple treatments – original complaint remained

**Method (1)**

- N = 39
  - Females = 28, (18-70)
  - Males = 11 (26-69)
- Medical Records Obtained and Reviewed
- Current History plus records
  - VHI-10
  - RSI
  - Dsypnea Index
  - Hx. of Dysphagia
Method (2)

- Past history: Diagnosis of laryngospasm and
  - Dysphagia
  - Dyspnea
  - Cough
  - Dysphonia
  - Asthma
  - Other
  - Patients with current history of COPD or other pulm. problems not included

**RESULTS**

- Laryngospasm + one other diagnosis
  - N = 20
    - CC = 2
    - PVFM = 8
    - UVP = 4
    - MTD = 6
  - Patients with current history of COPD or other pulm. problems not included

- Laryngospasm + two other diagnoses
  - N = 18
    - CC, UVP = 1
    - CC, PVFM = 1
    - PVFM, UVP = 9
    - PVFM, MTD = 6
    - CC, MTD = 1

- Laryngospasm + three other diagnoses
  - N = 1
    - CC, UVP, PVFM = 1

Most common diagnoses with L'spasms:
- PVFM = 25
- UVP = 15
- MTD = 12
- CC = 6
- Other = 3
- GERD = 2 (GI)
- Asthma = 1 (Pulm)

38/39 prescribed PPI
28/38 prescribed Asthma meds
RESULTS

<table>
<thead>
<tr>
<th>VHI-10</th>
<th>RSI 0-40</th>
<th>DI 0-45</th>
<th>0-40</th>
</tr>
</thead>
</table>

- Mean
- SD
- RANGE

19/39 VHI-10 > 6
14/39 RSI > 11
4/39 RSI > 11 – Q.1

Discussion

- L’spasm may result from single trigger or a summation of triggers
  - Voice, Breathing, GERD/LPR, Other
- Singular treatment of L’spasm rarely resolves the condition
- Current study suggests high incidence of voice disorders

Implications

- Rule out Asthma or pulmonary factors
- Beware of multiple symptoms that change
- Poor response to one treatment does not rule out L’spasm as diagnosis
  - Consider multiple treatments
- Need for accurate diagnostic testing critical for successful treatment

THANK YOU

Thomas Murry, Ph.D.
Weill Cornell Medical College
New York, NY
A Clinician’s Dilemma

- Multiple systems interaction
  - Respiratory: Asthma/Pulmonary obstruction
  - Phonatory: Speech vs non-speech breathing
  - Behavioral: Psychological/Psychiatric
  - Digestive: Gastroesophageal disorder
  - Allergy role
    - Pollution/Irritants

Multiple diagnoses/treatments: May be dependent on the specialist consulted

Laryngospasm

- Approximately 67% of patients with laryngospasm report at least two primary symptoms.

- The three most common:
  - Choking
  - Shortness of breath
  - Cough

**Additional Historical Dilemma**

- VCD – term often used interchangeably with laryngospasm by pulmonologists, allergists, psychiatrists and psychologists
- Often used when pulmonary function test with Methacoline challenge is negative and no other diagnosis offered

  Brugman: S. Clinics of N.A. 2010

**Diagnostic Dilemma**

- Overlapping symptoms
- Symptoms vary in severity
- Rarely is one symptom reported
  - Ex: Choking, dyspnea, throat pain
- Diagnosis often made according to specialist seen

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**Laryngospasm vs. PVFM**

<table>
<thead>
<tr>
<th>Feature</th>
<th>LS</th>
<th>PVFM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History and Symptoms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of Attacks</td>
<td>minutes</td>
<td>minutes-hours</td>
</tr>
<tr>
<td>Acute Onset</td>
<td>yes</td>
<td>Sometimes - rare</td>
</tr>
<tr>
<td>Stridor at rest/during attacks</td>
<td>yes</td>
<td>Sometimes - rare</td>
</tr>
<tr>
<td>Associated Cough and Hoarseness</td>
<td>usually</td>
<td>sometimes</td>
</tr>
<tr>
<td><strong>Laryngeal Examination</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Findings of LPR</td>
<td>Yes &gt; 70%</td>
<td>Sometimes &lt; 35%</td>
</tr>
<tr>
<td>Adductions during inspiration</td>
<td>no</td>
<td>usually</td>
</tr>
<tr>
<td>Brisk abductions during sniffing</td>
<td>Yes</td>
<td>yes</td>
</tr>
<tr>
<td>Failure of any abduction during attacks</td>
<td>yes</td>
<td>no</td>
</tr>
</tbody>
</table>