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Peritonsillar abscess: Pattern and treatment intervention in a tertiary health institution in Sokoto metropolis

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Abstract
Background and Objectives: Peritonsillar abscess is the collection of pus between the capsule of the tonsil and the superior constrictor muscle of the pharynx. It is a common suppurative complication of acute tonsillitis. The peritonsillar abscess occurs worldwide and affects people of all ages. Medical treatment consists of fluid rehydration, analgesic, and antibiotic therapy. Surgical techniques of drainage of the peritonsillar abscess remained controversial. This study aims to describe the pattern and management of peritonsillar abscess in Sokoto metropolis.
Methods: This study was a retrospective review of the patients managed for the peritonsillar abscess at the Ear, Nose and Throat Department of Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria from 2006 to 2018. The case files retrieved from the Medical Record Department and reviewed for the following variables: Biodata, symptoms, signs and the management. Data analyzed with SPSS version 21.0.
Results: Of the 17 patients analyzed the mean age was 22.5 years (Range 5-43 years), 5 (29.4%) Males and 12 (70.6%) Females with a male to female ratio of 1:2.4. Right tonsil accounted for 7 (41.2%) and left tonsil 10 (58.8%). The peritonsillar abscess was most common between 11-40 years of age. All the patients hospitalized and given intravenous fluid rehydration, analgesic, and empirical antibiotic therapy. Surgical drainage comprised needle aspiration in 7 (41.2%), followed by incision and drainage in 4 (23.5%), incision and drainage plus interval tonsillectomy in 1 (5.9%) and spontaneous rupture in 5 (29.4%). One of the patients with spontaneous rupture had a parapharyngeal abscess.
Interpretation and Conclusion: In this study, the peritonsillar abscess was most common in adolescent and young adults between 11-40 years of age. Complications observed were spontaneous rupture of the PTA and a parapharyngeal abscess. All the patients hospitalized, and Needle aspiration was the most frequent surgical drainage technique.

Keywords: peritonsillar abscess, pattern, management

Introduction
Peritonsillar abscess (PTA) is the collection of pus between the capsule of the tonsil and the superior constrictor muscle of the pharynx [1, 4]. The collection of the pus is usually in the area lateral to the superior pole of the tonsil [1, 5]. Nevertheless, the site of pus collection may be localized to the middle portion or lower pole of the tonsil [5]. PTA is a common suppurative complication of acute tonsillitis [1, 3]. In 1995, the published incidence of PTA in the United States and Puerto Rico among patients 5 to 59 years of age was 30.1/100, 000 people annually, and accounted for an estimate of 45,000 cases yearly [6]. The reported annual incidence of PTA in the west of Ireland population in 2014 ranged 11-17/100, 000 among patients 9 to 56 years [7]. We did not come across the incidence of PTA in Nigeria in our literature search. Moreover, an earlier report [8] from Nigeria highlighted the absence of the incidence among the Nigerian population.

Clinically, PTA presents as an emergency with pyrexia, sore throat, otalgia, dysphagia, odynophagia, inability to swallow/drooling of saliva, while physical features include trismus, asymmetry of the oropharynx due to swollen, erythematous, oedematous tonsil and the ipsilateral soft palate pushing the uvula to the opposite side [1, 2]. The mortality from PTA was high in the era of pre-antibiotic therapy [5]. The treatment outcome has significantly improved, but the choice of first-line antibiotics and technique of surgical drainage (incision and drainage, per mucosal needle aspiration, quinsy tonsillectomy or interval tonsillectomy) remained controversial [1, 6, 9, 11].

This study aims to describe the pattern and management of peritonsillar abscess in Sokoto metropolis.

Materials and Methods
This study was a retrospective review of the patients managed for the peritonsillar abscess at the Ear, Nose and Throat Department of Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria from 2006 to 2018. The case files retrieved from the Medical Record Department and reviewed for the following variables: Biodata, symptoms including dysphagia, odynophagia, drooling, inability to open the mouth, fever, dehydration, and History of previous tonsillitis, while physical features comprising trismus, asymmetry of the oropharynx due to swollen, erythematous, oedematous tonsil and the ipsilateral soft palate pushing the uvula to the opposite side. Unilateral or bilateral PTA, previous PTA, medical treatment, needle aspiration, incision and drainage, quinsy

tonsillectomy, interval tonsillectomy, microbial isolates, outpatient or hospitalized patients care, duration of hospital stay. Outcome and follow-up. Exclusion criteria: Those with negative needle aspiration/cellulitis or missing data. Data analyzed with SPSS version 21.0.

Results

Twenty-four patients managed for PTA during the study period. Seven of them with either missing files or incomplete records were excluded from the study. Of the 17 patients analyzed the mean age was 22.5 years (Range 5-43 years), 5 (29.4%) Males and 12 (70.6%) Females with a male to female ratio of 1:2.4. Right tonsil accounted for 7 (41.2%) and left tonsil 10 (58.8%). Distribution of the PTA by age group in Figure 1.

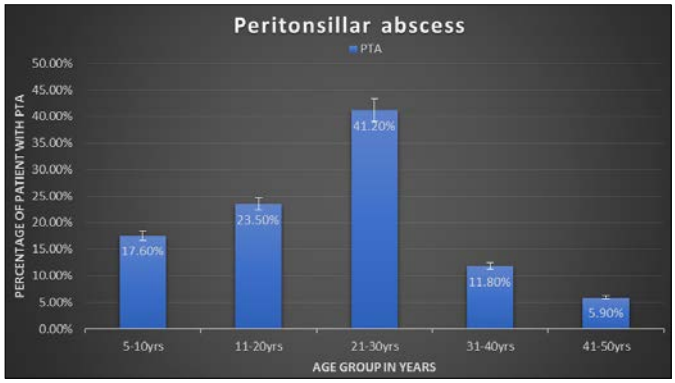

Fig 1: Distribution of the PTA by age group.

The clinical presentation was characterized by fever, sore throat, dysphagia, odynophagia, trismus and dehydration in 13 (76.5%) of the patients, while 4 (23.5%) of the patients presented with few of the clinical features. In addition, 5 (29.4%) patients had spontaneous rupture of PTA, and it was the ruptured PTA that influenced their presentation to the hospital. The mean duration of symptoms before the hospitalization was 5.9 days (range 1-14 days). The clinical signs elicited include hyperemia, tense, swollen tonsil and ipsilateral soft palate with a deviation of the uvula to the opposite side in 12 (70.6%) patients, some of those signs in 4 (23.5%) and parapharyngeal abscess in 1 (5.9%) patient. Confirmation of the diagnosis of PTA was by test aspiration in 12 (70.6%) patients whose PTA did not rupture spontaneously. The mean volume of the pus aspirated or drained by incision and drainage was 6.9ml (Range 3-20ml). *Streptococci* species was isolated in 2 (11.8%) patients, and sensitive to Ceftriaxone and Ciprofloxacin. No growth in 1(5.9%) and the microscopy, culture, and sensitivity (M/C/S) results were not available in 14 (82.4%) patients. Therefore, M/C/S did not influence the administration of drugs in the patients.

Medical treatment comprised intravenous fluid rehydration for all the patients. Intravenous Amoxicillin plus clavulanic Acid and Metronidazole in 9 (52.9%) patients, while Ceftriaxone and Metronidazole in 8 (47.1%) patients. Surgical drainage of the PTA and those that rupture spontaneously are depicted in Figure 2.

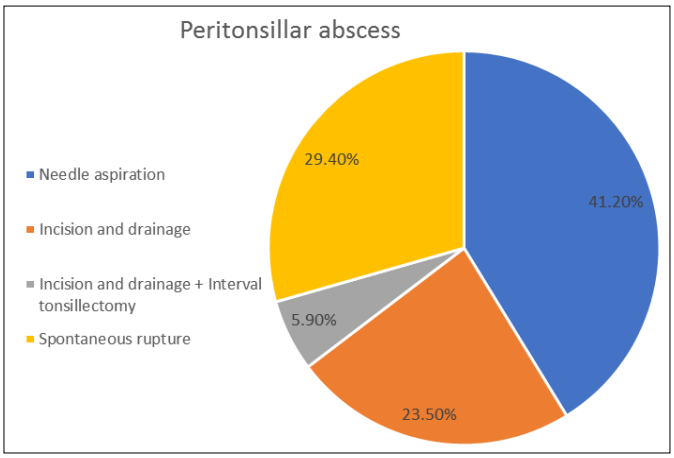

Fig 2: Surgical drainage and spontaneous rupture of the peritonsillar abscess.

Of the 17 patients, three (16.6%) had two episodes of peritonsillar abscess, and one of those recurrent peritonsillar abscesses agreed and had interval tonsillectomy. It was only one patient who had recurrent tonsillitis. All the patients were hospitalized. Overall, the mean duration of hospital stay was 5.4 days (Range 1-21 days). The duration of hospitalization varies for the technique of surgical drainage and those that rupture spontaneously and is tabulated in Table 1.

Table 1: Duration of hospitalization for the different technique of PTA drainage and spontaneous rupture

S/N	Type of surgical drainage of the PTA	Duration of hospitalization in days (Range)
1	Needle aspiration	3.7 (1-7)
2	Incision and drainage	3 (2-6)
3	Incision and drainage plus interval tonsillectomy	6
4	Spontaneous rupture	9.8 (3-21)

The outcome was good because there was a successful resolution of the PTA. However, the follow-up was not satisfactory because ten of the patients were lost to follow-up. The mean follow-up was 0.8 month (Range 26.5 days – 8 months).

Discussion

The symptoms and signs of PTA exhibited by the patients in this study are similar to the previous report [1, 3, 12, 13]. In this study, PTA was most common between 11-40 years of age. Therefore, it supports earlier studies which documented PTA as a disease not restricted to any age but predominant in adolescent and young adults [1, 6, 14]. The number of PTA cases in this study is small in comparison to many reports [7, 10, 15, 17]. The reason for the few PTA patients in this study is not apparent. Probably, treatment in nearby public or private hospitals or self-medication and treatment by quacks may be the reasons for the small size of patients in this cohort. A multi-centre study may likely unravel the real burden of PTA in this environment. Delayed or late presentation contributed to the complications observed in this study. The spontaneous

rupture and parapharyngeal abscess presented late in the second week of onset of the symptoms of the PTA.

The spontaneous rupture of PTA encountered in this study is one of the dreadful complications of PTA [14]. Spontaneous rupture of PTA carries potential risks of aspiration, aspiration pneumonia, lung abscess, and deep neck space infection. In this study, none of the patients who had the spontaneous rupture of the PTA was complicated by aspiration or lung infection. However, one of them had a parapharyngeal abscess, which was drained via an external approach. Similarly, there was an earlier report in another study where parapharyngeal abscess occurred as a complication of PTA [18]. In contrast, no record of complications in a retrospective chart review of 577 cases of PTA in England [16].

The microorganisms commonly implicated as an aetiology in PTA is Gram-positive cocci, especially group A beta haemolytic *streptococcus* [1, 3, 6, 7, 14, 16, 17]. Anaerobes are often implicated, and some report mentioned gram negative microbes like *Pseudomonas* species [14]. In this study, *Streptococci* species was isolated in only two patients. M/C/S was not available for most of the patients. Therefore, antibiotic therapy was not dependent on M/C/S. The fact that M/C/S did not influence the choice of antibiotics in this series supports earlier reports that discourage routine M/C/S in the management of PTA [6, 14, 16].

In this study, medical treatment consisted of intravenous rehydration, antibiotics, and anti-pyretic/analgesics. All the patients were managed as in-patients against the out-patient management recommended by numerous reports [1, 6, 19] because of significant moderate to severe dehydration due to dysphagia and odynophagia. The patients in this series could not swallow both liquid and solid diets for a considerable length of time exceeding 24-hours in some of the patients as at the time of hospitalization. The two concurrent administered antibiotics (Amoxicillin Clavulanate plus Metronidazole or Ceftriaxone plus metronidazole) were broad spectrum against aerobes and anaerobes. Comparatively, these antibiotics combination were used empirically in many studies [7, 14, 16, 17] without the need to change antibiotics because of ineffectiveness. A combination of intravenous paracetamol and intramuscular Diclofenac potassium were the drugs used to alleviate the pain until the patient can take drugs, water, and food orally. Oral intake usually established within 24-hours of instituting medical and surgical treatment, and then all drugs converted to oral within 24-48 hours. Steroids were used to control pain by some authors [12, 13, 20], but it was not employed in this study.

The surgical treatment of PTA comprised needle aspiration, incision, and drainage, quinsy or interval tonsillectomy. There is no consensus on the choice of any of the surgical techniques. However, many authors [5, 6, 21] preferred needle aspiration because its' cost-effectiveness, less invasive and can be safely performed by General practitioners. In this study, most of the patients had needle aspiration because it was convenient, cheap and effective. A repeat needle aspiration was recorded in only one patient.

Similarly, in various report needle aspiration was the most common technique used to drain the PTA [1, 7, 22]. Of the three patients in this study that had recurrent peritonsillar abscess only one of them return for interval tonsillectomy. The interval tonsillectomy in this study supports many authors [8, 22] who favoured tonsillectomy for recurrent PTA.

In this study, the average duration of hospitalization was 3.7 days for needle aspiration, three days for incision and drainage and longest in those complicated by spontaneous rupture and parapharyngeal abscess. The prolonged hospitalization for the complicated cases was due to the time required for the resolution of the complications. Comparatively, In Ireland, mean hospital stay was four days [7] and two to four days in another report [1]. The poor compliance to follow-up in this study may mean the complete resolution of the PTA because many patients in this environment often do not come for follow-up whenever their symptoms resolved.

Limitation of this study

It was a retrospective study and hospital-based. Secondly, the number of patients analyzed is small. Therefore, it may not represent the actual pattern of PTA in Sokoto metropolis.

Conclusion

In this study, the mean age for peritonsillar abscess was 22.5 years (Range 5-43 years), 5 (29.4%) Males and 12 (70.6%) Females with a male to female ratio of 1:2.4. It was most common in adolescent and young adults between 11-40 years of age. Complications observed were spontaneous rupture of the PTA and a parapharyngeal abscess. These complications were associated with a prolonged hospital stay. All the patients were managed as in-patients and medical treatment comprised intravenous fluid rehydration and empirical antibiotic therapy. Needle aspiration was the most frequent surgical drainage technique of draining the PTA. There was a satisfactory resolution of the abscess, although, follow-up was poor.

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