

Recurrent Bacterial Laryngitis in a Patient with Sinonasal and Laryngeal Sarcoidosis

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1. Background

- Sinonasal and laryngeal sarcoidosis are rare manifestations of extrapulmonary sarcoidosis, present in 0.6- 8.2% of patients.¹
- Symptoms of laryngeal sarcoidosis: hoarseness, dysphonia, dysphagia, globus sensation, and cough.²
- Sinonasal sarcoidosis: chronic crusting rhinitis, nasal obstruction, anosmia, and epistaxis.^{1,2}
- Treatment of sinonasal and laryngeal sarcoidosis include oral steroids or nasal steroid rinses.¹
- Individuals on immunosuppressive regimen are at risk of opportunistic infections.³

2. Case Presentation

HPI: A 71-year-old male with history of sinonasal and laryngeal sarcoidosis well established with laryngology and rhinology who presented for new, recurrent dysphonia. The patient works as a voice impersonator.

His maintenance regimen included nasal saline irrigation (NSI) with mometasone + xylitol BID.

Medical History (ENT specific):

- Chronic rhinosinusitis
- Functional Endoscopic Sinus Surgery (FESS) in the 1990's
- Bilateral lacrimal duct stenosis
- Dacryocystorhinostomy (DCR) in 2019

Relevant Medications:

- Hydroxychloroquine 200 mg daily
- NSI with mometasone
- Omeprazole 20 mg daily

Prior Exams:

- Stable anterior septal perforation
- Stable choanal stenosis
- Stable omega shaped epiglottis



Figure 1: Flexible nasolaryngoscopy at a prior visit demonstrating normal airway caliber and minimal secretions

3. Clinical Course

Initial Presentation	7 month follow-up	10 month follow-up	11.5 month follow-up	16 month follow-up	17 months	18 month follow-up
<p>Patient presented with hoarseness and dysphonia for 2 weeks.</p> <p>Flexible laryngoscopy (FL) showed diffuse laryngeal inflammation and thick mucous throughout the glottis (<i>Figure 2</i>)</p> <p>Tx: cephalexin and doxycycline for 1 month with resolution of symptoms for 4 months.</p>	<p>3 months of persistent hoarseness and, fatigable voice.</p> <p>FL: Thick laryngeal exudate adherent to the true vocal folds.</p> <p>Tx: doxycycline x 1 month + mupirocin added to NSI BID for suspicion of recurrent staphylococcal infection</p>	<p>Recurrence of dysphonia + a productive cough.</p> <p>Prior symptoms had improved for several weeks before experiencing a more recent decline.</p> <p>FL: thickened, purulent laryngitis (<i>Figure 3</i>).</p> <p>Tx: dicloxacillin for 1 month and continued mupirocin NSI.</p>	<p>Mild-moderate improvement in dysphonia.</p> <p>FL: continued signs of bacterial laryngitis vs sarcoidosis flare with mild improvement (<i>Figure 4, 5</i>).</p> <p>Anterior rhinoscopy showed thickened, yellow crusting which was cultured → growing 3+ pan-sensitive <i>Serratia marcescens</i> (<i>Figure 6</i>)</p> <p>Tx: 10 days of ciprofloxacin, continued mupirocin NSI</p>	<p>Mild improvement followed by return of dysphonia</p> <p>Biopsy of the larynx was obtained: growing benign squamous epithelium with bacterial colonization.</p>	<p>Patient's treatment regimen was changed from mupirocin + NSI to gentamicin + NSI to treat suspected sinonasal colonization with <i>Serratia m.</i></p>	<p>Complete resolution of dysphonia.</p> <p>Patient's voice has been stable on current regimen.</p> <p>Nasal endoscopy showed near-complete resolution of his nasal cavity mucopurulence/crusting (<i>Figure 7</i>).</p>

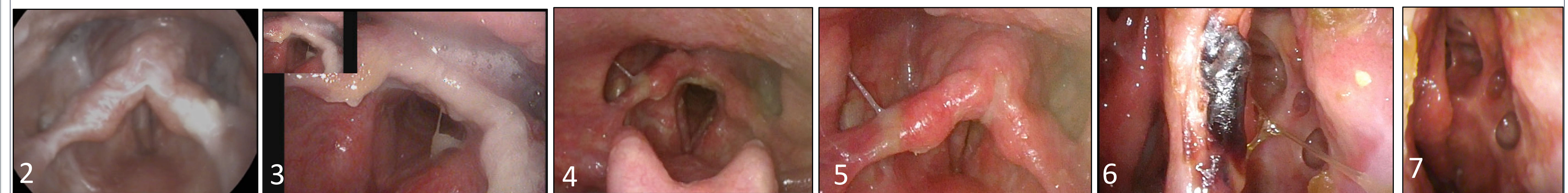


Figure 2: Flexible laryngoscopy of initial laryngitis visit showing diffuse inflammation and thick mucous throughout the glottis. **Figure 3:** FL of repeat infection at 10 month follow-up. **Figure 4, 5:** FL at 11.5 month follow-up, prior to obtaining nasal culture. **Figure 6:** Nasal endoscopy at 11.5 month follow-up; large septal perforation with significant crusting and yellow mucopurulence which was cultured (growing *Serratia m.*). **Figure 7:** Nasal endoscopy at 18 month follow-up showing significant improvement in crusting following gentamicin rinses

4. Discussion

- This 71-year-old male had recurrent bacterial laryngitis requiring multiple courses of antibiotics in the setting of extrapulmonary sinonasal and laryngeal sarcoidosis.
- He was unresponsive to strep/staph directed treatment and interestingly his nasal culture was positive for *Serratia m.* susceptible to gentamicin
- His laryngology symptoms resolved with treatment of his *Serratia m.* sinonasal infection with gentamicin rinses
- *Serratia m.* is an opportunistic, gram-negative pathogen, with evidence of recurrent infectivity in immunocompromised patients.⁴
- Disrupted sinonasal and laryngeal physiology from sarcoidosis along with immunosuppression were contributing recolonization from opportunistic infections

5. Conclusion

- This case illustrates the need for combined sinonasal and laryngeal treatment due to potential recolonization and atypical bacterial colonization in immunosuppressed patients.
- Collaboration between providers can be critical in the management of chronic and recurrent infections in immunocompromised patients, emphasizing the importance of the unified airway concept.⁵
- Future research directions can investigate the potential use of co-culturing the sinus and larynx in the setting of recurrent infection.

6. References

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