


Management of Peritonsillar Abscess in a Tertiary Hospital in Southwest Nigeria

Olusola Ayodele Sogebi , Emmanuel Abayomi Oyewole 

Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria

Correspondence to: Dr Olusola A Sogebi, e-mail: ayosogeb@gmail.com

Received: 16 Jun 2021; Revised: 25 Dec 2021; Accepted: 19 Jan 2022; Available online: 25 Mar 2022

Abstract

Background: Peritonsillar abscess (PTA) occurs when pus accumulates in the peritonsillar space. There are controversies about the most adequate form of treatment. The objectives of this study were to describe the clinical profile of patients, PTA and bacteriological profile of aspirates, and management of PTA. **Methods:** This retrospective study included patients with PTA managed in a tertiary hospital. The clinico-demographic characteristics, oropharyngeal examination findings, including that of the tonsils, test aspiration of swelling, and culture results were documented. The treatment modalities, hospitalization period, and outcome were recorded. **Results:** Seventeen records of adults were available (mean age, 33.3±9.7 years; female, 58.8%). All patients presented with fever, odynophagia, and trismus within 3 days. Five (29.4%) had previous sore throat, 94.1% had previous medications, and 52.9% had the abscesses on the left side. Test aspirate yielded pus in 76.5% of patients, whereas 8 aspirates cultured micro-

organisms; 70.6% of the patients had incision and drainage (I&D) of the abscess, and the average hospitalization period was 3 days. Most (94.1%) of the patients had favorable outcomes. **Conclusion:** PTA is common in adults, and they present early with classical symptoms. Purulent aspiration is usually positive, and patients are treated with I&D with antibiotic coverage, which leads to a generally good outcome.

Keywords: Bacteriology, Characteristics, Management, Peritonsillar abscess, Tonsillectomy

Ann Afr Surg. 2022; 19(2): 68-72

DOI: <http://dx.doi.org/10.4314/aas.v19i2.2>

Funding: None

© 2022 Author. This work is licensed under the Creative Commons Attribution 4.0 International License.

Introduction

Peritonsillar abscess (PTA) occurs when pus accumulates in the peritonsillar space, which is located between the tonsillar capsule and the superior constrictor muscle. It is a common infection in pediatric, adolescent (1), and young adult population, especially among males (2). It has been attributed to be a common variety of deep neck infection (2, 3). PTA often occurs as a complication following episodes of acute tonsillitis (4), but it can also occur primarily on its own among in-patients without evidence of concurrent tonsillitis (5). Patients with PTA present to general duty doctors and family physicians with symptoms suggestive of an

oropharyngeal infection, such as high-grade fever, odynophagia, and distortions in the quality of voice, particularly muffled voice (3). Occasionally, PTA may present dramatically with partial upper airway obstruction, which will necessitate otolaryngological consultation and management. Although the bacteriology of most PTA is non-specific, culturing of pus aspirates often yields a polymicrobial mixture of pathological organisms (2), and identification of significant pathogens is challenging (2). Thus, the best combination of antibiotics to be used is debatable.

Traditionally, treatment of PTA involves drainage to evacuate the pus, along with use of systemic antibiotics, followed by interval tonsillectomy, which is performed after 6 weeks (3). There are, however, arguments regarding the optimal and best treatment modality.

The outcome of management differs according to geographical locations and hospital settings. The outcome may be related to the local characteristics and presentation of patients, bacteriological profile, and the modality of management.

The objectives of this study are to describe the clinical profile of patients and characterize PTA, document the bacteriological profile of the aspirate, and the management of PTA. We also noted the complications of PTA observed in our practice.

Patients and methods

This is a retrospective study of patients who were managed with PTA at the ENT department of a teaching hospital in southwest Nigeria within a period of 5 years from April 2016 to March 2021. PTA patients were identified clinically by an acute history of fever, dysphagia or odynophagia, and a unilateral bulge or swelling in the superolateral pole of an otherwise healthy tonsillar tissue.

The patients' case notes were identified by manual search through the minor procedures records in the clinics and the wards admission record book. Information extracted from the case notes included the age, sex, presenting complaints, duration of symptoms before presentation, previous episodes of sore throat, whether medications were used prior to presentation, and presence of comorbidity. Physical examination records and findings on oropharyngeal examinations, particularly the side of the swelling (abscess) and the condition of the tonsils, findings on test aspiration of the abscess, and the culture results of the aspirates were noted. The major treatment modalities deployed, duration of hospitalization, and the outcome were also recorded.

The data of patients with lost or inadequate important information, those that had previous foreign body (especially fish bone) impaction in the oropharynx, and

those with previous neck swellings and infective cervical lymphadenitis were excluded.

The study protocol was approved by the Health Research Ethics Committee (HREC) of the hospital (approval number 389/2020AP).

The generated data were analyzed using SPSS version 20 (IBM Corp., Armonk, NY, USA). Discrete variables were summarized as proportions, whereas continuous variables were summarized using measures of central tendency, with dispersions as means±standard deviations. The results were presented in descriptive tabular format.

Results

There were 20 eligible patients managed for PTA, but only 17 case note records were available. All patients were adults, with age range of 18 to 55 years and mean age of 33.3±9.7 years. There were 7 (41.2%) males and 10 (58.8%) females. All the patients presented with fever and odynophagia. The other common symptoms were headaches and otalgia, change in voice, and drooling of saliva.

Table 1. Clinical characteristics of the patients

Age (years)	
Range	18-55
Mean±standard deviation	33.3±9.7
Sex	
Male	7 (41.2)
Female	10 (58.8)
Other presenting symptoms	
Otalgia and headache	3 (17.6)
Change in voice	9 (52.9)
Drooling of saliva	3 (17.6)
Difficulty in breathing	2 (11.8)
Duration of symptoms (days)	
Range	2-5
Mean±standard deviation	3.4±1.0
Oropharyngeal examination	
Side of abscess	
Right	8 (47.1)
Left	9 (52.9)
Appearance of the tonsils	
Normal	8 (47.1)
Enlarged	4 (23.6)
Atretic	5 (29.4)

The patients presented within an average of 3 days. Five (29.4%) had previous episodes of sore throat. Of the 17 patients included in this study, 16 (94.1%) ingested some form of medications prior to presentation, including oral systemic antibiotics in 11 (64.7%), local alcohol-based herbal mixtures in 3 (17.6%), and different types of mouthwash in 2 (11.8%).

Table 2. Bacteriological profile of the aspirates

Aspiration (n=17)	
Negative	4 (23.5)
Positive	13 (76.5)
Culture (n=13)	
Result not found	3 (23.1)
Negative	2 (15.4)
Positive	8 (61.5)
Bacteriology (n=8)	
Single organism	3 (37.5)
Multiple organisms	5 (62.5)
Organisms cultured (n=8)	
<i>Streptococcus pneumonia</i>	5 (62.5)
<i>Klebsiella pneumonia</i>	4 (50.0)
<i>Streptococcus viridans</i>	2 (25.0)
<i>Haemophilus influenza</i>	2 (25.0) a

Values are presented as frequency (percentage).

a The percentage addition for the organisms cultured is beyond 100% because of the multiple organisms cultured in 5 samples

All the patients had different levels of trismus, whereas oropharyngeal examination revealed 9 (52.9%) patients had their PTAs on the left side. The tonsils appeared normal in 8 (47.1%) of the patients. The clinical characteristics of the patients are presented in Table 1. The test aspirate of the oropharyngeal swelling yielded pus in 13 (76.5%) patients, and among these, 8 aspirates cultured micro-organisms, namely *Streptococcus pneumonia*, *Klebsiella pneumonia*, *Streptococcus viridans*, and *Haemophilus influenza* (Table 2).

Table 3 shows the summary of the main management received by the patients as well as the outcomes. All the patients initially had parenteral antibiotic regimen of co-amoxicillin-clavulanate for aerobic organisms and metronidazole for anaerobic organisms. The antibiotic regimen was adjusted based on the sensitivity pattern of the cultured microorganisms.

Most (70.6%) of the patients had incision and drainage (I&D) of the abscess, and the hospitalization period was 2-6 days, with an average of 3.5±1.0 days; 16 (94.1%) of the patients had favorable outcomes, but 1 patient (5.9%) had a complication (deep neck space abscess).

Table 3. Management and outcome of PTA

Duration of hospitalization (days)	
Range	2-6
Mean±standard deviation	3.5±1.0
Treatment	
Medicine alone (antibiotics)	2 (11.8)
I&D	12 (70.6)
I&D and interval tonsillectomy	2 (11.8)
I&D and external cervical drainage	1 (5.9)
Outcome/complication	
Favorable (no complication)	16 (94.1)
Complication (deep neck space abscess)	1 (5.9)

Values are presented as range, mean±standard deviation, or frequency (percentage).

I&D, incision and drainage

Discussion

PTA is the most common complication of tonsillitis leading to deep neck infection (4). Without adequate treatment, this otolaryngological disease can cause life-threatening complications (6). It behooves the managing surgeon to diagnose and treat the disease appropriately. PTA can be easily diagnosed from the clinical presentation. The disease has been noted to be common in teenagers and young adults, with male preponderance (2). Slouka et al. reported the highest incidence of PTA in the Czech Republic in the age group of 19-50 years (4), whereas a mean age of 24 years was reported in Santiago, Chile (7). In this study, all our patients were adults, and the average age was 33 years, but considering the standard deviation, the range was approximately 23 to 43 years, which aligns with previous reports, suggesting similar demographic distributions to other populations. PTA was found to be more common among the females in this study, which contrasts with previous reports (2, 8). This finding may be due to our small

sample size, and it may not be the true representation of patients with PTA in our population.

The average duration of symptoms before presentation of 3 days implied an early presentation and the acute debilitating nature of the ailment. PTA often occurs as a complication of acute tonsillitis (6) and may sometimes recur. Less than a third (29.4%) of the patients had previous episodes of sore throat, which may raise suspicion of the index episode being a recurrence or a complication of a previous tonsillitis.

All the patients experienced symptoms of fever, odynophagia, and some level of trismus. This is almost pathognomonic of PTA, but other symptoms such as referred otalgia and drooling of saliva may also be present. The change in voice classically described as a hot-potato speech is usually due to the bulgy swelling impairing the movement of the soft palate and produces a brawny speech (9). Difficulty in breathing can also occur, which is a consequence of the swelling partially occluding the upper airways. The normal appearance of the tonsils seen in 47.1% of our patients may suggest that the PTA occurred *de novo*, without prior tonsillitis in these patients (5). In reality, PTA may be a complication of tonsillitis. Tonsillar enlargement seen in 23.6% of our patients may suggest recurrent tonsillitis (4), and atretic tonsils (seen in 29.4%) may suggest that chronic tonsillitis stimulated or accompanied the PTA in these patients. Previous studies had not reported any side predisposition to PTA, and this study found an almost equal affectation of both sides of the oropharynx.

Irrespective of the physical signs of PTA, aspiration of pus from the swelling will confirm the diagnosis, as found in three-quarters (76.5%) of our patients. Par-oral aspiration may be technically difficult when there is severe trismus preventing adequate opening of the mouth and limiting access to the oropharynx, and analgesics and muscle relaxants may be administered to aid adequate access in some situations. The peritonsillar aspirate were transported immediately into the laboratory for processing of microscopy, culture, and sensitivity. Positive culture of microorganisms in 61.5% confirmed active microorganisms. This positive culture value of 61.5% was close to the 62.7% recorded among 966 samples cultivated in Chile (4), but our sample size

was much smaller. Culturing of purulent aspirates may yield polymicrobial mixture of aerobes and anaerobes (2, 4). In this study, most cultures yielded polymicrobial organisms, including *S. pneumonia*, hemolytic streptococcus, and *K. pneumonia*. The microorganisms were similar to those reported in other studies (7, 10). Group A *Streptococcus* has been reported as the only established and known pathogen in PTA (2). Although there were some *Streptococcus* species cultured in this study, it will be spurious to make a categorical statement on its frequency of occurrence because of the generally low number of aspirates processed in this study.

The general practice we deployed in the management of the patients was immediate commencement of empirical antibiotics. The choice of antibiotics is crucial because it requires knowledge of the common pathogens and their potential resistance (6). Although early-generation antibiotics appear ideal as empirical therapy for deep head and neck infection (11), the preferred antibiotic regimen varies greatly between countries and centers (2). In our practice, we used co-amoxicillin-clavulanate for aerobic organisms and metronidazole for anaerobic organisms, followed by surgical interventions. Although co-amoxicillin-clavulanate could be used alone as they are broad spectrum and cover anaerobes, they have no activity against anaerobes like *Clostridium difficile*. The antibiotic regimen was, however, reviewed based on the sensitivity pattern of the cultured microorganisms.

Surgical interventions for PTA range from needle aspiration to I&D and to quinsy/abscess tonsillectomy (2). Our unit's treatment of choice is traditional treatment of initial I&D, followed by an interval tonsillectomy. However, most (70.6%) of our patients only had I&D as surgical intervention. Our patients were counseled upon discharge on the need to return later for (an interval) tonsillectomy, but only 2 (11.8%) patients had interval tonsillectomy. None of our patients had quinsy tonsillectomy. In a survey of practices in the management of PTA among practicing ENT surgeons in Nigeria, 96.7% of surgeons advised interval tonsillectomy, and only 3.3% advised abscess/quinsy tonsillectomy (12). On the international scale, there is a trend toward less invasive surgical approach to PTA treatment, with some cases having only antibiotic

treatment without surgical drainage (2). Two of our patients who had negative aspirates only had antibiotic therapy and achieved good responses.

The average hospitalization period (3.5 days) of our patients was similar to that (4.2 days) reported in Kaduna, Nigeria (9), and the patients had good recovery after evacuation of pus and continued antibiotic regimen. A low complication rate was found in this study. Only one patient developed PTA complication of deep neck space abscess. The patient was a middle-aged man with uncontrolled type 2 diabetes mellitus (T2DM). In patients with T2DM, PTA incidence is relatively high, and its prognosis correlated with diabetes severity. Type 2 diabetes is also a risk factor for deep neck infection and leads to complications and poor outcomes (13). The index patient thus had substantial predisposing factors to develop complications of the PTA. The deep neck space abscess was drained externally, and he also had his medical comorbidity controlled. We advocate that any adult patient with PTA should be screened for medical comorbidities, especially diabetes.

Some limitations noted in the study included our inability to culture for anaerobes, which limited the full bacteriological profile. Furthermore, a few microbiological results were not found, whereas the case note records of three patients had missing vital information, and their data were excluded from the study.

Conclusion

This study determined that PTA is common in adults and presented early with classical symptoms. Purulent aspiration is usually positive, and patients are often treated with I&D with antibiotic coverage, and had a generally good outcome. We recommend that comorbidities should be sought in adults presenting with PTA, and bacteriological examination of aspirate for both aerobic and anaerobic organisms should be performed.

Author contributions

SOA lead in writing the original draft. All other authors contributed to editing and reviewing the manuscript.

Declaration of interests

The authors declare no conflict of interest.

References

- Hallak B, Graber S, Bouayed S, et al. Advantages of otorhinolaryngologist performed transcervical ultrasonography in the management of peritonsillar abscess. *Am J Otolaryngol.* 2020; 41: 102659.
- Klug TE. Peritonsillar abscess: clinical aspects of microbiology, risk factors, and the association with parapharyngeal abscess. *Dan Med J.* 2017; 64: B5333.
- Alsubaie HM, Alsmadi MB, Aljuaid EF. Bilateral peritonsillar abscess: a case study and literature review. *J Surg Case Rep.* 2020; 2020: rjaa112.
- Slouka D, Hanakova J, Kostlivy T, et al. Epidemiological and microbiological aspects of the peritonsillar abscess. *Int J Environ Res Public Health.* 2020; 17: 4020.
- Seyhun N, Çalış ZAB, Ekici M, et al. Epidemiology and clinical features of peritonsillar abscess: is it related to seasonal variations? *Turk Arch Otorhinolaryngol.* 2018; 56: 221-5.
- Erdélyi E, Ambrus A, Szabó L, et al. The role of microbiological examination in treating peritonsillar abscess based on the retrospective analysis of data from six years. *Orv Hetil.* 2020; 161: 1877-83.
- Albertz N, Nazar G. Peritonsillar abscess: treatment with immediate tonsillectomy—10 years of experience. *Acta Otolaryngol.* 2012; 132: 1102-7.
- Winter JR, Charlton J, Ashworth M, et al. Peritonsillar abscess and antibiotic prescribing for respiratory infection in primary care: a population-based cohort study and decision-analytic model. *Ann Fam Med.* 2020; 18(5): 390-6.
- Afolabi OA, Abdullahi A, Labaran AS, et al. Peritonsillar abscess in northern Nigeria: a 7 years review. *Malays J Med Sci.* 2014; 21(6): 14-8.
- Tsai YW, Liu YH, Su HH. Bacteriology of peritonsillar abscess: the changing trend and predisposing factors. *Braz J Otorhinolaryngol.* 2018; 84(5): 532-9.
- Varghese L, Mathews SS, Antony Jude Prakash J, et al. Deep head and neck infections: outcome following empirical therapy with early generation antibiotics. *Trop Doct.* 2018; 48(3): 179-82.
- Kodiya AM, Ngamdu YB, Sandabe BM, et al. Management strategies of peritonsillar abscess in the tropics: a survey of surgeons' preference. *Indian J Otolaryngol Head Neck Surg.* 2014; 66(2): 127-30.
- Wu CL, Tsai MS, Lee TJ, et al. Type 2 diabetes mellitus increases peritonsillar abscess susceptibility: real-world evidence. *Clin Exp Otorhinolaryngol.* 2021; 14: 347-54.