Managing Peritonsillar Abscess

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INTRODUCTION

Peritonsillar abscess is defined as a collection of pus between the palatine tonsil capsule and the pharyngeal muscles.[1,2] It most often affects the superior pole of the tonsil and, after that, the middle and inferior poles.[3-5] The condition may be preceded by pharyngitis or tonsillitis, or it may occur without a preceding infection and arise as a result of obstruction of the Weber glands.[4-7] Peritonsillar abscesses are often polymicrobial, including streptococcal species, staphylococcal species, and respiratory anaerobes (eg, *Fusobacterium necrophorum*).[5,7-11] The annual incidence of peritonsillar abscess approximates 30 per 100,000 persons between the ages of 5 to 49 years; however, the incidence is highest in those ages 15 to 19 years, approaching 167 per 100,000.[5,11,12]

If left untreated, patients are at risk of significant morbidity and mortality.[3,13,14] Complications of untreated infection include descending mediastinitis, parapharyngeal and retropharyngeal abscess, necrotizing fasciitis, internal jugular vein suppurative thrombophlebitis, and airway obstruction.[3,5,13,14] If a complication does occur, mortality rates can approach 10%.[13] Therefore, early diagnosis and management are critical to improving patient outcomes. This paper does not intend to be a comprehensive review of all aspects pertaining to a peritonsillar abscess but rather seeks to provide the key tenets of management based on the current literature and years of practice.

ASSESSMENT AND IMAGING

Begin by assessing for severe upper airway obstruction, which may present as a patient who appears anxious, drooling, or tripoding.[5,13] In such cases, emergent measures are necessary for airway protection. Most patients with a peritonsillar abscess will present with a severe, unilateral sore throat that progresses over 3 to 6 days.[3,5,13] Patients can also present with fever, muffled or "hot potato" voice, poor oral intake, pooling of saliva/drooling, and neck pain and/or swelling.[3,5,15-20] Trismus occurs in up to two-thirds of patients due to irritation and reflex spasm of the pterygoid muscles.[1,21] Examination typically reveals asymmetric, indurated peritonsillar swelling, erythema, and deviation of the uvula and tonsil away from the affected side toward the midline (Figure 1).[3,16] Although rare, bilateral peritonsillar abscess can occur and will present without the classic asymmetric findings.[22-25]

Imaging is not necessary for diagnosing peritonsillar abscess when it is clinically apparent; however, it may be used if the diagnosis is unclear to differentiate peritonsillar abscess from other conditions (eg, tonsillitis, retropharyngeal abscess) and to evaluate for complications. If the diagnosis is unclear, we recommend starting with point-of-care ultrasound as the first-line imaging modality. Point-of-care ultrasound can be used to confirm the presence of a peritonsillar abscess, identify the proximity of the carotid artery to the abscess, guide real-time drainage, and confirm abscess resolution.[26-37]

There are two approaches for point-of-care ultrasound: intraoral with an intracavitary transducer (Figure 2) and extraoral using a linear transducer in the transcervical/submandibular location (Figure 3). The sensitivity of the intraoral approach ranges from 90% to 100%, whereas the sensitivity of the transcutaneous approach ranges between 80% to 91%.[26-37] Specificity for both approaches ranges between 79% and 100%.[26-37] When the point-of-care ultrasound is nondiagnostic, or another deep-space infection is suspected, computed tomography (CT) with intravenous (IV) contrast of the neck should be obtained (Figure 4).[26,38] The sensitivity of CT with IV contrast approaches 100%, with a specificity of approximately 75%.[26,28,38] However, CT is associated with increased radiation, longer time to diagnose, and higher cost; therefore, point-of-care ultrasound remains preferable in most instances.

MANAGEMENT

Medical Management

If the patient has trismus, administering a nonsteroidal anti-inflammatory medication (eg, ketorolac) can provide

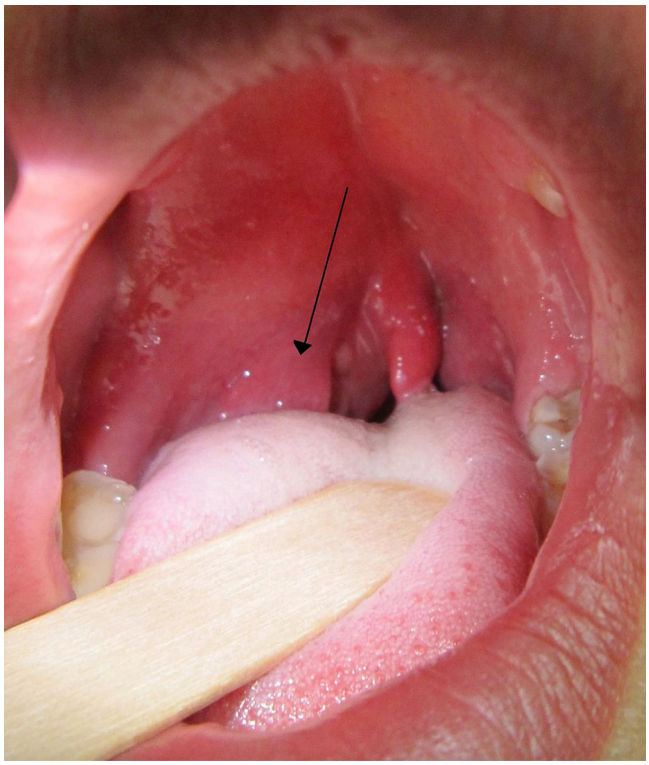

Figure 1. Peritonsillar abscess (black arrow) with uvular deviation. Obtained from https://commons.wikimedia.org/wiki/File:PeritonsilarAbsess.jpg

symptom relief, allowing the clinician to be better able to diagnose and manage the peritonsillar abscess. Once the diagnosis is confirmed either clinically or radiographically, all patients should receive antibiotics (intravenous [IV], intramuscular [IM], or per os [PO]), which typically consists of either clindamycin or a penicillin with a beta-lactamase inhibitor such as amoxicillin/clavulanate or ampicillin/sulbactam. Corticosteroids such as dexamethasone 10 mg IV/IM/PO or methylprednisolone 125 mg IV should also be administered, as they have been shown to reduce pain and shorten recovery times compared with placebo.[39] Figure 5 includes our proposed treatment algorithm.

Although treatment often involves a combination of the above with either aspiration or incision and drainage, a select group of patients may be treated with antibiotics and steroids alone. Three retrospective observational studies compared patients undergoing medical therapy versus surgical drainage (consisting of either aspiration or incision and drainage) and found no significant differences in

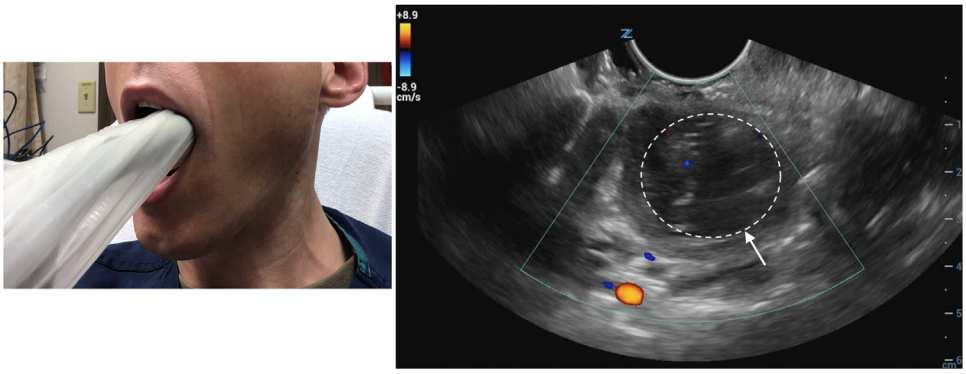

Figure 2. Intraoral ultrasound demonstrating peritonsillar abscess (white-dashed line with white arrow).

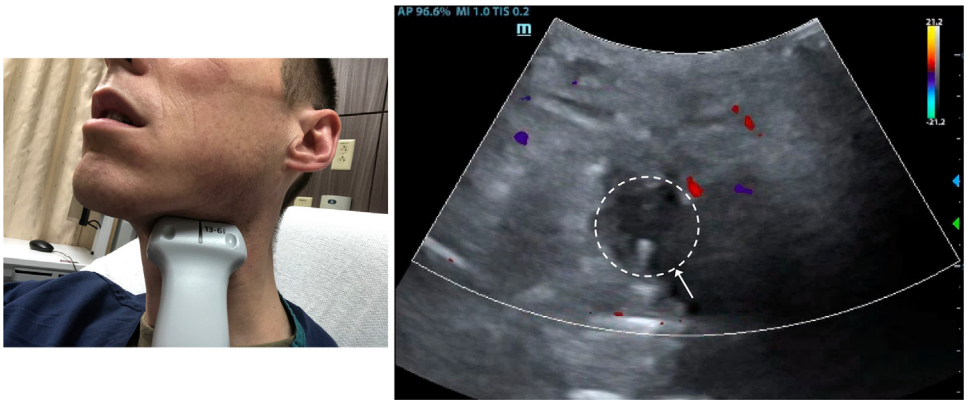

Figure 3. Submandibular ultrasound demonstrating peritonsillar abscess (white-dashed line with white arrow). Point-of-care ultrasound image courtesy of Dr. Stephen Alerhand, MD.

treatment success or complications.[40-42] However, one study reported that patients in the medical therapy group had fewer sore days (4.5 vs 5.7 days), received fewer opioid prescriptions (31 vs 78), and required fewer days off work (3.4 vs 4.9 days).[40] Interestingly, while one retrospective study found that those with a peritonsillar abscess size $\geq$2 cm were more likely to experience treatment failure in the medical therapy group, a separate study found no correlation with peritonsillar abscess size.[41,42] Although data suggest there may be a role for medical management among small abscesses, we recommend engaging in shared decision-making with patients and discussing the risks and benefits of medical management (particularly for larger abscesses).

Figure 4. CT with IV contrast demonstrating peritonsillar abscess (white-dashed line with red arrow).

Needle Aspiration

Begin by positioning the patient upright in the bed or a chair. We recommend handing the patient a suction catheter to help clear their own saliva as needed before and during the procedure. Before performing needle aspiration (or incision and drainage), it is important to ensure adequate anesthesia to the involved area. Begin by spraying the involved area with a topical anesthetic such as benzocaine spray. Only 1 to 2 short sprays are needed, as excessive use may lead to methemoglobinemia (though this risk is very small).[43] If a topical spray is not available, viscous lidocaine could be directly applied using a tongue depressor. After topicalization, injecting 1% lidocaine with epinephrine into the mucosa overlying the involved area may provide additional analgesia. Consider also giving glycopyrrolate to reduce secretions in those with excessive baseline secretions.

Attach an 18-gauge spinal needle to a syringe. The longer spinal needle improves visualization while minimizing the portion of the clinician's hand that must be in the patient's mouth. Trim the plastic needle sheath such that approximately 1 to 1.5 cm of the needle is exposed, serving as a needle guard to protect against accidental injury to the carotid artery. The precise length of the exposed needle can also be estimated based on the intraoral point-of-care ultrasound imaging if this is performed. After trimming the needle guard, place it

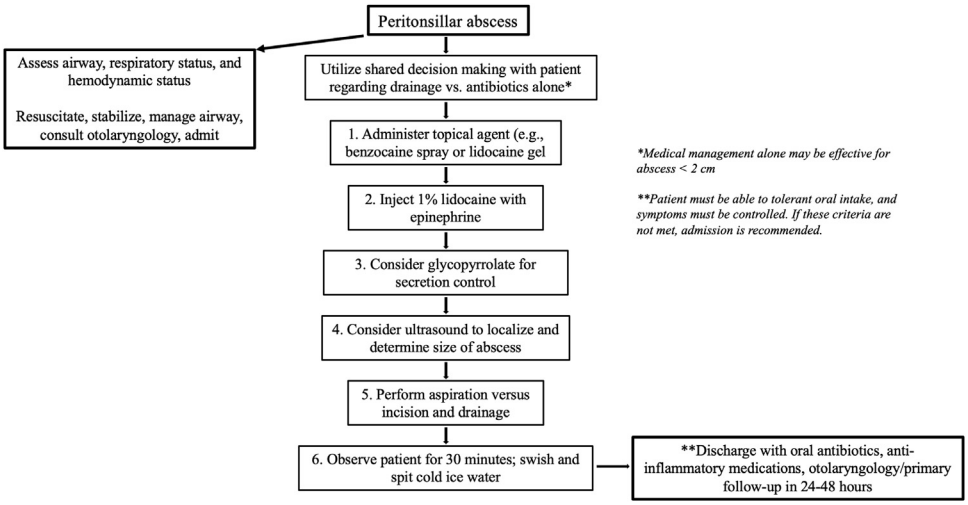

Figure 5. Management of peritonsillar abscess.

backward on the needle so that the sharp, newly cut edge is abutting the syringe, while the softer, factory-created side will be in contact with the patient (Figure 6). Often only a 5 to 10 mL syringe is needed, as a 20-mL syringe is bulkier and requires greater force to overcome the fluid pressure. Several tools can be used to help displace the tongue to visualize the posterior pharynx. Although a tongue depressor may be used, we recommend using either a laryngoscope blade or the lower half of a lighted speculum with the top portion removed (Figures 7 and 8). Consider having the patient hold the laryngoscope blade or speculum to facilitate patient comfort while allowing the clinician to have an extra hand available for the procedure.

Point-of-care ultrasound can assist with aspiration, though the intraoral and submandibular approaches require experience with point-of-care ultrasound and needle-guidance skills. Of note, it may not always be possible to have the endocavitary probe and needle with a syringe in the mouth at the same time. If point-of-care ultrasound guidance is not used, begin by inserting the needle through the area of maximal fluctuance. If this is less clear, an anatomic approach may be used. Most peritonsillar abscesses are located in the superior pole, so we recommend first inserting the needle in this location, followed by the middle and then the inferior pole if unsuccessful (Figure 9). The carotid artery is located posterior and lateral to the peritonsillar abscess, so avoid inserting the needle too far laterally.

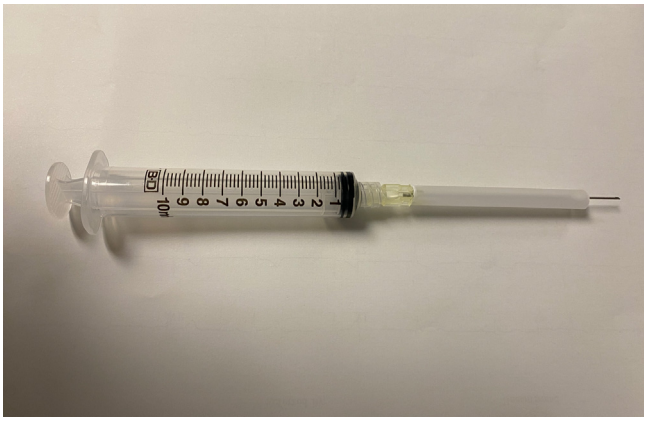

Figure 6. Syringe with a needle guard for peritonsillar abscess drainage.

Incision and Drainage

Limited data comparing aspiration versus incision and drainage suggest that incision and drainage may have a lower risk of recurrence compared with aspiration.[44] Although we typically prefer ultrasound-guided aspiration as our primary technique, incision and drainage may be better suited for large or loculated abscesses. Given the limited data, we recommend clinicians use whichever technique they are more comfortable with. Incision and drainage are similar to those performed for superficial skin and soft tissue abscesses, with a few exceptions.[45] The scalpel should be heavily taped such that only 1 to 1.5 cm of the blade is exposed (Figure 10). After incising the involved area, use a curved Kelly clamp or hemostat to break up loculations. After the loculations have been broken up, have the patient milk the abscess with their own hand as opposed to the clinician performing this. We

Figure 7. Use of videolaryngoscopy (left) and lower half of lighted speculum (right). Used with permission from Dr. Al'ai Alvarez. Available at https://www.aliem.com/tricks-peritonsillar-abscess-drainage-all-steps-variations/

have found this is better tolerated by patients and reduces the risk of triggering the patient's gag reflex or biting the clinician's hand.

DISPOSITION AND AFTERCARE

Following successful drainage and symptomatic improvement, observe the patient for at least 30 minutes. During this time, have the patient swish and spit ice water. This can reduce pain, bleeding, and swelling, as well as enhance continued drainage. If the patient is able to tolerate oral intake and their symptoms (eg, pain, bleeding) are controlled, the patient can be discharged with primary care or otolaryngology follow-up within 24 to 48 hours.[3] An antibiotic course including amoxicillin/clavulanic acid or clindamycin for 14 days is recommended.[6,10,46] After discharge, patients should use anti-inflammatory medications such as ibuprofen, a soft diet, hydrate, and rinse and spit several times daily. The patient should return to the emergency department for fever, neck stiffness, bleeding, an enlarging neck mass, worsening throat or neck pain, or worsening trismus.[3,5,13]

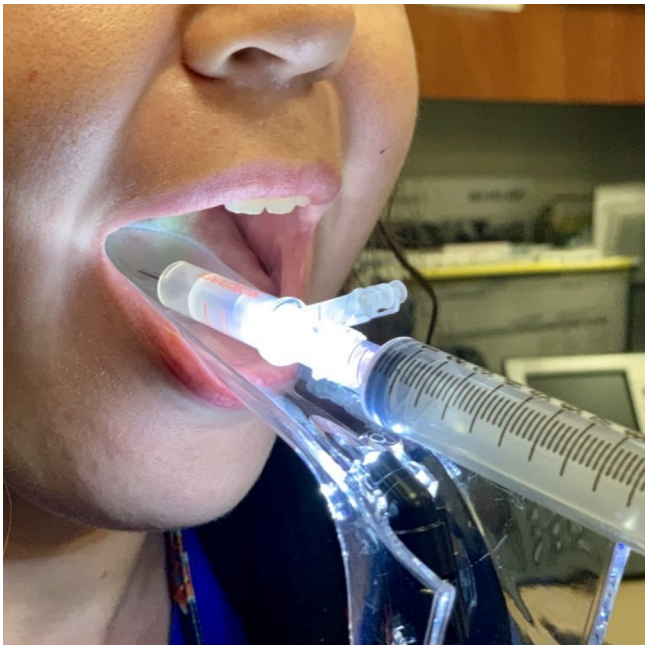

Figure 8. Intraoral approach using the lower half of a lighted speculum with syringe. Used with permission from Dr. Al'ai Alvarez. Available at https://www.aliem.com/tricks-peritonsillar-abscess-drainage-all-steps-variations/

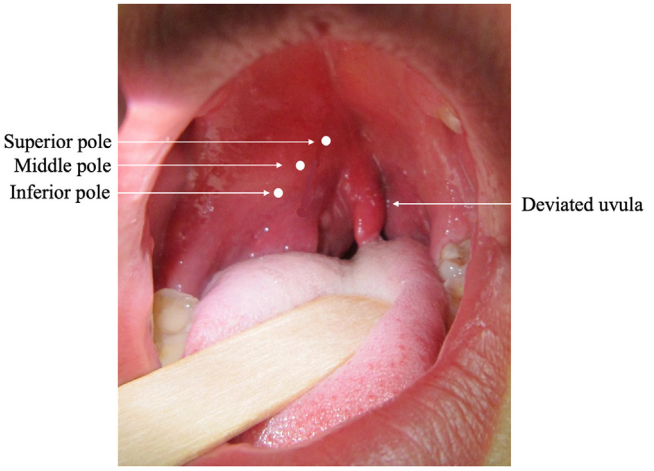

Figure 9. Superior, middle, and inferior poles for peritonsillar abscess drainage.

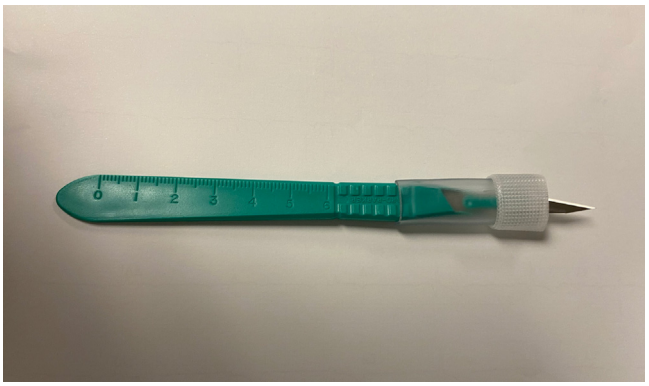

Figure 10. Scalpel with guard for peritonsillar abscess drainage.

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IMAGES IN EMERGENCY MEDICINE

(continued from p. 83)

DIAGNOSIS:

Aortic dissection. The transesophageal echocardiographic scan revealed a Type A dissection from the ascending aorta into the descending aorta. After discussing the case with cardiac surgeons, resuscitation was terminated, and the patient passed away with the patient's wife at bedside.

Aortic dissection has been reported as the cause of 12% to 22% of cardiac arrests.[1,2] In general, aortic dissection carries a high mortality of up to 50%[3] and when identified during cardiac arrest carries an abysmal prognosis.[1] The principal causes of death from aortic dissections include cardiac tamponade, myocardial infarction, or rupture of the aorta.

This case reports the value of resuscitative transesophageal echocardiography, which can identify reversible causes of cardiac arrest (tamponade, pulmonary embolism,[4] and dissection), help evaluate the quality and location of chest compressions, and monitor for pseudo–pulseless electrical activity and occult ventricular fibrillation.[5]

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