

Peritonsillar Abscess: An Update on Diagnosis and Medical-Surgical Management. A Review of the Literature and Case Report

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Abstract

Introduction: Peritonsillar abscess is an acute pharyngeal infection located between the tonsillar capsule and the aponeurosis of the superior constrictor muscle of the pharynx, being an important cause of consultation in emergency services. Its management includes antibiotic treatments and/or emptying of the abscess.

Objective: To describe the diagnosis and medical-surgical management of a 47-year-old male patient with peritonsillar abscess; Regarding the case, a review of the updated literature on the topic was carried out.

Method: Presentation of the case report: 47-year-old male patient, who attended the Libertador Bernardo O'Higgins Regional Hospital due to increased tonsillar volume. Sudden onset. Clinically, guttural voice, odynophagia, dysphagia, trismus and intermittent fever were notable.

Discussion: After the clinical, imaging and laboratory study, a diagnosis of peritonsillar abscess was reached, which underwent medical-surgical management, presenting satisfactory evolution of this case, a review of the literature was carried out in the last 10 years in Spanish. English in the search engines PubMed and Science Direct.

Conclusions: Surgical management of peritonsillar abscess continues to be the treatment of choice; however, based on the review of the literature that was carried out, medical management can also be chosen in some cases.

Keywords: Medical therapy; Peritonsillar abscess; Success; Failure; Complication; Surgical treatment

Introduction

Infections of the oral cavity and neck are common in emergency departments.

Peritonsillar abscess (PAA) is the most common deep neck infection in young adults and children. Although it usually appears in all age groups, it is more prevalent in patients between 20 and 40 years old.¹

APA is defined as an accumulation of pus between the capsule of the palatine tonsil and the pharyngeal muscles²; the classic symptoms of patients affected with an APA are sore throat, fever, dysphagia, odynophagia, weakness, trismus and changes in the voice.¹

A clinical history and a thorough physical examination can lead to the diagnosis; however, soft tissue ultrasound and computed axial tomography (CAT)³ can confirm the diagnosis of APA and at the same time determine the extent and severity of the abscess.

Treatment consists of surgical drainage and antimicrobial therapy. There are three accepted methods of drainage: needle aspiration, incision, and acute tonsillectomy. All three methods carry advantages and limitations.

This type of abscess consists of polymicrobial colonies, but the bacteria *Fusobacterium necrophorum* and *Streptococcus pyogenes* are the most common causative organisms, but the etiology remains uncertain.⁴

Reflecting the unclarified bacterial etiology, the antibiotic therapy used varies empirically depending on the healthcare center and various antimicrobial therapy schemes have been reported in recent literature.⁵

Method

A review of the literature was carried out with the purpose of a case presented in the emergency unit of the Libertador Bernardo O'Higgins Regional Hospital, Chile. The PUBMED and Science Direct databases have been used in the last 10 years. The key words "Peritonsillar abscess", "Management", "Treatment" was used.

Filters were initially used to review meta-analyses, case reports, systematic reviews and other review studies, in English.

The articles were subjected to analysis by the authors and the coincidence with the search intention was evaluated. So, the scientific articles were analyzed and 21 scientific articles were used for this work.

A manual extraction of indexed articles that responded to the keyword search was carried out. The objective of the present work is to describe the medical-surgical management of patients with peritonsillar abscess.

Case Report

A 47-year-old male patient was admitted to the emergency unit of the Libertador Bernardo O'Higgins Regional Hospital due to pain and a sudden increase in volume 3 days ago in the left tonsillar region; During the interrogation, which highlighted the presence of an elongated voice, the patient referred to painful ulcer-type lesions, asthenia and adynamia the day before the increase in volume, which was subsequently accompanied by odynophagia, dysphagia, trismus and intermittent fever.

It does not report underlying systemic pathologies, drug use, allergies or surgical interventions. Within his otorhinological history, he did not mention previous episodes of tonsillitis.

At the time of admission to the emergency room, the patient was hemodynamically stable, normotensive, normocardial, eupneic, 95% ambient oxygen saturation, afebrile, score on the Glasgow Coma Scale 15. On physical examination, he presented a painful left submandibular lymph node. on palpation and displaceable, symmetrical and mobile neck, altered mandibular dynamics highlighting trismus with mouth opening of 20mm. The oral examination revealed bulging of the anterior pillar of the left tonsil which projected to the soft palate, hypertrophy of the left tonsil and displacement of the uvula to the right.

In the emergency room, blood tests were requested, highlighting a leukocyte count of 13.4 which gave the image suggestive of a peritonsillar abscess.

After clinical evaluation, imaging and blood tests, the diagnosis of left peritonsillar abscess was reached.

The treatment plan consisted of medical-surgical management, where sodium Penicillin, Metronidazole, Betamethasone and intravenous Metamizole were indicated in conjunction with surgical emptying of the abscess. After the above, an outpatient follow-up was carried out by the otorhinology specialty, resulting in a favorable evolution. Figure 1.

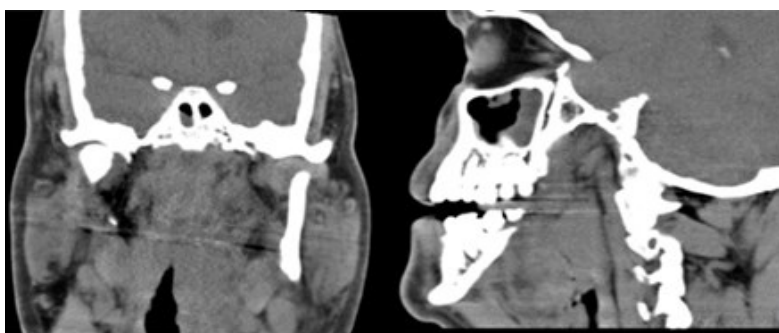


Figure 1. Computed Tomography with contrast: coronal and sagittal cut.

Epidemiology

APA represents the most common infection of the deep space of the neck, with a reported global incidence rate ranging between 10 – 37% per 100,000 people.⁶

The annual incidence is 30 cases per 100,000 people in the United States.⁷

The incidence in tropical areas is unknown but may be higher than in the region with lower temperatures due to the high rate of endemic infections in the region. In Europe, the estimated average annual incidence was 41 cases per 100,000 inhabitants.³

In Chile, there is little literature regarding the epidemiology of APA, the most updated being in 2019, which consisted of the report for the years 2013-2016 from a Public Hospital, where a total of 122 cases of APA were reported.⁸

Microbiology

APAs are generally polymicrobial and include streptococcal species, staphylococcal species, and respiratory anaerobes (e.g., *Fusobacterium necrophorum*).²

Cultures of aspirated pus typically produce polymicrobial growth of Gram-positive and Gram-negative bacteria, including aerobes (e.g., *Streptococcus pyogenes*) and anaerobes (e.g., *Fusobacterium* spp.).⁹

A polymicrobial mixture of aerobes and anaerobes is commonly recovered from pus aspirates, but there is only substantial evidence suggesting the pathogenic importance of group A streptococci and *F. necrophorum*.⁵ This is consistent with Kodya et al. Where 90% of the cultures produce anaerobic bacteria and between 25% and 40% of the samples will produce group A beta-hemolytic streptococci.³

Clinical Presentation

The clinical history usually presents in patients with symptoms of three to six days of progressive sore throat, odynophagia, ipsilateral ear pain, general malaise. Oropharyngeal examination typically reveals tonsillar exudates and indurated and asymmetrical peritonsillar inflammation with deviation of the tonsil. and the uvula towards the midline.¹⁰

Marked, painful cervical lymphadenitis may be palpable on the affected side. Inspection of the oropharynx reveals tense swelling and erythema of the anterior tonsillar pillar and soft palate overlying the infected tonsil.⁷

On physical examination, unlike unilateral presentation, when the presentation is bilateral, asymmetry may not be present when examining the throat.¹¹

Patients may also present with fever, dull or “hot potato” voice, poor oral intake, and accumulation of saliva /drooling and neck pain and/or swelling.²

Risk factors

Multiple predisposing factors have been reported, including Weber gland blockage, smoking, periodontal disease, patients with immunosuppression and previous use of antibiotics.¹ Which may contribute to both the incidence and progression of the infection.⁴

At the same time, more premature age, underlying chronic diseases and the location of the retropharyngeal space are considered risk factors for the development of complications of peritonsillar abscess.¹³

Diagnosis

The diagnosis is mainly clinical. Imaging is not necessary to diagnose APA when it is clinically evident; however, it can be used if the diagnosis is unclear to differentiate APA from other conditions (eg, tonsillitis, retropharyngeal abscess) and to evaluate complications.² Some authors add other types of differential diagnosis to consider, including peritonsillar cellulitis, retropharyngeal abscess, retromolar abscess, infectious mononucleosis, epiglottitis, especially in the pediatric population, and neoplasms such as lymphoma or carcinoma.⁷ It is important to highlight the presence of an elongated or guttural voice in patients with APA.

The clinical diagnosis of deep neck abscesses, especially APA, without complementary images can be difficult, since both peritonsillar abscess and cellulitis share many findings from the physical examination and clinical history. Both can cause significant odynophagia, dull voice, fever, and lockjaw. Given the difficulty that this differentiation can cause, it is recommended to request complementary images, the Gold standard being computed axial tomography due to its high sensitivity.

If the diagnosis is not clear, it is recommended to start with ultrasound of the soft tissues of the neck in the complementary first-line imaging area. Point-of-care ultrasound can be used to confirm the presence of an APA, identify the proximity of the carotid artery to the abscess, guide drainage in real time, and confirm resolution of the abscess.²

Contrast-enhanced computed axial tomography (CT) of the neck continues to be a useful tool when APA is suspected, given its 100% sensitivity.⁴

If a CT scan cannot be performed, it is recommended to begin with ultrasound of the soft tissues of the neck in the complementary first-line imaging area, which allows confirming the presence of an APA, identifying the proximity of the carotid artery to the abscess., guide drainage in real time and confirm resolution of the abscess.²

Management

Inadequate treatment of this pathology can cause very severe, even life-threatening complications, such as compromised airways, aspiration of infectious material or other deeper spaces or vasculature deep in the neck.

Constant hydration and pain management is essential in the management of APA.

If the patient has lockjaw, the administration of a non-steroidal anti-inflammatory drug can provide pain relief symptoms.² Once the diagnosis is confirmed clinically, the use of complementary images is necessary to determine the extent and location of the abscess, in In this case, the CT scan with contrast remains the Gold standard.

The main treatment is surgical accompanied by antibiotic therapy as a complement to drainage, but there is a wide variation in treatment strategies.

Surgical therapy has long been considered the gold standard of treatment and includes two main approaches: needle aspiration and incision and drainage. Both techniques are extremely effective with success rates greater than 90%.¹⁴

Complications

Complications of an untreated infection, especially in an anatomical region such as the neck, can be fatal. Complications include descending mediastinitis, parapharyngeal and retropharyngeal abscess, necrotizing fasciitis, suppurative thrombophlebitis of the internal jugular vein, and airway obstruction.²

Other authors such as Kodya et al 2014 report complications such as venous thrombosis, phlebitis, bacteremia and endocarditis.³

Ehlers Klug et al. reports that complications of APA are rare, but may include parapharyngeal abscess, upper airway obstruction, Lemierre syndrome, necrotizing fasciitis, mediastinitis, internal carotid artery erosion, brain abscess, and streptococcal toxic shock syndrome.⁵⁻¹⁰

Surgical treatment

Some authors recommend that with adequate drainage of the abscess it should not require antimicrobial therapy for resolution. However, the frequent finding of group A streptococci in aspirates supports the use of penicillin to prevent the possibility of streptococcal complications.¹²

In the clinical context, surgical treatment may offer immediate relief for abscesses larger than 2 cm, as in this case medical treatment may take much longer to be successful.

All studies recommend the use of needle aspiration or incision and drainage as a source control measure, in addition to the appropriate administration of antibiotics.⁹

There is no clarity on the surgical treatment of choice for this type of abscess, recently Menegas et al. found low-quality evidence suggesting that incision plus drainage is associated with a lower risk of recurrence compared with needle aspiration.¹⁵

Most authors recommend immediate drainage, either in the emergency department or in the hospital setting, if the patient can tolerate a procedure without general anesthesia or sedation. If the patient cannot tolerate the procedure without sedation and/or general anesthesia, then a 48-hour antibiotic trial is preferred.¹⁶

Systematic review of the Cochrane collaboration by Chang et al. evaluated needle aspiration versus incision and drainage of the abscess.¹⁷ The authors concluded that, despite biases within the studies reviewed, there appeared to be very low-level evidence pointing to lower recurrence rates with incision and drainage, and less pain associated with needle aspiration.⁶

Given the anaerobic composition of the organisms found in APA, and the high susceptibility of anaerobic bacteria to oxygen, some have theorized that incision and drainage treatment allows the introduction of oxygen into the peritonsillar space that may have an effect antibacterial.⁶

Pharmacological treatment

Due to the polymicrobial etiology of APA, the literature is unclear regarding the choice of antibiotics for treatment.

Several studies report that APA have been penicillin-resistant infections with rates as high as 58% and broad-spectrum antibiotic therapy has demonstrated superiority over single-agent protocols. For these reasons, the use of more than one antibiotic is recommended, such as ceftriaxone plus clindamycin.¹⁸

Pulia et al. concluded that no statistically significant difference in treatment failure was detected between abscesses treated with or without antibiotics after surgical drainage in the emergency department.¹⁹

Regarding analgesic and anti-inflammatory management, authors such as Zebolsky et al recommend the use of corticosteroids with a dose of 60 mg of prednisone for 5 days, followed by a gradual reduction of 10 mg every 3 days. In the authors' experience, corticosteroids tend to produce relief of symptoms, similar to that experienced with surgical drainage, and help avoid treatment failure.¹⁴

In randomized clinical trials, dexamethasone has been shown to significantly reduce pain and improve trismus, dysphagia, body temperature, and hospitalization hours.¹⁸ This is consistent with Koçak et al. which indicates that treatment with corticosteroids after the drainage procedure in patients with APA improves the intensity of pain and lockjaw, thereby reducing the time until oral intake and the duration of hospitalization.¹

Conclusion

As peritonsillar abscess is a pathology with possible fatal complications, adequate, safe and effective treatment is essential, with abscess emptying plus antibiotic management being the treatment of choice.

Conflict of Interest

The authors declare no conflict of interest.

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