The Intractable Arytenoid Granuloma

Ted Mau, MD PhD
Director
UT Southwestern
Voice Center

www.utsouthwestern.org/voice
DALLAS, TEXAS

Outline

Review
- Etiologies
- Symptoms
- Treatments

An integrated approach
- Assessment
- Management

DISCLOSURE

I have nothing to disclose
Terminology in literature

- Contact ulcer/granuloma
- Arytenoid granuloma
- **Vocal process granuloma**
- Vocal cord granuloma
- Laryngeal granuloma
- Pyogenic granuloma
- Intubation granuloma


Terminology for this talk

- Vocal process granuloma
- Arytenoid granuloma

Commonly Cited Etiologies

<table>
<thead>
<tr>
<th>Etiology</th>
<th>Year</th>
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<tbody>
<tr>
<td>Intubation</td>
<td>1932</td>
</tr>
<tr>
<td>Vocal abuse</td>
<td>1935</td>
</tr>
<tr>
<td>LPR</td>
<td>1967</td>
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</tbody>
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Demographics

- **Intubation**: Female > Male
  - Tendency to oversize ETT in females
- **Vocal overuse**: Male > Female
  - 80% male (Hillel et al. 2010)
  - Larger glottic chink in females during phonation = less vocal process contact


### Symptoms

<table>
<thead>
<tr>
<th>Classic</th>
<th>Voice</th>
<th>Throat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well-localized, unilateral, stabbing neck pain, sometimes radiating to ear</td>
<td>Raspy</td>
<td>Urge to clear throat</td>
</tr>
<tr>
<td></td>
<td>Decreased range</td>
<td>Lower pitch</td>
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<tr>
<td></td>
<td>Reduced clarity</td>
<td>Vocal fatigue</td>
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<tr>
<td></td>
<td>Globus</td>
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</tbody>
</table>

None

Incidental finding

### The Old Paradigm

- LPR
- Vocal Overuse

### The New Paradigm

- Vocal trauma
- Throat clearing
- Cough

Exposed Cartilage

Glottic insufficiency

LPR

### Target for Intervention

- Vocal trauma
- Throat clearing
- Cough

Exposed Cartilage

Glottic insufficiency

LPR

*What caused it?*

*Why won’t it go away?*
### Factors that **CAUSE** granulomas

- Intubation
- Vocal overuse
  - Primary
  - Secondary to glottic insufficiency
- Severe, prolonged coughing/throat clearing

*Common element: Mechanical trauma to mucosa overlying the vocal process or arytenoid body*

### Mucosa over vocal process is thin

![Mucosa over vocal process](image)

### Factors that make them **PERSIST**

- LPR
- Vocal overuse
  - Primary
  - Secondary to glottic insufficiency
- Chronic cough, throat clearing
- Exposed cartilage?

### MANAGEMENT
**Biopsy or Not Biopsy**

Factors that *decrease* the suspicion or need to biopsy:
- Classic location
- Classic appearance
  - Round and smooth
  - Fleshy
  - Ulcerated with surrounding inflammation
- Clear etiology (e.g. intubation, severe cough)

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**Factors that *increase* suspicion/need to biopsy:**
- Not classic location and appearance
- Positive risk factors for malignancy (e.g. smoking)

- When in doubt ➔ Biopsy!

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**Management**

- What are the possible factors that make the granuloma persist in *this* patient? (based on History and Exam)
  - What therapy should I add?

**Factors that make them **PERSIST**

- LPR
- Vocal overuse
  - Primary
  - Secondary to glottic insufficiency
- Chronic cough, throat clearing
LPR

- **History**
  - Typical and “atypical” reflux symptoms
    - Heartburn
    - Indigestion
    - Regurgitation
  - Reflux Symptom Index (RSI) items
    - Helps to determine how aggressively to pursue acid-suppression regimen and reflux work-up

- **Vocal Trauma**
  - **Voice quality**
    - Heavy/Pressed? Strain? Too loud?
    - Breath support?
      - Voice therapy
  - **Throat clearing**
    - Behavioral modification
    - Voice therapy

Factors that make them **PERSIST**

- **Laryngoscopy**
  - Glottic insufficiency
    - Vocal fold bowing/atrophy
    - Vocal fold paresis
    - Persistent glottal gap or increased glottal area during phonatory cycle (stroboscopy)
      - Voice therapy
      - Vocal fold injection augmentation

- **Management Ladder**
  - Observation with follow-up
  - Anti-reflux measures/acid-suppression
    - PPI QD or BID before meals x 8-12 weeks
  - Throat clearing/vocal hygiene education
### Management Ladder

- **Observation with follow-up**
- **Anti-reflux measures/acid-suppression**
  - PPI QD or BID before meals x 8-12 weeks
- **Throat clearing/vocal hygiene education**
  - Voice therapy

### Role of Voice Therapy

**Eliminate/reduce:**
- Vocally abusive behavior, e.g. throat clearing
- Hard glottal attacks
- Breath holding

**Promote:**
- Increasing air flow
- Easy onset

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### Inhaled Corticosteroid

- Triamcinolone TID - Hillel (2010)
  - Nasocort AQ
  - Inhaler no longer available
- **Asmanex Twiskhler 2 puffs BID**
  - Mometasone
  - Along with PPI

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*References*

Management Ladder

- Observation with follow-up
- Anti-reflux measures/acid-suppression: PPI QD or BID before meals x 8-12 weeks
- Throat clearing/vocal hygiene education
- Voice therapy
- Inhaled corticosteroid

The Intractable VP Granuloma

- Partial resolution: 11-22%
- No improvement: 9-11%

Outline


Management Ladder

- Anti-reflux measures/acid-suppression
- Throat clearing/vocal hygiene education
- Voice therapy
- Inhaled corticosteroid
- Excision/Ablation
- Endoscopic suture closure/Floseal
- Botox injection

Excision

- Excision alone has high failure rate (25-92%)
  - Excision does not address the factors that make the granulomas persist

LPR

- Vocal trauma
- Throat clearing
- Cough

Exposed

- Glottic insufficiency

Excision

Excision – Postop Protocol

- Excision
- In-office Depo-Medrol injections Q4 weeks

SURGERY

- Voice Therapy
- Strict
- Voice Rest
  1-2 weeks

- Systemic steroid x 3 weeks
- BID PPI


Excision with Suture Closure/Floseal

Botox Injection

- Weaken adductors to reduce vocal process/arytenoid contact.

Orloff & Goldman. Oto HNS (1999) 121:410-3
Damrose (2008), Fink (2013)
## Take Home Points

- Go through possible factors that cause persistence of granuloma in each patient and tailor therapy based on history and exam.
- Let the patient decide how aggressively to pursue therapy for intractable granulomas.

## Good References

### Review

### Inhaled corticosteroid

### Voice therapy

### VP granuloma and glottic insufficiency

## Contact Information

**ted.mau@utsw.edu**

UT Southwestern Voice Center
Dallas, Texas