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Abstract

This case report describes the unique presentation and clinical course of an arytenoid abscess secondary to community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA). Laryngeal abscesses are rare clinical entities and, to the best of our knowledge, no other abscess of this specific location has previously been described in the literature. Prior to the widespread use of antibiotics, laryngeal abscesses were most commonly secondary to systemic illnesses. Today, most cases are the result of disease processes intrinsic to the larynx, such as malignancy or airway instrumentation.

Background

Since the introduction of antibiotics, endolaryngeal abscesses are rarely encountered in modern clinical practice. Prior to the 1930s, systemic infections, such as typhoid fever, tuberculosis¹ and septicemia, were once common causes of laryngeal abscesses and mortality rates of this disease process approached 100%.² Contemporary accounts of laryngeal abscesses have been described in the setting of airway instrumentation, traumatic endotracheal tube placement, malignancy², irradiation³, immunosuppression⁴ and rarely epiglottitis.⁵ Currently, mortality secondary to laryngeal abscesses is exceedingly rare.

Case Report

A 52-year-old female with poorly controlled type 1 diabetes mellitus and a history of methamphetamine and alcohol abuse presented to the emergency department with a three day history of progressive sore throat, hoarseness and neck pain. She had no history of head or neck malignancy and no recent airway instrumentation or intubation. CT of the neck revealed a 1.2 x 0.8 cm laryngeal abscess. Fiberoptic nasolaryngoscopy demonstrated unilateral swelling and erythema overlying the soft tissue of the right arytenoid cartilage. The laryngeal mucosa was intact and the true vocal folds were bilaterally mobile. Pertinent labs included a leukocytosis of 18,100. The patient was administered intravenous dexamethasone and ampicillin-sulbactam. The airway was deemed stable and the patient was admitted overnight to the intensive care unit. The following day, the patient underwent direct laryngoscopy under general anesthesia which revealed an abscess located along the medial aspect of the right arytenoid extending into the interarytenoid space. Tissue pathology was consistent with microabscesses and benign squamous mucosa. Microbacterial cultures grew community-acquired MRSA. After completing an outpatient course of oral trimethoprim-sulfamethoxazole, the patient made a complete recovery and at one year follow-up had no associated sequelae.

Figure 1

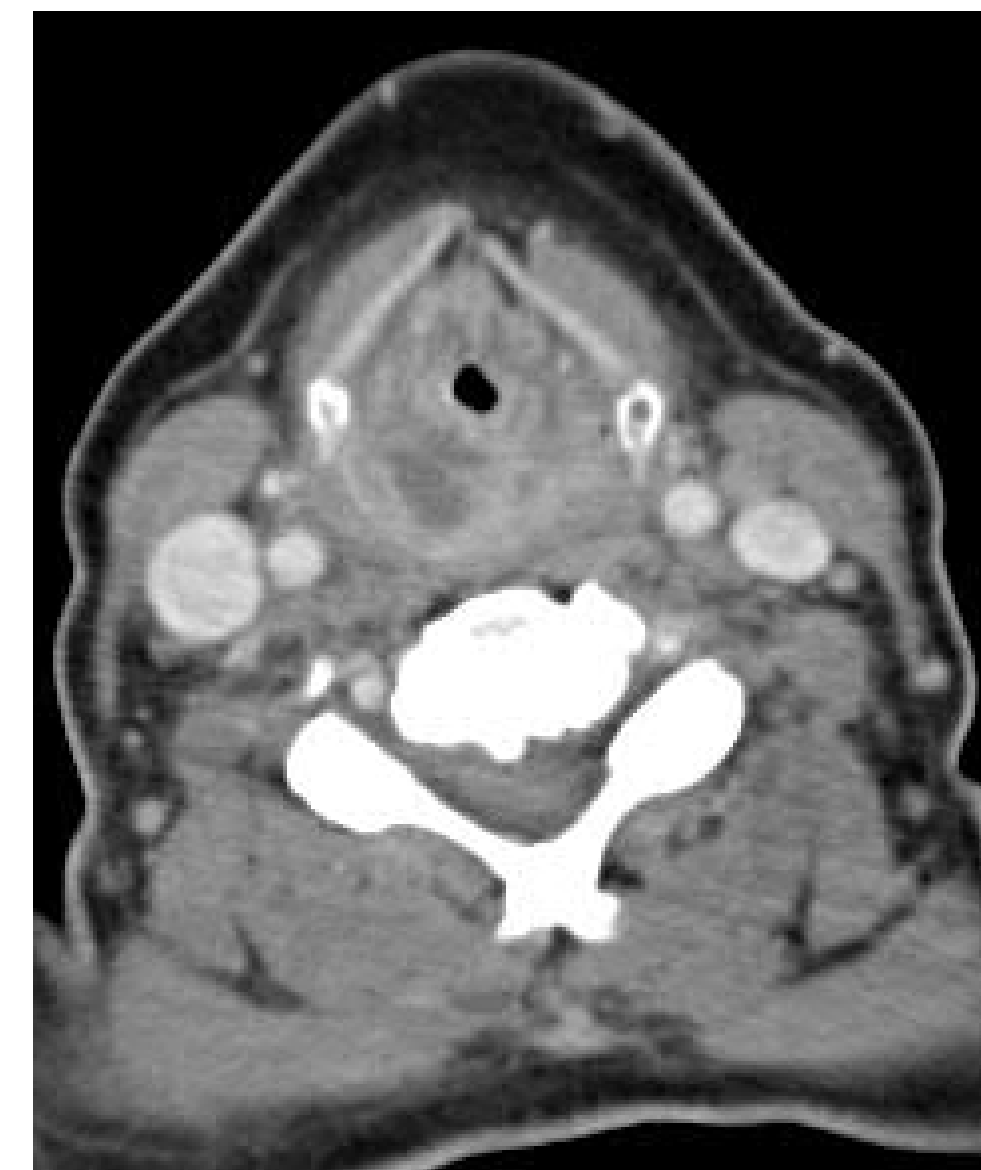


Figure 1. Axial CT image depicting the laryngeal abscess.

Figure 2



Figure 2. Coronal CT image depicting the laryngeal abscess.

Figure 3

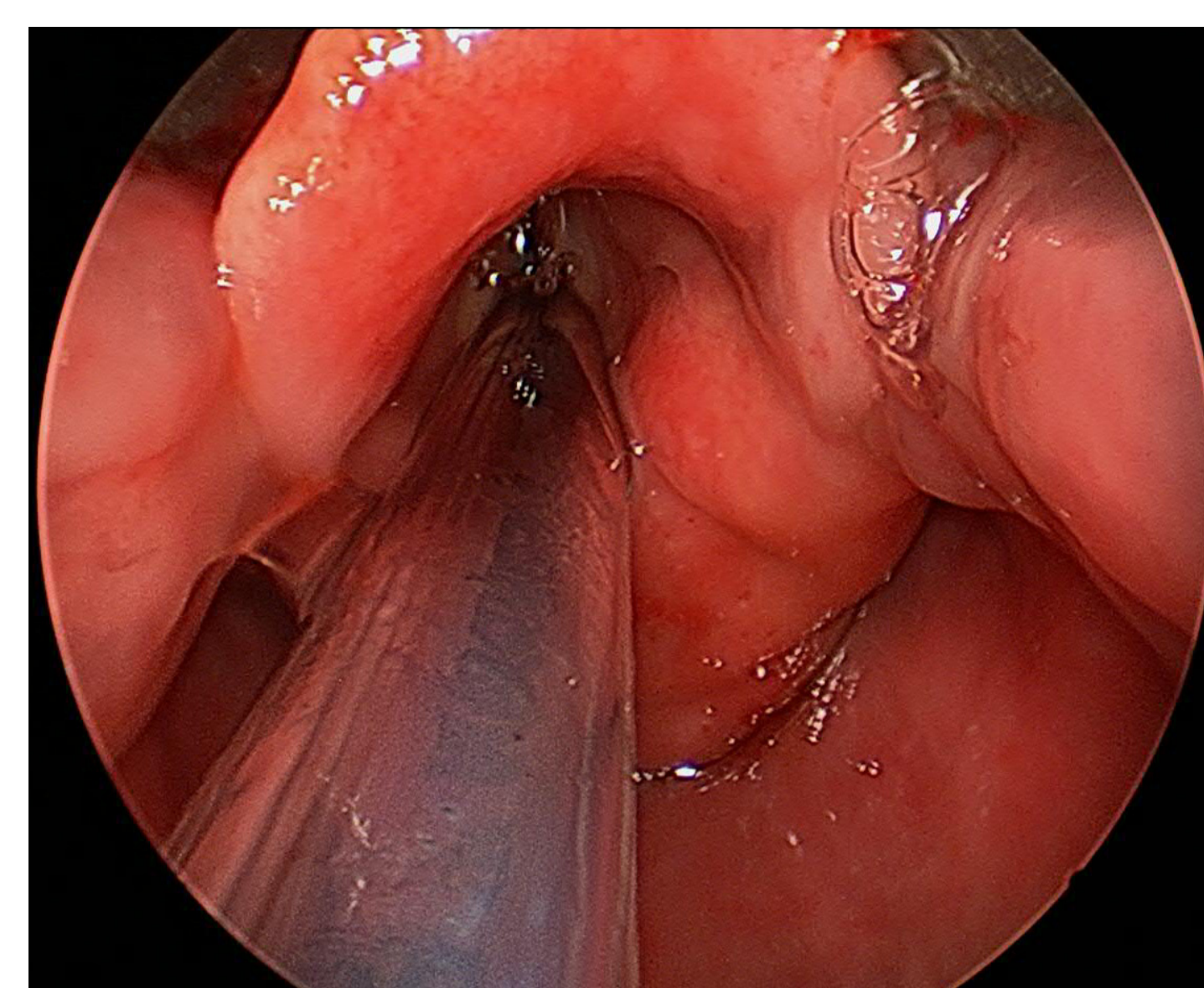


Figure 3. Unilateral right arytenoid erythema and induration.

Figure 4

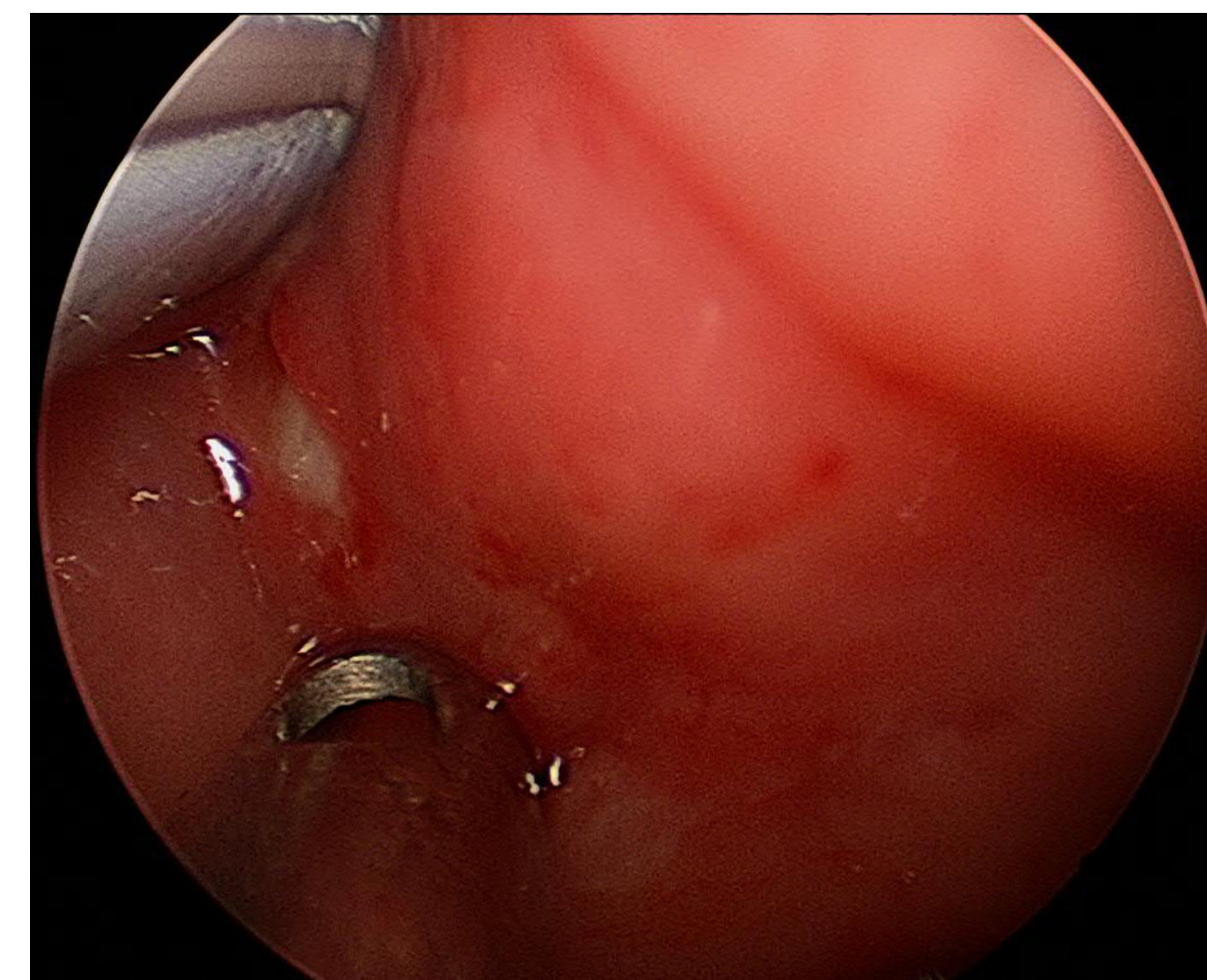


Figure 4. Purulent material present along the medial aspect of the right arytenoid.

Figure 5

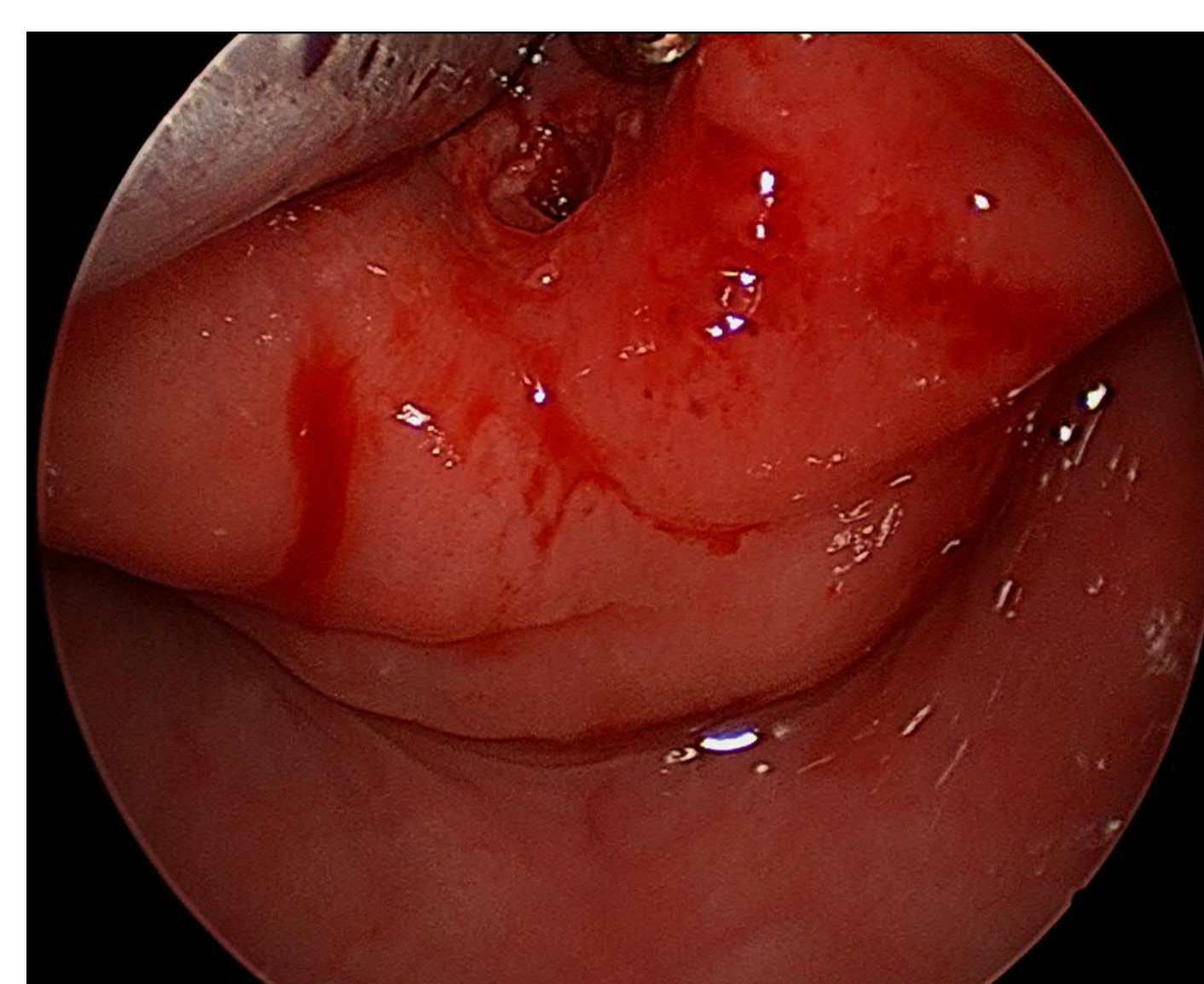


Figure 5. Evacuation of purulent material from the abscess cavity.

Figure 6

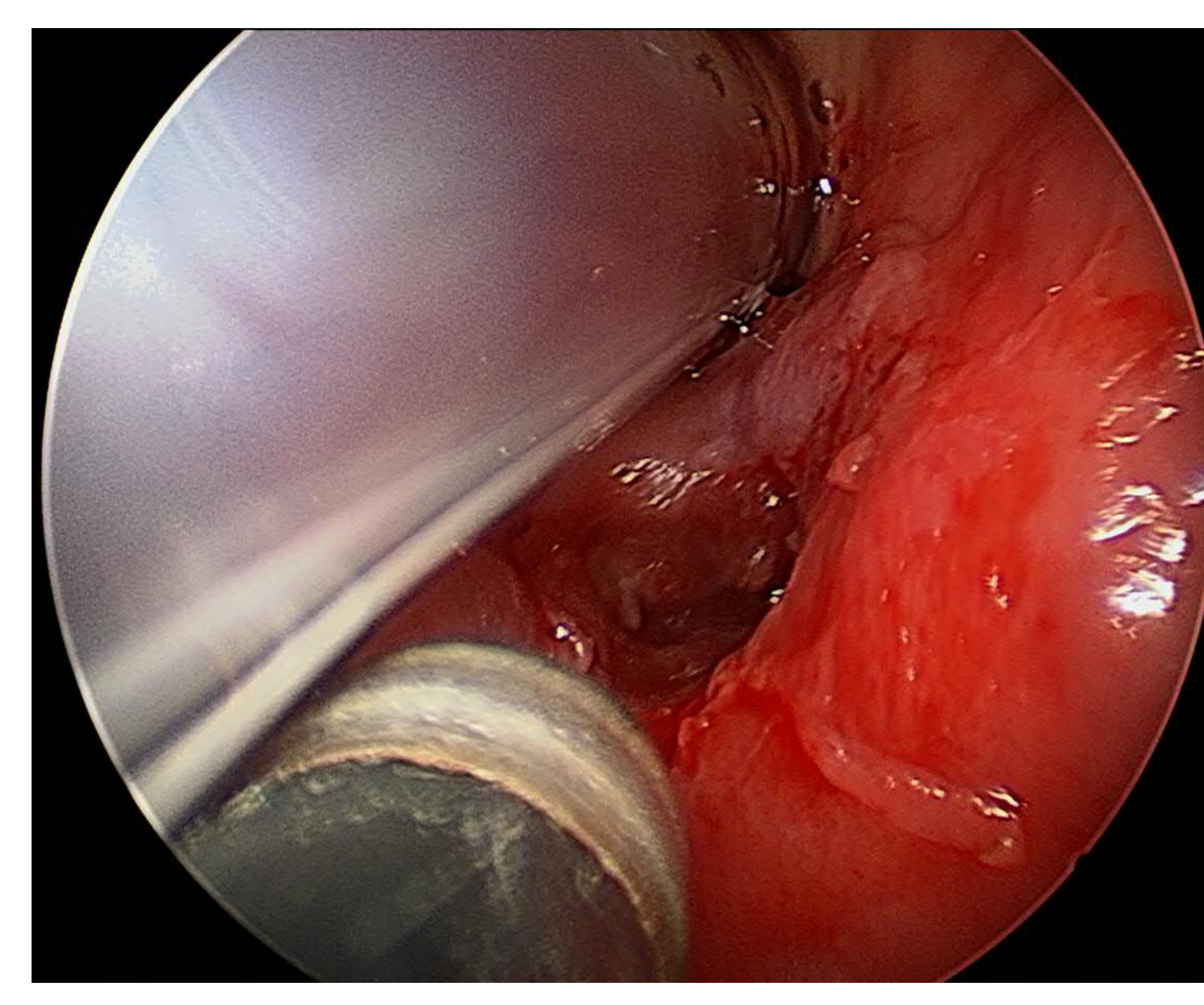


Figure 6. Status-post incision, drainage and irrigation of the arytenoid abscess cavity.

Discussion

Our patient was immunocompromised secondary to poorly controlled type I diabetes and methamphetamine and alcohol abuse. Although there were no obvious inciting factors, such as airway instrumentation or traumatic ingestion, the patient's immunodeficient state likely contributed to the development of the laryngeal abscess. Since 1978, there have been 19 cases of laryngeal abscesses reported in the English literature. Six cases (32%) were associated with recent airway instrumentation or intubation, three (16%) were in the setting of laryngeal malignancy and three (16%) in immunosuppressed patients. Two (10.5%) were the result of laryngopyoceles, two (10.5%) were deemed idiopathic in nature, and one each secondary to extrapulmonary tuberculosis of the cervical lymph nodes (5%), epiglottitis (5%) and relapsing polychondritis (5%) of the laryngeal cartilages.¹⁻¹²

One other case of a laryngeal abscess secondary to community-acquired MRSA has been reported in the literature. This patient was a 17-year-old male found to have an aryepiglottic fold abscess in the setting of acute epiglottitis.⁵ Like many patients who contract community-acquired MRSA, he, and the patient presented in this case, had no recent exposure to the health care system. MRSA infections were once observed exclusively in nosocomial settings; however, this pathogen is now ubiquitous in the community with reports describing its association with between 30 to 37% of community-acquired skin and soft-tissue infections.^{13,14} Furthermore, the pervasiveness of community-acquired MRSA is believed to be responsible for the sharp increase in annual emergency department visits in the United States related to cellulitis and abscesses, which rose from 17.3 to 32.5 per 1,000 individuals from 1997 to 2005.¹⁵ The otolaryngology literature has described a similar increase in MRSA-associated infections. Rhinosinusitis, otitis media, epiglottitis, laryngitis and deep neck space infections have all been reported as a result of MRSA.¹⁶ In a 2012 report by Shah et al., three cases of community-acquired MRSA laryngitis were described in patients without recent exposure to the health care system, and all of whom had type 2 diabetes mellitus.¹⁶ If not appropriately diagnosed, patients with MRSA infections are at risk of failing multiple courses of antibiotic therapy, developing recalcitrant disease or more severe infectious complications, such as abscess formation or septicemia. Shah et al. describe a well-tolerated in-office laryngeal culture technique recommended for persistent laryngeal symptoms suggestive of infectious etiology.¹⁶ In an effort to hasten the diagnosis of laryngitis secondary to MRSA and avoid potential abscess formation, laryngeal culture studies can be considered as a diagnostic modality.

Laryngeal abscesses are rarely encountered in modern practice. This case offers a previously undescribed example of an idiopathic arytenoid abscess in the setting of an increasingly common infection, community-acquired methicillin-resistant *Staphylococcus aureus*. As MRSA-associated infections become more widespread within the community, the potential exists for a rise in the incidence of laryngeal abscesses in the setting of this pathogen.

References

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