FREQUENCY OF POST-TONSILLECTOMY SECONDARY HEMORRHAGE

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ABSTRACT

Objective: To determine the frequency of post-tonsillectomy secondary hemorrhage following tonsillectomy in patients with chronic tonsillitis.

Subject and methods: This prospective & descriptive study was conducted at the ENT Department, Hayatabad Medical Complex, Peshawar from July 1, 2018, to December 31, 2019. A total of 287 patients were included in this study. A complete history and examination were carried out at the time of admission. A tonsillectomy was performed the next day. During the procedure, bleeding was controlled by ligation of the bleeders with silk suture. All the patients remained admitted & observed for 48 hours after tonsillectomy. After discharge, patients were instructed to visit the department of ENT in case of any bleeding per oral. All the post-tonsillectomy secondary hemorrhages till 2 weeks post-tonsillectomy were documented.

Results: A total of 287 patients were included in this study with M:F ratio of 2:1 and a mean age of 18± 9.90 years. The highest number of patients was recorded in the age group 4-15 at 128 (44.59%). It was in the same age group in whom the highest number of patients seeking management for post-tonsillectomy secondary hemorrhage. Overall secondary hemorrhage was recorded in 17 (5.9%) of patients. Statistical analysis shows that gender and age did not significantly affect the occurrence of secondary hemorrhage.

Conclusion: Post-operative secondary hemorrhage is a common complication of tonsillectomy patients and still poses a threat to both the patient and clinician when a good recovery has been made and the patient is discharged from the hospital.

Keywords: Tonsillectomy, Post- Post-operative hemorrhage, Complication, Adverse Effects, Child.

INTRODUCTION

Tonsillectomy is the surgical excision of the palatine tonsils. It is one of the most frequently undertaken procedures in otolaryngology. Since the first tonsillectomy description by Celsus about 2,000 years back, new techniques have been described to improve the art of tonsillectomy specifically in the operative time and controlling bleeding. [1] Despite the routine nature of the procedure, numerous complications are observed. The problems commonly associated with tonsillectomy are postoperative hemorrhage and pain. The most serious complication is post-tonsillectomy hemorrhage, which might become life-threatening in rare cases.[2]

The reported risk factors for post-tonsillectomy bleeding include gender, age, indication, tonsillar fossa infection, the day on which bleeding occurred, surgical method, and device used.[3,4]

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There is plenty of data available in the literature regarding the rate of postoperative bleeding after tonsillectomy. Consensus on the rate of post-operative bleeding is lacking. This perhaps is due to regional variations in definitions of postoperative hemorrhage and lack of standardized age groupings[5]

The aim of this study is to determine the current local statistics on post-tonsillectomy hemorrhage. On the basis of the results of this study, we will be able to set management guidelines to prevent & timely treat secondary hemorrhage after tonsillectomy. This will improve patient management, reduce their sufferings & minimize the economic burden on hospitals due to prolonged stay of patients in hospital.

MATERIAL AND METHODS

Place and duration of study: ENT Department Medical Teaching Institution, Hayatabad Medical complex, Peshawar during the period from July 1, 2018 to December 31, 2019.

Objective: To determine the frequency of post-tonsillectomy secondary hemorrhage following tonsillectomy in patients with chronic tonsillitis.

Study Design, Sampling Size, and Technique: This is a prospective and descriptive study. The study includes included 287 patients fulfilling the inclusion criteria. The sampling technique was “convenient sampling

technique". The sample size was calculated by using Calculator.net sample size calculator assuming 10% prevalence of post tonsillectomy hemorrhage in the population keeping a 95% confidence interval with a margin of error of 5%.

Inclusion criteria

Patients aging from 4-40 years.

Patients belonging to both genders.

Patients undergoing tonsillectomy for chronic tonsillitis.

Exclusion Criteria

Patients having bleeding diathesis.

Patients with acute tonsillitis and or peritonsillar abscess.

Patients with a history of trauma in the post-operative period..

Ethical approval for the study was obtained from the institutional research committee vide Ref.No: 083/HEC/PICO/18 dated June 7, 2018. The patients were admitted through ENT OPD fulfilling the inclusion criteria. The demographic features i.e. age, gender was considered. Patients were diagnosed by giving history of recurrent sore throat (7 or more episodes in one year) with enlarged palatine tonsils on clinical examination. Informed written consent was taken from the patients by explaining the patient's data for review and publication for educational and information purposes. Complete history was taken and complete set of routine investigations was done. On next OT day, tonsillectomy was performed. After tonsillectomy bleeding was controlled by ligation of the bleeding areas in the tonsillar fossa, with silk suture. All the patients remained admitted & observed for 48 hours after tonsillectomy. Patients were instructed to visit department of ENT in case of any bleeding per oral any time. All the post-tonsillectomy secondary hemorrhages till 2 weeks post-tonsillectomy were documented. Any post-tonsillectomy infection of the tonsillar fossa were also noted. All the information was recorded in proforma for each patient. All confounding variables and bias was controlled by strictly following the exclusion criteria.

All data collected was entered in SPSS version 11. Mean & standard deviation was calculated for quantitative variables like age of the patient. Frequencies and percentages were presented for qualitative variables like gender, tonsillar fossa infection and post tonsillectomy secondary hemorrhage. Secondary hemorrhage was stratified among the age, gender & post-tonsillectomy tonsillar fossa infection to see the effect modifiers. For categorical variables, differences between patients were tested using the chi-square test. P-value of ≤0.05 was considered significant. The statistical analyses used were descriptive analysis. Results were presented with help of tables and figures.

RESULTS

A total of 287 patients were included in this study with male to female ratio of 2:1 and a mean age of 18± 9.90 years. The gender wise distribution of patients is shown in Table 1. The highest number of patients was recorded in age group 4-15 years at 128 (44.59%).The detail of patients in various age groups is shown in Table 2. Table 3 shows the number of patients in whom evidence of infection in the tonsillar fossae was recorded. The 4-15 years age group has the highest number of patients seeking management for post-tonsillectomy secondary hemorrhage. The overall percentage of patients who returned with secondary hemorrhage is shown in Table 4. Stratification of secondary hemorrhage with respect to age and gender are recorded at Table No. 5 and 6 respectively. Statistical analysis shows that there was no significant difference in the occurrence of secondary hemorrhage with respect the various age groups (p=0.948) and the two genders (p=.057).

TABLE 1: GENDER DISTRIBUTION OF PATIENTS (n=287)

GENDER	FREQUENCY	PERCENTAGE
Male	195	67.94%
Female	92	32.05%

Table 2: AGE GROUPS DISTRIBUTION OF PATIENTS (n=287)

AGE GROUP	FREQUENCY	PERCENTAGES
04-15 Years	128	44.59%
16-30 Years	112	39.02%
31-40 Years	47	16.37%
Mean and SDs	18+9.90	

TABLE 3: FREQUENCIES AND PERCENTAGES FOR POST-TONSILLECTOMY TONSILLAR FOSSA INFECTION (n=287)

POST-TONSILLECTOMY TONSILLAR FOSSA INFECTION	FREQUENCY	PERCENTAGES
Yes	33	11.49%
No	254	88.50%

TABLE 4: FREQUENCIES AND PERCENTAGES FOR SECONDARY HEMORRHAGE (n=287)

SECONDARY HEMORRHAGE	FREQUENCY	PERCENTAGES
Yes	17	5.9%
No	270	94.07%

Table No. 5: STRATIFICATION OF SECONDARY HEMORRHAGE WITH RESPECT TO AGE (n=287)

Age	Secondary Hemorrhage	Frequencies	Percentages	P Value
04-15 Years	Yes	08	02.78%	0.948
	No	120	41.81%	
16-30 Years	Yes	06	02.09%	
	No	106	36.93%	
31-40 Years	Yes	03	01.04%	
	No	44	15.33%	

Table No. 6: STRATIFICATION OF SECONDARY HEMORRHAGE WITH RESPECT TO GENDER (n=287)

Gender	Secondary Hemorrhage	Frequencies	Percentages	P Value
Male	Yes	09	03.13%	0.057
	No	83	28.91%	
Female	Yes	08	02.78%	
	No	187	65.15%	

DISCUSSION

Tonsillectomy is the surgical excision of the palatine tonsils. It is one of the most frequently undertaken procedures in otolaryngology[6]. Indications for tonsillectomy have remained unchanged as far as tonsillitis is concerned. These include chronic tonsillitis, peritonsillar abscess and streptococcal carriers. Tonsillectomy for hypertrophic tonsils causing obstructive sleep disorder is a relatively new indication. Usually the procedure is performed on inpatient basis where the patient stays on ward for a day or two. However many reports within the last two decades have shown the safety of daycare outpatient pediatric tonsillectomy. Despite the routine nature of the procedure, numerous complications are observed. The problems commonly associated with tonsillectomy are postoperative hemorrhage and pain that may necessitate re-hospitalization. The most serious complication is post-tonsillectomy hemorrhage, that might become life threatening in rare cases.[2],[7,8]

In an attempt to relate the bleeding in a tonsillectomized patients,the bleeding episodes have been arbitrarily divided into primary hemorrhage (occuring within the first 24 hours of surgery) and secondary hemorrhage (occuring after the first 24 hours of surgery usually on day 2 to 7 but may be delayed upto day 10 to 14). To minimize the incidence of both per-operative and post-operative haemorrrhage in tonsillectomy, most surgeons screen the patients to exclude bleeding diathesis[9].

In our study we recorded a high incidence of secondary hemorrhage. Out of the total 287 patients undergoing tonsillectomy, 17(5.9%) presented with secondary hemorrhage. This figure is much higher than the figures generally accepted in the literature. In the literature, a post-tonsillectomy hemorrhage rate varies from 2.1% to 12% when all age groups are taken into consideration. In general, the rate of second surgical procedure

due to tonsillar hemorrhage is between 1.2% and 6%.[10,11,12]

In Pakistan studies conducted on frequency of secondary hemorrhage in tonsillectomy quote variable rates from as low as 2% to as high as 12 %. A similar study was conducted at a Peshawar based teaching hospital by Din IU and colleagues. They recorded a 12% incidence for secondary hemorrhage in 21(12%) of their patients[13].In yet another study in King Edwardes Medical College,Pakistan, Saleemi AY & colleagues recorded post tonsillectomy hemorrhage in 6% of their patients[14].

Even with all the precautions to prevent it, post tonsillectomy hemorrhage is still the most common complication that might be requiring revision surgery under general anesthesia and intensive care.[15] In a study of 568 patients who presented with post-operative surgical complications over the 5-year period in 2008-2013, 222 (39.02%) presented with post-operative secondary hemorrhage. Out of these, secondary hemorrhage rate after tonsillectomy was around 4.9%.[16] These findings also support our results.

Alkarzae M et al. conducted a study to ascertain the causes of secondary post tonsillectomy hemorrhage and to confirm whether infection acts as a cause of such hemorrhage or not. They concluded that infection is not a significant cause of post-tonsillectomy secondary hemorrhage and use of antibiotics has no role in reduction of such hemorrhage number of cases. The reported incidence of post-tonsillectomy secondary hemorrhage was 88.7% in this study.[17] These results contradicts with the results of our study in which post tonsillectomy fossa infection is the most common cause of secondary haemmorhage.

The reported risk factors for post-tonsillectomy hemorrhage include gender, age, tonsillectomy indication, tonsillar fossa infection, the time on which bleeding occurred, surgical method and device used.[4]

Among the risk factors, patient's age has always been mentioned as a main risk factor for hemorrhage, with older patients at a more risk. However, in this study there was no statistically significant variation regarding the age of the patient between the two groups. There is some inconsistency regarding gender as a risk factor for postoperative hemorrhage. Some authors have found a positive correlation for male patients at higher risk and others did not.[18] In a retrospective analysis of 325 patients by inuzuka & colleagues analyzed the risk factors for post tonsillectomy hemorrhage. They observed that current smoking status and old age was significantly associated with primary hemorrhage. On the other hand, current smoking status and male sex was associated with secondary hemorrhage[19].

ADVANTAGES OF THE STUDY

As occurrence of post-operative tonsillectomy hemorrhage is highly variable, the study gives awareness about post-operative tonsillectomy hemorrhage in our local settings. In our patients tonsillar fossa infection was associated with post-operative hemorrhage in majority of the patients, thus, highlighting the importance of instituting aseptic measures during surgery to prevent post-operative tonsillectomy hemorrhage.

LIMITATIONS OF THE STUDY

The sample size is small. It is only a frequency determination study. Further work is required to correlate post-operative tonsillectomy hemorrhage with the causative agent. As such a study will be better placed to help the surgeons to avert the possibility of post-operative secondary hemorrhage by instituting timely prophylactic measures.

CONCLUSION

Post-operative secondary hemorrhage is a common complication of tonsillectomy patients and still poses a threat to both the patient and clinician when apparently good recovery has been made and the patient is discharged from the hospital. We recommend the patient be warned of the possibility of post-operative tonsillectomy hemorrhage and advised to report back to the hospital at the earliest sign of bleeding.

CONFLICT OF INTEREST: We, the authors, have no conflicts of interest to declare in relation to this article.

AUTHORS' CONTRIBUTIONS

Muhammad Arif: Principal author. Conception of idea, acquisition of data, analysis of data, critical analysis of content, drafting the article and final approval for publication.

Allah Noor: : Acquisition of data, analysis of data, drafting the article.

Khurshid Anwar: Acquisition of data, analysis of data, critical analysis of content, drafting the article and final approval for publication.

Saeed khan: Acquisition of data, analysis of data, analysis of content and drafting the article.

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