



(CASE REPORT)



Diagnosis and management of peritonsillar abscess

I Dewa Gede Arta Eka Putra *, Putu Dian Ariyanti Putri, Ketut Tadeus Max Nurcahya Pinatih and Komang Soniananda Pradnyana Putri

Department of Otorhinolaryngology – Head and Neck Surgery, Faculty of Medicine, Udayana University/ Prof. Dr. I.G.N.G. Ngoerah General Hospital, Bali, Indonesia.

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Abstract

Background: Peritonsillar abscess is the most prominent outcome of acute tonsillitis, affecting adults aged 15 to 35 years. This acute infection causes pus to build up in the peritonsillar tissue, which is typically caused by recurrent infections or untreated tonsillar cellulitis, particularly around the tonsil's upper pole. The primary clinical signs include discomfort in the throat, fever, trouble swallowing, and unilateral tonsillar enlargement, which may be accompanied with trismus. Prompt care through early identification and treatment with incision, drainage, and antibiotics is critical to avoiding significant complications such as infection spread to surrounding tissues and breathing blockage.

Objective: To provide an overview of a peritonsillar abscess in an adult patient, and also address the diagnosis, treatment, and outcome of the incision and drainage therapy.

Case Report: A 28-year-old male came with a persistent painful throat for one week that had deteriorated during the previous three days, along with a high fever, inability to swallow solid food, difficulty opening his lips, and a muffled voice (hot potato voice). The examination revealed edema in the left peritonsillar region, with the uvula displaced to the right, as well as bilateral tonsillar hypertrophy. Laboratory tests revealed leukocytosis, but a chest X-ray revealed no abnormalities. The patient had an abscess incision and drainage surgery, and pus samples were collected for culture and sensitivity testing. Intravenous antibiotics and supportive care were given, followed by a scheduled tonsillectomy. The patient's symptoms improved following the surgery, and he felt better throughout the follow-up visit.

Clinical question: What is the diagnosis enforcement and management of a patient with peritonsillar abscess?

Methods: Evidence-based literature study of diagnosis enforcement and management of a patient with peritonsillar abscess.

Result: In the last 10 years, five key studies provided insights into diagnosing and managing peritonsillar abscess. Diagnosis relies on clinical signs, physical exam, and procedures like needle aspiration or imaging (ultrasound and CT). Ultrasound enhances diagnostic safety and guides treatment, while CT is useful in complex cases but may delay care. Broad-spectrum antibiotics targeting group A streptococcus and anaerobes are essential, with macrolides avoided due to resistance.

Conclusion: A 28-year-old adult was diagnosed with a left peritonsillar abscess, presenting with uvular deviation, enlarged tonsils (T2/T4), and left-sided peritonsillar fluctuation and edema. Aspiration yielded pus and blood, followed by successful incision and drainage. The patient recovered well with antibiotics and routine drainage and is scheduled for a tonsillectomy.

* Corresponding author: I Dewa Gede Arta Eka Putra.

Keywords: Peritonsillar Abscess; Abscess Drainage; Acute Tonsillitis; Tonsillectomy

1. Introduction

Peritonsillar abscess, also referred to as Quinsy, is one of the most common deep neck abscesses reported. It is an acute illness in which pus accumulates in the loose connective tissue between the pharyngeal constrictor muscles and the tonsil within the tonsillar fossa.¹ This infection enters the tonsillar capsule and usually starts at the higher pole. Peritonsillar abscess is a throat infection that most commonly occurs as a result of acute tonsillitis.²

Peritonsillar abscess is a common head and neck illness that often affects adults. The abscess begins as a superficial infection and progresses to tonsillar cellulitis. Peritonsillar abscess complications include infection spreading to the parapharyngeal area, mediastinitis, dehydration, pneumonia, and cerebral infections include cavernous sinus thrombosis, meningitis, brain abscess, and airway obstruction.²

Peritonsillar abscess most commonly affects people aged 15 to 35. In the United States, there are around 30 instances of peritonsillar abscess per 100,000 people each year, accounting for roughly 45,000 new cases.³ However, there is no exact figure for the number of peritonsillar abscess cases in Indonesia.

The clinical symptoms include a sore throat, localized discomfort, high temperature, weakness, and nausea. Additional signs include poor breath, vomiting, referred ear discomfort or otalgia, and sometimes trismus.^{4,5} The beginning of symptoms usually begins 3 to 5 days before the examination and diagnosis. Patients may have trouble speaking, and their voice may sound nasal or muffled, known as "hot potato's voice," as they try to relieve pain by opening their mouth.⁵

Needle aspiration of the most fluctuating area or puncture is a straightforward and quick way to obtain an accurate diagnosis and manage a peritonsillar abscess. This case report presents a peritonsillar abscess in an adult male patient.

2. Case report

A patient with the initials AP, male, 28 years old, of Balinese ethnicity, presented to the Emergency Department of Prof. I.G.N.G Ngoerah Central General Hospital on November 26, 2022, with complaints of sore throat for the past week, worsening over the last 3 days, accompanied by difficulty swallowing solid food, difficulty opening his mouth, and a muffled voice. There was a history of recurrent cough and sore throat for approximately the past year. The patient had been self-medicating with over-the-counter drugs to relieve his symptoms.

On physical examination, the general condition was good, consciousness was *compos mentis*, pulse rate 88 beats/min, respiratory rate 20 breaths/min, and axillary temperature was 36.8°C. Otoscopic and nasal examinations were within normal limits. Throat examination showed Tonsil T2/T4 with hyperemia, widened crypts on both sides, no detritus, uvula deviated to the right, edema and fluctuation present in the left peritonsillar region. Needle aspiration was performed, yielding pus and blood.



Figure 1 Patient AP, male, 28 years old

Complete blood tests and a chest X-ray were conducted. Laboratory findings; WBC $24.07 \times 10^3/\mu\text{L}$, hemoglobin 14.1 g/dL, platelets $499 \times 10^3/\mu\text{L}$, PT 15.9 seconds, APTT 28.2 seconds. The chest X-ray revealed no abnormalities in the heart or lungs. The patient was scheduled for incision and drainage in the operating room while under general anesthesia.

The treatment was carried out on October 27, 2022, under general anesthesia. A No. 11 scalpel was used to create an incision and drainage in the left peritonsillar region, which was the most variable area. The incision was deepened with a clamp, and the pus was extracted promptly with a suction apparatus. The microbiology laboratory received a wound base swab for culture and sensitivity testing. Approximately 25 cc of pus was discovered in the peritonsillar region. The patient's history and physical examination confirmed a left peritonsillar abscess.

The patient was admitted in Trendelenburg position and given intravenous fluids (normal saline, 20 drops/min), in addition to the following intravenous medications: Ceftriaxone 1g every 12 hours, Metronidazole 500 mg every 8 hours, Ketorolac 30 mg every 8 hours, Methylprednisolone 62.5 mg every 12 hours, and an antiseptic gargle every 8 hours. While waiting for the microbiological results, physicians performed dilatation and drainage daily.

On October 28, 2022, the discomfort in the throat persisted. Dilatation and drainage were repeated, and only a small amount of pus and blood had been aspirated. Trendelenburg position and intravenous treatment were continued.



Figure 2 Left peritonsillar abscess post-incision and drainage (October 28, 2022)

On October 29, 2022, the throat discomfort was no longer present. Dilatation and drainage were repeated; there was little pus and no blood. Trendelenburg's status is retained. Ketorolac was withdrawn and replaced with 500 mg of paracetamol taken orally every 8 hours. A wound swab revealed Gram-negative bacilli, while a pus smear indicated both Gram-negative bacilli and Gram-positive cocci. However, no specific pathogenic bacterial growth was detected during culture and sensitivity tests. IV treatment was continued.

On October 30, 2022, the patient stopped complaining of a sore throat. Dilatation and drainage revealed no pus or blood. The patient was discharged and booked for a follow-up appointment at the ENT outpatient clinic on November 2, 2022. The discharge prescriptions were Levofloxacin 500 mg orally every 24 hours, Paracetamol 500 mg orally every 8 hours, and Methylprednisolone 16 mg orally every 12 hours.



Figure 3 Left peritonsillar abscess post-incision and drainage (October 30, 2022)

On November 2, 2022, the patient returned to the ENT clinic with no problems. Medication was continued, and methylprednisolone was reduced to 4 mg every 8 hours orally. The patient was set to have a tonsillectomy. What is the diagnosis enforcement and management of a patient with peritonsillar abscess?

2.1. Clinical question

What is the diagnosis enforcement and management of a patient with peritonsillar abscess?

3. Review method

A literature search was carried out using the keywords "Peritonsillar Abscess" OR "Quinsy" AND "Diagnosis" AND "Management" through 3 search engines, namely PubMed (105 articles), Sciencedirect (801 articles) and Cochrane (1 article). The selection of literature was based on inclusion criteria;

- Studies or articles discussing peritonsillar abscess (Quinsy) in humans.
- Literature discussing the diagnosis, management, and management of peritonsillar abscess, including antibiotic therapy, incision and drainage, and tonsillectomy.
- Articles discussing the microbiology of peritonsillar abscess and bacterial culture results.
- Studies with designs in the form of case reports, observational studies, literature reviews, clinical guidelines, or clinical trials related to peritonsillar abscess.
- Literature available in Indonesian or English.
- Publications within a relevant time frame to ensure up-to-date information (eg the last 10-15 years).

The exclusion criteria were not appropriate to the design of this study consist of;

- Studies that do not focus on peritonsillar abscess (e.g. other neck abscesses, non-abscess tonsil infections).
- Articles that only discuss peritonsillar abscess in animal or non-human populations.
- Literature that is only in abstract form without accessible full text.
- Articles in languages other than Indonesian or English if no translation is available.

A critical review was conducted on 907 pieces of literature before establishing inclusion and exclusion criteria.

4. Result

We found 5 articles that met the literature searching criteria in the last 10 years by providing comprehensive data to understand the diagnosis and management of peritonsillar abscess. Study by Galioto (2017) states that the diagnosis enforcement of peritonsillar abscess consist of clinical presentation, physical examinations, and supporting examinations. Patients with peritonsillar abscess typically present with fever, a severe sore throat that is worse on one side, difficulty swallowing (dysphagia), muffled "hot potato" voice, drooling, and difficulty opening the mouth due to

muscle spasm (trismus). On physical examination, there is usually swelling and erythema of the soft palate with deviation of the uvula away from the affected side. The tonsil on the affected side may be enlarged. Cervical lymphadenitis and foul-smelling breath may also be noted. The supporting examinations consist of needle aspiration, incision and drainage, and imaging. Needle Aspiration can confirm the diagnosis by obtaining pus from the abscess site. It also serves as initial treatment by draining the abscess. Incision and drainage is another common method, often used when needle aspiration is unsuccessful or if the abscess is large or complicated. It involves making an incision to drain the abscess and typically requires more resource support and expertise. When the diagnosis is uncertain, imaging such as ultrasonography (USG) and computed tomography (CT) may be used to visualize the abscess and its extent. A study by Carratola et al., (2019) suggests that CT scans may be used more often in complex cases, which might partly explain the delays and higher rates of surgical intervention observed. However, the delays caused by waiting for CT imaging can potentially postpone necessary treatment. Thus, while CT scans have diagnostic and treatment benefits, there is a trade-off with increased time to intervention and associated costs and radiation exposure. A study by Serrano et al., (2024) states that the use of contrast-enhanced CT scans was crucial in the detection of bilateral abscesses, as they showed 100% sensitivity and 75% specificity. Ultrasound enabled precise identification of the abscess and safely guided needle aspiration, helping to avoid injury to vital structures such as the carotid artery. Floyd et al., 2024 states that ultrasound detected post-aspiration bleeding in the form of a hematoma and allowed for continuous monitoring to ensure its stability. This case underscores the practical value of point-of-care ultrasound (POCUS) in both diagnosing and managing complications of peritonsillar abscess treatment. It highlights how ultrasound enhances diagnostic accuracy, improves procedural safety, and facilitates early detection of complications, making it an essential skill in emergency medicine. Galisto (2017) states that due to its polymicrobial nature, antibiotic treatment for peritonsillar abscess should target oral anaerobes and group A streptococcus. The growing penicillin resistance of non-streptococcal infections has led to the preference for broad-spectrum antibiotics. Ampicillin/sulbactam, Penicillin G and metronidazole, or a third-generation cephalosporin and metronidazole are examples of common regimens. Generally speaking, macrolides should be avoided since *Fusobacterium* species, which are frequently implicated in these infections, show resistance to them. Esposito et al. (2022) states that broad-spectrum intravenous antibiotics are essential in treating peritonsillar abscesses, targeting common pathogens such as *Staphylococcus* and *Streptococcus* species, and are necessary regardless of surgical intervention. Initial empirical therapy should cover both aerobic and anaerobic bacteria, with commonly used regimens including beta-lactam/beta-lactamase inhibitors like amoxicillin-clavulanate. Clindamycin is a suitable alternative, particularly for patients allergic to penicillin, due to its strong anaerobic coverage. With the rising incidence of methicillin-resistant *Staphylococcus aureus* (MRSA), antibiotic selection may also depend on local resistance patterns and the severity or persistence of the infection. In hospitalized children, intravenous antibiotics are usually continued for several days and followed by an oral course once clinical improvement is observed. Whenever possible, pus samples from needle aspiration or surgery should be cultured to guide targeted antibiotic therapy.

5. Discussion

Adults aged 20 to 40 are frequently impacted by peritonsillar abscesses. In one instance, a 28-year-old male patient experienced it. An abscess of Weber's glands, which are situated at the top pole of the tonsil, or a localized collection of pus in the peritonsillar tissue are the two most common causes of peritonsillar abscesses.⁶ This is consistent with the patient's history of recurrent sore throat complaints for almost a year, and tonsillar hypertrophy (T2/T4) was noted during the throat examination.

To identify the causative organisms and identify the most effective antibiotics, bacterial culture and sensitivity tests are carried out. Gram-positive *Streptococcus* and anaerobic bacteria have been found as common causative agents in a number of bacterial isolation studies.^{7,8} Gram-negative bacilli were detected in the swab taken from the wound's base, and both gram-positive and gram-negative cocci were detected in the pus smear. This result supports Megalamani's hypothesis that both gram-positive and gram-negative bacteria are involved in peritonsillar abscess.

In this case, neither sensitivity testing nor bacterial culture produced any signs of growth. The handling of pus specimens and the administration of antibiotics prior to sample collection are two examples of the numerous variables that can affect sensitivity tests and culture outcomes. Antibiotics had been administered prior to the sample being obtained, based on the patient's medical history.

In addition to a high fever, uncomfortable swallowing, and trouble speaking effectively (hot potato voice), the patient had persistent throat discomfort. Three days before the patient was admitted to the hospital, these issues occurred. The symptoms and history of the patient match with the typical clinical presentation of a peritonsillar abscess.^{5,9} During tonsil assessment, both tonsils were swollen, the uvula had been shifted to the right, and edema was seen in the left peritonsillar region. Since bilateral simultaneous infection is uncommon and frequently accompanied with tonsillar

hypertrophy, this is consistent with the typical clinical presentation of a peritonsillar abscess, which typically manifests as unilateral swelling.

The preferred antibiotics are typically first-, second-, or third-generation cephalosporins and penicillin, whereas metronidazole works well for anaerobic infections.^{10,7,11,12} Vancomycin or linezolid can be used to regularly used antibiotics like amoxicillin-clavulanate and ceftriaxone to treat methicillin-resistant *Staphylococcus aureus* (MRSA). Metronidazole was given to this patient together with cephalosporin drug ceftriaxone.

The objective of the peritonsillar abscess incision and drainage is to promptly and effectively drain the pus locally. The region of most significant fluctuation or the edema close to the tonsillar pillars are typically used to determine the incision site.¹¹ An incision was done on the patient's left peritonsillar region at the most fluctuant spot, where a previous aspiration had found blood and pus.

The most effective method to prevent a peritonsillar abscess from recurring is to have a tonsillectomy.⁵ This patient has also been scheduled for this surgery.

6. Conclusion

There has been a report of a peritonsillar abscess in an adult aged 28. Assessing the throat indicated that the uvula had been shifted to the right, the crypts on both sides were widened, and the tonsils on the right and left (T2/T4) were enlarged. There was fluctuation and edema in the left peritonsillar area. After aspiration, which produced pus and blood, the left peritonsillar region was sliced and drained. Based on anamnesis and physical examination, the diagnosis of left peritonsillar abscess (abscess peritonsil sinistra) was made. The patient had good recovery results after receiving antibiotic treatment and regular dilatation and drainage. The patient has been scheduled to have a tonsillectomy.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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