

A retrospective study of peritonsillar abscess in Riyadh Medical Complex toward setting up treatment protocol

Abdulaziz A. Al-Dakhail, MD, KSUF, Mohammad I. Khan, FCPS, FRCS.

ABSTRACT

Objective: To investigate and study the management pattern of peritonsillar abscess, the male to female ratio and incidence. Also, to evaluate the causative organism isolated from abscess and reported by culture/sensitivity (C/S).

Methods: This study has been designed as a single centered retrospective hospital based study. We carried out this study in the Department of ENT, Riyadh Medical Complex, Saudi Arabia from 2000 to 2004. We gathered the data via survey (5 years). There were 81 patients admitted for the management of peritonsillar abscess.

Results: Mean age of patients was 22 years (range 10 to 60 years; 44 male, 37 female). The hospital stay varies from 1-8 days with a mean of 4 days. The left side is more involved. Treatment consisted mainly incision/drainage under local anesthetic in 47 patients (58%), while 5 cases

(6%) were carried out under general anesthetic. Aspiration and conservative treatment was noted in 25 (31%) cases, abscess tonsillectomy was carried out in 3 (4%) cases. The most common microorganisms isolated from C/S is *Group A beta hemolytic streptococcus* (17/81 [21%]). Penicillin G + Flagyl (49/81 [60%]) were the most common antibiotics used. No case of bilateral peritonsillar abscess was found and there is no consensus regarding the best technique. Options include needle aspiration, incision and drainage and immediate tonsillectomy.

Conclusion: Peritonsillar abscess remain one of the acute admission in the Department of Otolaryngology at Riyadh Medical Complex, Riyadh. Incision/drainage remains the gold standard treatment, Penicillin G + Flagyl combinations are the cornerstones.

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Riyadh Medical Complex is one of the largest hospitals in Kingdom of Saudi Arabia with 1000 bedded capacity. This article aims at studying and exploring the main variables having significances factors influencing physicians' decision toward utilize feasible treatment plan through describing the epidemiology of peritonsillar abscess disease and to determine the current prevalent practice in the management of peritonsillar abscess in a tertiary care hospital, Riyadh Medical Complex. Accordingly,

we describe the disease pattern and incidence; and investigate the impact of the nature of microbiological sampling on culture results, for example most common bacterial microorganism isolated from pus by culture/sensitivity, and to describe the impact of culture and sensitivity results on individual patient treatment and for guiding empirical antibiotic therapy. Many definitions referring to peritonsillar abscess have been provided by Gurus and practitioners. One of the most common is the peritonsillar abscess, which

From the Department of ENT, Riyadh Medical Complex, Riyadh, Kingdom of Saudi Arabia.

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Address correspondence and reprint request to: Dr. Abdulaziz A. Aldakhail, Director General of Directorate General Health Affairs, Riyadh, Kingdom of Saudi Arabia. Tel. +966505461021. Fax. +966 (1) 4450060. E mail: aldakhaila@yahoo.com

is a collection of infected material in the area around the tonsils (Medline Plus Medical Encyclopedia Peritonsillar abscess.htm) or near the tonsils (<http://www.healthtouch.com>). The back of the throat near the tonsils has a pus-filled sack around it, this is the abscess. If the patient is not treated, the abscess may spread into the head and neck. If the abscess gets very big, the patient may have trouble in swallowing or breathing (<http://www.healthtouch.com>). Group A beta-hemolytic streptococcus is usually the main cause of peritonsillar abscesses. Peritonsillar cellulites or peritonsillitis is an inflammation with localized erythema and in duration without evidence of pus.^{1,2} The theories of pathogenesis are due to complication of acute exudative tonsillitis. Abscess formation in the supratonsillar space, involvement of Weber's glands; a group of minor salivary glands. However, the true pathogenesis is still unknown.¹ Peritonsillar abscess has been frequently reported as the most common site of head and neck infection in adults.^{3,4} The infected patient is suffering from very severe pain. It is typically characterized by trismus, odynophagia, "hot potato" voice, edema, erythema of the peritonsillar tissue, and a soft palate deviation away from the infected side.⁵ Although peritonsillar abscess is the most common complication of tonsillitis, its treatment varies considerably among otolaryngologist.^{6,7} Some advocates incision and drainage as the initial treatment, other prefer needle aspiration; and others undergo quinsy tonsillectomy.⁶ Internationally the treatment of peritonsillar abscess has not been finally standardized. Abscess tonsillectomy is a rather radical procedure, which may be performed as a secondary procedure after a disease free interval.⁸ Abscess tonsillectomy should be performed for quinsy where expertise and facilities are available.⁹ Maharaj et al¹⁰ suggested that perimucosal needle aspiration and oral penicillin, may successfully and safely be treated on an out-patient clinical basis, but if aspiration is positive that requires an incision and drainage then it required hospitalization.¹¹ The choice of treatment is largely dependent on the preference of the individual surgeon; however, the surgical drainage of the abscess remain the cornerstone in therapy while other options includes therapeutic needle aspiration and abscess tonsillectomy.¹ The ENT doctor has several options for treating such as needle aspiration. Incision and drainage involves using a scalpel to make a small cut in the abscess, so pus can drain. Acute tonsillectomy may be needed if, for some reason, you cannot tolerate a drainage procedure, or if patient has a history of frequent tonsillitis. (Medicine Health Peritonsillar Abscess Treatment).

Methods. This study was based on 2 principle methods. First the descriptive review of the theoretical literature related to the topic of the study that was carried out by the support of library references on which the conceptual frame of this study is based. The researchers performed a MEDLINE search of the published literature using appropriate search terms to identify pertinent articles. In addition to this method of searching, we collected data thru a survey study to identify the factors that will affect our study. The researcher reviewed the medical records (charts) of the patients who were admitted to Riyadh Medical Complex (RMC) with a diagnosis of peritonsillar abscess. The ENT out patients clinics and the emergency room share responsibility for the provision of ENT services at the tertiary medical complex in Riyadh City. During the study period, we focus only on the selected in-patient cases due to the fact that both clinics and ER are under sole supervision of the Ministry of Health. From January 2000 to December 2004, 81 patients were randomly collected thru a structured questionnaires. The details of all patients regarding gender, age, clinical history, culture and sensitivity, management and antibiotics were obtained on the printed proforma, designed for this study. It was approved by the Ethical Committee of RMC.

The structured questionnaire was designed by the researcher and prepared in English language with a covering letter mentioning the purpose of the study, and instructions to followed to fill the questionnaire items. It was consisted of 2 parts. The first was designed to elicit the general information of the respondents (for example, age, gender, and so forth). The second part of the questionnaire involved variables to measure the observable fact as shown in **Table 1**.

After prior evaluation, 4% Xylocaine topical spray were applied to oral cavity, mainly on the affected side and diagnostic aspiration of the abscess was carried out in all cases with an 18 gauge needle and evacuating syringe. The samples were sent to the laboratory and inoculated on aerobic/anaerobic media for bacteriology and sensitivity of microorganism. A size 15 surgical blade has been achieved guarded by applying plastic tape to the distal sharp portion of the blade, keeping 5 mm sharp end uncovered with the plastic tape, then the oral cavity is sprayed with 4% Xylocaine spray and a small incision has been made with the guarded surgical blade in the mucosa lateral to the junction of the uvula and the soft palate and a blunt artery forceps has been placed into the wound until the pus was encountered. Some patients underwent for therapeutic aspiration of abscess and no incision/drainage was carried out, while abscess tonsillectomy

Table 1 - Study of independent variables and measurements.

Variable name	Conceptual definition	Operational definition	Scale	Coded value
Age	Number of years that person has lived since he/she was born.	10-20	interval	1
		20-29		2
		30-39		3
		40-49		4
		50-60		5
Gender	It is classification which has 2 groups, male or female	Male	Nominal	1
	Female	2		
Nationality	Membership of a country by a person	Saudi	Nominal	1
	Non-Saudi	2		
Quinsy site	It is a job or profession that a person does it as a part of his daily life.	Right	Nominal	1
		Left		2
		Both		3
Management	Relating to treatment	I/D ULA	Nominal	1
		ID/ UGA		2
		Aspiration and conservative		3
		Abscess tonsillectomy		4
Culture and sensitivity	Laboratory test for biopsy performed	No growth	Nominal	1
		Not sent		2
		Normal throat flora		3
		<i>Streptococcus</i> group A		4
		<i>Streptococcus viridian</i>		5
		<i>Klebsiella pneumonia</i>		6
		<i>Staphylococcus aureus</i>		7
		Cryst. penicillin + Flagyl		1
		Augmentin + Flagyl		2
		Keflex + Flagyl		3
Antibiotic	Treatment in form of tablet specified for causative agent. bacterial microorganism	Zinacef + Flagyl	Ordinal	4
		Zinacef		5
		Clindamycin + flagyl		6
		Clindamycin + ceftriaxone		7
		1 day		1
		2 day		2
		3 day		3
Length of stay	It is average of day # that patient spent in hospitalization	4 day	Ordinal	4
		5 day		5
		6 day		6
		7 day		7
		8 day		8

was carried out in a few cases. Incision/drainage were carried out mainly under local anesthesia and a few cases underwent general anesthesia, as these patients were either uncooperative children or an apprehensive adults. None of the patient was treated as out patient, so all of these patients were admitted in the ENT unit; managed with intravenous antibiotics and fluids. Patients were sent home after complete resolution of the symptoms and signs.

The data used has been analyzed using Statistical Package for Social Sciences program.

Results. Descriptive analysis was utilized to determine the characteristics of the variables such as socio-demographic variables, category of peritonsillar abscess, and various dimensions. The overall distribution of the respondents and related variables were shown in **Table 2**. Eighty-one patients were selected in this study. Mean age of patients

was 22 years (range 10 to 60 years; 44 male, 37 female). Of these, 68 were Saudi nationals and 13 expatriates. The length of hospital stay ranged from 1-8 days with mean of 4 days. Peritonsillar abscess were slightly involved in the left side of the tonsil in 45 patients. Therapeutic aspirations of abscess was carried out and treated conservatively in 35% of patients while incision/drainage was carried out in 65.4% of patients. Forty-seven of patients underwent under local anesthesia and 5 patients underwent general anesthesia (GA) for incision/drainage. Abscess tonsillectomy was carried out in 3 cases. The microorganisms isolated from the abscess were 24 while 17 has no growth for 48 hours on culture media. Pus has not been sent for culture/sensitivity in 16 of cases while 24 has been reported as normal throat flora. Among 24 cases, 17 found having the most common microorganism which is the Group A beta hemolytic streptococci; the most common aerobic

Table 2 - Independent variable.

No.	Variable	Category (code)	Frequency	Percentage	Mean
X1	Age	Continuous	10-20	29	2.16
			20-29	24	
			30-39	17	
			40-49	8	
			50-60	3	
X2	Gender	Male (1)	34	68%	1.46
		Female (2)	16	32%	
X3	Nationality	Saudi (1)	68	84	1.16
		Non-Saudi (1)	13	16	
X4	Quinsy site	left (1)	45	55.6	
		right (2)	36	44.4	
		bilateral (3)	0	0	
X5	Management	I/D ULA	47	58	1.8
		I/D UGA	5	6.2	
		Aspiration and conservative	26	32	
		Abscess tonsillectomy	3	3.7	
X6	Culture and sensitivity	No growth	17	21	2.86
		Not sent	16	19	
		Normal throat flora	24	29.6	
		<i>Streptococcus</i> group A	17	21	
		<i>Streptococcus viridian</i>	2	2.5	
		<i>Klebsiella pneumonia</i>	2	2.5	
		<i>Staphylococcus aureus</i>	3	3.7	
		Cryst. Penicillin + Flagyl	49	60.5	
X7	Antibiotic	Augmentin + Flagyl	2	2.5	2.33
		Keflex + Flagyl	1	1.2	
		Zinacef + Flagyl	19	23.5	
		Zinacef	5	6.2	
		Clindamycin + Flagyl	3	3.7	
		Clindamycin + Ceftriaxone	2	2.5	
		1 Day	3	3.7	
		2 Days	4	4.9	
X8	Length of stay	3 Days	27	33.3	3.8
		4 Days	29	35.8	
		5 Days	10	12.3	
		6 Days	4	4.9	
		7 Days	3	3.7	
		8 Days	1	1.2	

organism associated with peritonsillar abscess. A combination of Penicillin G and Flagyl was the most common antibiotic regimen used. Forty-nine cases responded on the treatment while 19 responded to Zinacef and Flagyl combination. No complications were documented during the study period.

Discussion. Peritonsillar abscess is the most common infection of the head and neck that occurs usually in young adults. Needle aspiration or surgical drainage remains the gold standard for diagnosis and treatment of peritonsillar abscess. Management is largely dependent on the preference of the patient's attending doctor. The total number of patients presented in 5 years were 81 and the average patients per year admitted to our hospital with the diagnosis of peritonsillar abscess were 20. The majority of patients were aged between 10-40 years,^{6,8} while in Ong et al¹⁰ study the age group ranged was 10-29 with

a gender-equal ratio,⁶ but in this study the males were more affected than females.

A treatment protocol of peritonsillar abscess requires effective abscess drainage followed by the selection of appropriate intravenous antibiotics. These will lead to a rapid improvement of the patients and it decreases the hospital-stay and minimize complications. In this study, the management varies according to the personal approach of the attending doctor and it ranges from therapeutic aspirations, incision/drainage and abscess tonsillectomy; however, no complication so far was documented as a result of the disease process or management wise. Penicillin G + Flagyl combination has been remained the antibiotic of initial choice and it responded well. Therefore, we agreed with Kieff et al⁶ and Ong et al¹ study suggesting the use of intravenous penicillin as the first line antibiotics in patients requiring parenteral antibiotics after drainage. The culture of

the abscess has a little consideration in the clinical management of the quinsy, as it is reported on the 3rd day and the patient has already been improved with empirical treatment. In the whole series of study, there is no other underlying chronic illness in any of the patients. Bilateral quinsy was reported up to 7%,⁵ while no any single case of bilateral peritonsillar abscess was documented in our review. Cultures of abscess fluid often have a little bearing in the clinical management of quinsy as most patients improved with empirical antibiotics.^{1,3,4,10} Based on our findings, the researchers suggest some general rules with specific recommendations to improve current status of dealing with quinsy cases with professional skills. Therefore, peritonsillar abscess or quinsy refers to a collection of pus located between the fibrous capsule of the pharyngeal tonsil and the superior constrictor muscles of the pharynx. The ENT practitioners should perceive that peritonsillar abscess is a common problem, but in some aspects of diagnosis and management have been remain controversial. Thus, there is no explicitly consensus regarding the best technique among researchers and practitioners. Current management options include only 3, which encompasses needle aspiration, incision with drainage and immediate tonsillectomy; if the case was confirmed peritonsillar abscess. There is no home for Primary Care Physician or out-patient department treatment for it at all, but it has urgently to be referred to ENT specialist in order to deal properly with the case as inpatient services. The initial diagnoses was tonsillitis or peritonsillitis. Conducting intraoral ultrasound can be a helpful diagnostic tool for peritonsillar abscess. For management of peritonsillar abscess needle aspiration, incision and drainage, and quinsy tonsillectomy all yield successful results. Intravenous steroids seems to reduce many symptoms, when used along with abscess drainage. Recent reviews have still not established that one treatment is consistently preferred. Although the 3 mentioned are effective for initial management, the surgeon should have to choose the more efficient and safe method of treatment. The empirical treatment has been remained one of the best, with no much emphasis on the expensive investigations namely; CT scan or culture/sensitivity unless needed or when complication is suspected. Reducing the average length of stay in hospital as soon as possible. Moreover, there is a need to focus on the education of ENT doctors regarding the proper diagnosis and management of problem requires specific measures. Appropriate training must be conducted to all ENT physician in order to meet the proper diagnosis and treatment as a result of less pressure in the ER wards. In this study, we used the

feasible protocol for the management of peritonsillar abscess such as diagnostic needle aspiration; followed by incision/drainage; appropriate antibiotic therapy (Penicillin G and Flagyl) and emphasizes the need for follow-up. Patients were initially taken analgesic and anti-inflammatory activity to relief the associated pain.

Finally, it is recommended that further study must be conducted to evaluate the medical and surgical issues and factors influencing physician's decision to utilize proper and safe intervention therapy. In the end, the researchers' support the view that aspirates of pus from peritonsillar abscesses should be periodically cultured to guide empirical antibiotic management since performing cultures in every case may be unnecessary. Patients who have taken antibiotics prior to aspiration may be included in such surveillance.

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