

Evaluation of the Cases with Peritonsillar Space Infection and the Influential Factors in 5th Azar Hospital of Gorgan, Iran (2010-2017)

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Abstract

Background and objective: Peritonsillar infection may emerge in two forms of abscess and cellulitis. Several factors could cause the disease, and effective treatments are required following the diagnosis. However, recurrence is likely after the treatment, threatening the health of the patients. Given the importance of this issue, the present study aimed to evaluate the cases of peritonsillar infection and some of the influential factors in 5th Azar Hospital of Gorgan, Iran during 2010-2017.

Material And Method: This cross-sectional, descriptive-analytical study was conducted by assessing the medical files of the patients with peritonsillar infection. The incomplete files were completed via phone call with the patients. Data analysis was performed in SPSS version 16.

Results: In total, 93 patients were evaluated with the mean age of 32.31 ± 14.59 years, and the majority of the patients were aged 20-30 years (33.31%). In terms of gender, 58.1% of the subjects were male, and the others (41.9%) were female. Peritonsillar abscess and peritonsillar cellulitis were detected in 76 (81.7%) and 17 cases (18.3%), respectively. In addition, significant correlations were observed between opium use, smoking habits, and abscess formation ($P=0.014$).

Conclusion: Considering the prevalence of peritonsillar infection and the possibility of recurrence after tonsillectomy, it is recommended that the necessary training be provided to the patients regarding the possibility of recurrence and surgery, especially upon discharge.

Keywords: Tonsil, Peritonsillar, Abscess, Recurrence

Introduction

Palatine tonsils are bundles of the lymphatic tissue, which are located in the tonsillar pillars of the oropharynx (1). The peritonsillar space is a potential space between the tonsils and upper sphincter. Peritonsillar abscess (PTA) occurs in case of the accumulation of pus due to infection. Infection in this space may spread to other spaces and cause irreparable risks. In some cases, the infection could appear in the form of cellulite (peritonsillar cellulitis [PTC]), which eventually develops into PTA. In the United States, the incidence of PTA has been reported to be 30 cases per 100,000 each year and approximately 45,000 total cases per year (2). Notably, approximately 25-30% of the patients with PTA are in the pediatric population (3). The age of the patients with PTA has been reported to be 1-76 years, with the highest incidence rate observed within the age range of 15-35 years (1). While the exact etiology of PTA remains unclear (4), some of the possible causes include acute tonsillitis, dental infections, and obstruction of the Weber's glands (4-6). In addition, smoking habits and season of the year have been reported to be the other possible causes of PTA (5, 7-10). The microbial agents causing PTA are similar to those that cause acute and chronic tonsillitis, and several aerobic and anaerobic microbes are involved in this condition (11-14). In general, the symptoms of PTA include fever, sore throat, faint, lethargy, dysphagia, odynophagia, and ataxia. In addition to trismus and tonsillitis, swelling around the tonsils has also been observed in the patient examinations, and fluctuations may also be detected in physical examination (5, 15-17).

The clinical examination of PTA is preceded by reviewing the medical history of the patient for the initial diagnosis, followed by the final confirmation by fine needle aspiration. While the process is recognized as diagnostic and treatment method in this regard, it may cause complications such as carotid arterial damage even if it is performed by experienced professionals. On the other hand, ultrasound-guided aspiration could decrease the risks of the procedure (18-20). The first-line treatments for PTA include antibiotic therapy, hydration, analgesic therapy, and surgical treatment. If there is doubt about whether the patient has PTA or PTC, antibiotics are prescribed first, and surgery is performed in case of treatment irresponsiveness. The surgical treatments of the condition involve fine needle aspiration-incision, drainage, and simultaneous tonsillectomy with drainage. If left untreated, the disease may spread to other deep cervical regions and cause severe complications.

Given the importance of the disease and its possible causes, the present study aimed to evaluate the cases of peritonsillar infection and some of the influential factors in 5th Azar Hospital of Gorgan, Iran during 2010-2017.

Materials and Methods

This cross-sectional, descriptive-analytical study was performed based on the medical files of patients with the initial diagnosis of peritonsillar space infection referring to 5th Azar Hospital of Gorgan, Iran during 2010-2017. The data of the patients were extracted by referring to the statistics and medical records unit of the hospital. The initial diagnosis had been made by an otolaryngologist and recorded in the medical files of the patients. The patients undergoing physical examination whose medical history had been obtained and required fine needle

aspiration were considered as PTA patients, and those with undecided abscess were considered as PTC patients.

Demographic characteristics included age, gender, initial diagnosis, final diagnosis, type of treatment, disease recurrence, season of the year, and smoking habits/opium consumption. Incomplete medical files were completed via phone call, and those requiring an examination were called to the hospital after explaining that they would be enrolled in a research project. The patients who were unwilling to participate in the research or did not fully respond to the questions were not selected.

To comply with ethical considerations, the study protocol was approved by Golestan University of Medical Sciences (ethics code: IR.GOUMS.REC.1396.207). In addition, the participants were assured of the confidentiality terms regarding their personal information.

Data analysis was performed in SPSS version 16 using mean, standard deviation, frequency, and percentage to describe the data, independent t-test to compare the mean of the two groups in case of the establishment of the statistical presuppositions, paired t-test for the pretest and posttest comparison, Wilcoxon test in case of the lack of establishment, and

Chi-square to compare the qualitative variables.

Result

In total, 93 patients were enrolled in the study with the mean age of 32.31 ± 14.59 years and minimum and maximum age of six months and 73 years, respectively. According to the information in [Table 1](#), the highest and lowest frequency of the disease was observed in the patients aged 20-30 years (33.31%) and 10-20 years (5.4%), respectively.

Table 1. Frequency of Patients with Peritonsillar Space Infection in Different Age Groups

Age (year)	N	%
0-10	10	10.8
10-20	5	5.4
20-30	31	33.3
30-40	23	24.7
40 <	24	25.8
Total	93	100.0

In terms of gender, 58.1% of the patients were male, and the others (41.9%) were female. Regarding the disease diagnosis, 76 cases (81.7%) had PTA, and 17 cases (18.3%) had PTC ([Table 2](#)).

Table 2. Frequency of Abscess and Cellulitis Based on Age Group

Diagnosis	Age Group (year)					P-value
	0-10	10-20	20-30	30-40	40<	
Abscess	10 (13.2%)	3 (3.9%)	26 (34.2%)	20 (26.3%)	17 (22.4%)	0.182
Cellulitis	0 (0%)	2 (11.8%)	5 (29.4%)	3 (17.6%)	7 (41.2%)	
Total	10 (10.8%)	5 (5.4%)	31 (33.3%)	23 (24.7%)	24 (25.8%)	

In terms of the affected site, 45 patients (48.4%) had involvement on the right side, while 43 (46.2%) and five cases (5.4%) had involvement on the left side and both sides, respectively. Out of 93 patients, data on the smoking habits and opium use were collected from only 53 patients. In this regard, five cases (5.4%) had a positive smoking status, and five cases (5.4%) used opium. [Table 3](#)

shows the type of treatment in the patients. Correspondingly, the patients with cellulitis received antibiotic treatment. On the other hand, 13 cases with abscess (71.1%) received antibiotic therapy, while three (3.9%), 12 (15.8%), and 48 cases (63.2%) received aspiration with antibiotic therapy, tonsillectomy with antibiotic therapy, and drainage with antibiotic therapy, respectively.

Table 3. Treatments of Patients with Abscess and Cellulitis

Diagnosis	Treatment			
	Antibiotic Therapy N (%)	Aspiration and Antibiotic Therapy N (%)	Tonsillectomy and Antibiotic Therapy N (%)	Drainage and Antibiotic Therapy N (%)
Abscess	13 (17.1%)	3 (3.9%)	12 (15.8%)	48 (63.2%)
Cellulitis	17 (100.0 %)	0 (0 %)	0 (0%)	0 (0%)
Total	30 (32.3%)	3 (3.2%)	12 (12.9%)	48 (51.6%)

In terms of the season pattern, 37.6% of the patients were diagnosed in spring, while 16.8%, 21.5%, and 24.7% of the subjects were diagnosed in summer, fall, and winter, respectively. The frequency of abscess and cellulitis was examined based on age, gender, season, infection, smoking habits, and opium use, and the only significant correlations were observed between the type of diagnosis, smoking habits, and opium consumption ($P=0.014$) ([Table 4](#)).

Table 4. Comparison of Frequency of Abscess and Cellulitis Based on Variable of Smoking Habits and Opium Use

Diagnosis	Opium Use/Smoking Habits		P-value (Chi-square)
	Yes N (%)	No N (%)	
Abscess	2 (4.7%)	41 (95.3%)	0.014
Cellulitis	3 (30.0%)	7 (70.0%)	
Total	5 (9.4)	48 (90.6)	

Among the patients, recurrence was observed in only five cases (5.4%), three of which were male, and the others were female. In all the

cases, recurrence occurred at least one month after the treatment and initial hospitalization. Regarding age, one patient was in the age group of 0-10 years, one case was in the range of 20-30 years, one patient was in the age group of 30-40 years, and two cases were aged more than 40 years. Among the patients experiencing recurrence, four cases underwent surgery, and one case received non-surgical treatment.

Discussion

In total, 93 patients with peritonsillar infection were evaluated in the present study, with the mean age of 32.31 ± 14.59 years and the minimum and maximum age of six months and 73 years, respectively; the majority of the patients (33.31%) were aged 20-30 years. In a research conducted by Gosselin et al., the patients were aged 1-76 years ([1](#)), while Taziki et al. reported the highest frequency of the patients to be within the age range of 20-29 years ([21](#)). On the

other hand, the majority of the patients in the studies by Penning (22), Matsuda et al. (23), and Kristen et al. (24) were in their second and third decades of life and age ranges of 20-29 and 20-30 years, respectively. The comparison of our findings with the results of the aforementioned studies demonstrated that while the disease could occur in a wide age range, most of the patients are aged 20-30 years. In this regard, previous studies have yielded similar results. In the present study, 58.1% of the patients with peritonsillar space infection were male, and the others (41.9%) were female. In the research by Taziki et al., 28.9% of the participants with the disease were female, and 71.1% were male (21). Moreover, Afolobj et al. reported the higher prevalence of peritonsillar space infection among men compared to women (25). The comparison of the studies in this regard has also confirmed the higher prevalence of the disease in men compared to women.

In the current research, the disease was more prevalent in spring and summer, while Seyun-N et al. have reported the higher prevalence rate of the disease in winter and spring (26). In the present study, significant correlations were observed between opium use, smoking habits, and the occurrence of peritonsillar infection ($P=0.014$). Similar findings have been proposed by Schwzrd et al. (27), while Sunmark et al. failed to confirm the correlation despite expressing its possibility (28). In the current research, only five (5.4%) out of 93 patients experienced disease recurrence, three of whom were male, and two were female. In this regard, Taziki et al. reported the recurrence rate of peritonsillar space infection to be 17.7% (21). In the studies by Wolf et al. (29), Herzon (30), and Ong et al. (7), the recurrence rate was estimated at 14.3%, 10-15%, and 9.2%, respectively (7). The comparison of the

results of the present study with the previous findings demonstrated the lower recurrence rate in our research, which might be due to the different patterns of antibiotic resistance and treatment methods. In the current research, five patients (5.4%) experienced disease recurrence, three of whom were male, and two were female. In the research by Taziki et al., the recurrence rate of the disease was observed to be higher in the female patients compared to the male patients (21).

In the present study, one of the patients experiencing recurrence (20%) was aged 0-10 years, one patient (20%) was aged 20-30 years, one patient (20%) was aged 20-40 years, and two cases (41%) were aged more than 40 years. In the study by Taziki et al., the highest recurrence rate was observed within the age range of 20-29 years, and the lowest rate was reported in the patients aged more than 30 years (21). In the research conducted by Kristen, the highest recurrence rate (90%) was observed in the age range of 20-30 years, while none of the cases was aged more than 40 years (24). In this regard, our findings are inconsistent with the aforementioned studies as the recurrence rate was higher in the patients aged more than 40 years in the present study.

In the current research, the majority of the patients underwent drainage and antibiotic therapy, and in one case, the patient improved with antibiotic treatment. Several studies have been focused on the effect of the type of treatment on the recurrence rate, and various reports have been published in this respect. In the research by Taziki et al., the maximum recurrence rate was observed in the cases receiving non-surgical medical treatment (21), while Wolff et al. reported that recurrence rate was higher in surgical incisions and drainage (29). On the other hand, Johnson et al. reported the rate of recurrence to be the

same in various treatments (31). The comparison of the results of several studies indicated that none of the mentioned treatments could prevent the recurrence of abscess, and tonsillectomy should be performed in proper conditions. Although a patient may not refer for delayed tonsillectomy, the bleeding line increases if the procedure is performed simultaneous with abscess drainage (32).

In the present study, no complications occurred due to the spread of the infection to the other cervical regions or mediastinum; similarly, no complications were reported by Taziki et al. (21). However, Matsuda et al. reported complications in 1.8% of the cases (23), which could be due to early diagnosis and appropriate treatment, preventing the spread of the infection to other areas.

Conclusion

Considering that the relatively high prevalence of peritonsillar space infection leads to hospitalization and possible complications, and with regard to the need for tonsillectomy surgery despite the performed treatments, it is recommended that the necessary training be provided to the patients for timely follow-up and surgery since they may not refer for surgery after discharge.

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