IJABR

International Journal of Advanced Biotechnology and Research (IJABR)
ISSN 0976-2612, Online ISSN 2278–599X,
Vol-9, Issue-4, 2018, pp604-608
http://www.bipublication.com

Research Article

An assessment of post tonsillectomy hemorrhage in children

[1]Muhammad Wahid Saleem, [2]Shahid Ali and [3]Haider Ali Bhatti

[1]Assistant Professor, Department of Otolaryngology,
Dera Ghazi Khan Medical College, D.G. Khan
[2]Assistant Professor, Department of Otolaryngology,
Sahiwal Medical College Sahiwal
[3]Medical Officer/Incharge, Basic Health Unit ChangaMaira, Gujjar Khan

[Received: 27/11/2018; Accepted: 28/12/2018; Published: 30/12/2018]

ABSTRACT:

Objective: To determine the frequency of post tonsillectomy primary and secondary hemorrhage in children between 3-14 years.

Material and methods: This cross sectional study was conducted at Department of Otolaryngology, Dera Ghazi Khan Medical College, D.G. Khan from March 2017 to September 2017. Total 196 patients undergoing tonsillectomy either male or female having age from 3-14 years were selected for this study. Post-operative hemorrhage (primary or secondary) were assessed.

Results: We recorded 24.49% (n=48) between 3-5 years, 28.57 (n=56) between 6-8 years, 21.94 (n=43) between 9-11 years and 25 (n =49) between 12-14 years of age, mean age was 8.34 ± 5.87 years, 39.29 (n = 77) were male and 60.71% (n=119) were female patients, post-operative hemorrhage was recorded in 8.67% (n = 17), out of these cases 23.53% (n = 4) had primary and 76.47% (n=13) patients had secondary hemorrhage.

Conclusion: The results of the study conclude that the frequency of post tonsillectomy secondary hemorrhage in children between 3-14 years undergoing tonsillectomy is higher as compare to the primary hemorrhage more attention for the surveillance of the problem.

Keyword: tonsillectomy, hemorrhage

INTRODUCTION:

Tonsillectomy continues to be one of the most common surgical procedures performed in children and adults and approximately 20-40% of otolaryngologic procedures.[1-3]There is no uniform technique of tonsillectomy throughout the world and the choice of the technique depends on the surgeon's preference.[4] These techniques include blunt dissection, guillotine excision, electrocautery, cryosurgery, coblation, ultrasonic removal, laser removal, monopolar and bipolar dissection and ligature tonsillectomy.[5]

Despite improvements in surgical and anesthetic techniques, postoperative morbidity, mainly in form of pain, remains a significant clinical problem.[6] Post tonsillectomy hemorrhage is a significant complication because of its frequency

and consequences. Increases in post tonsillectomy hemorrhage prevalence have been reported.[7] Generally, the hemorrhage is classified as primary (<24 hours) or secondary (>24 hours). Primary hemorrhage is considered to be more serious than secondary hemorrhage, but secondary hemorrhage can also be risk and require massive treatment under general anaesthesia.[8] Sameer Qureshi and workers[8] in a prospective study with the view to determine occurrence of post tonsillectomyhemorrhage in pediatric age group found 4% post operativehemorrhage and 15% of them were primary while remaining 85% were secondary hemorrhage.

We are interested to conduct this study with the view to determine the frequency of post tonsillectomy primary and secondary hemorrhage in children undergoing tonsillectomy. The rationale of this study is that very few studies are published on this topic and results of the study will draw the attention of the surgeons to post procedure morbidity so that during procedure more care be given to avoid this morbidity, as tonsillectomy is a common otolaryngologic procedure.

MATERIAL AND METHODS:

This cross sectional study was conducted at Department of Otolaryngology, Dera Ghazi Khan Medical College, D.G. Khan from March 2017 to September 2017. Total 196 patients with recurrent episodes of tonsillitis with six weeks, 4-5 times in two years or 2-3 episodes in a year, (confirmed on history and record) having age 3-14 years either male or female were selected. Patients with symptoms and signs of recent upper respiratory tract infection, unfit for general anesthesia and patients having bleeding disorders like bleeding time and clotting time were excluded from the study.

Approval was taken from the institutional review committee and informed consent was taken from the parents of patients.

Fig. 1: Age distribution

Demographic profile of all the patients were recorded in proforma. Tonsillectomy was done under general anesthesia and oral intubation. The tonsils were removed via the dissection and hemostasis was achieved by electric cautery. Patients were allowed for eating and drinking after 6 hours of the procedure. Patients were discharge on 3rd day and follow up in out patient's door was done on 6th, 10th and 15th day. Patients who developed primary or secondary hemorrhage on any of these days were recorded on pre-designed proforma.

All the collected data was entered in SPSS version 18 and analyzed. Mean and SD was calculated for numerical variables and frequencies and percentage were calculated for categorical data.

RESULTS:

A total of 196 patients were enrolled in this study. Mean age of the patients was 8.34 ± 5.87 years. Age distribution of the selected patients was done. In age group 3-5 years, there were 48 (24.9%) patients followed by 6-8 years age group 56 (28.57%) patients, age group 9-11 years 43 (21.94%) patients and in age 12-14 years there were 49 (25%) patients. Fig. 1

Out of 196 patients, 77 (39%) patients were male and 119 (61%) patients were female. (Fig. 2)

Out of 196 patients, hemorrhage was noted in 17 (8.67%) patients and 4 (23.53%) patients were found with primary hemorrhage and 13 (76.47%) patients were found with secondary hemorrhage. (Fig. 3) Stratification of patients with hemorrhage was done and primary and secondary hemorrhage was noted in 2 (50%) patients and 3 (23.08%) patients of age group 3-5 years, followed by 1 (25%) patients and 5 (38.46%) patients of age group 6-8 years, 1(25%) patients and 4 (30.77%) patients of age group 9-11 years. (Table 1)

Primary hemorrhage was noted in 1(25%) male patients and in 5 (38.46%) secondary hemorrhage was noted. Primary and secondary hemorrhage was noted 3 (75%) and 8 (61.54%) female patients. (Table 2)

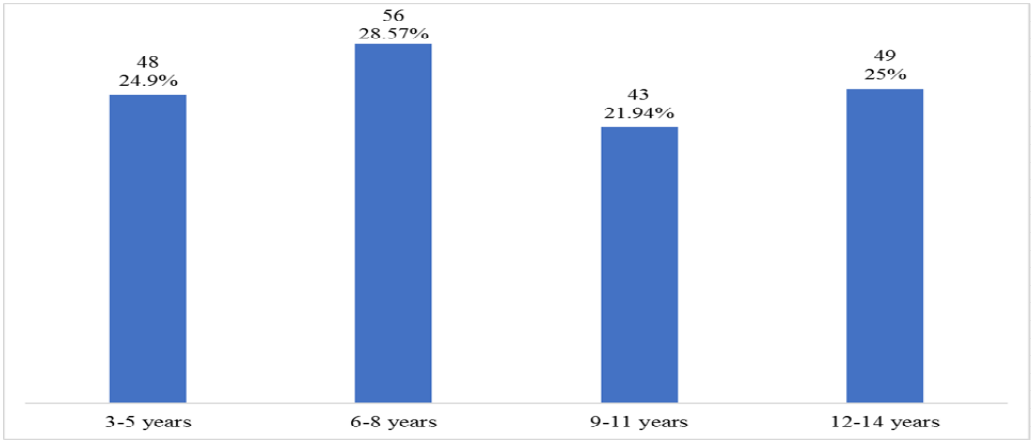

Fig. 2: Gender Distribution

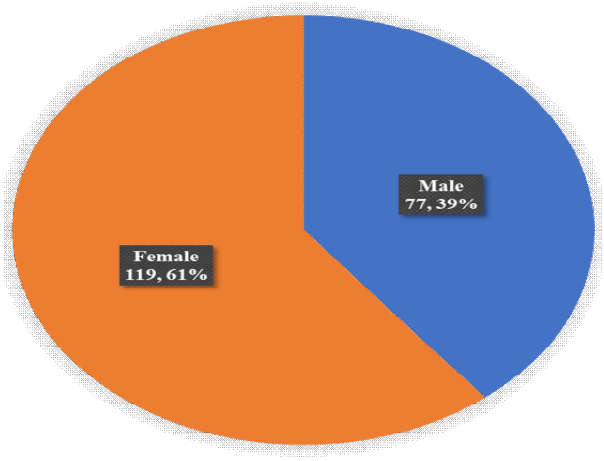

Fig. 3: Frequency for primary or secondary hemorrhage

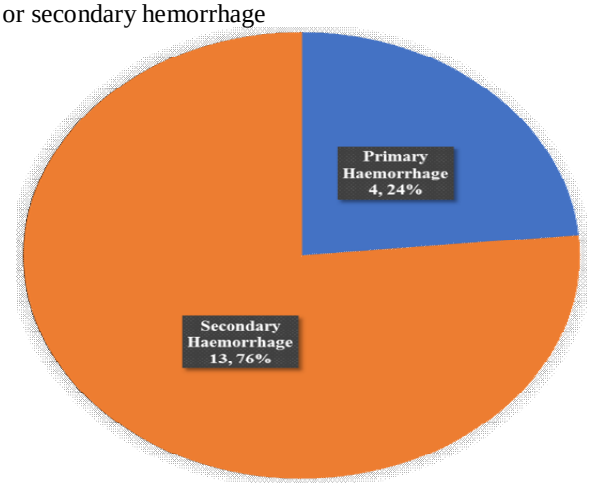

Table 1: Stratification for age (n=17)

Age (Years)	**Hemorrhage**	
	Primary (%)	**Secondary (%)**
3-5	2 (50)	3 (23.08)
6-8	1 (25)	5 (38.46)
9-11	1(25)	4 (30.77)
12-14	00	1 (7.69)
Total	**4 (100)**	**13 (100)**

Table 2: Stratification for gender (n=17)

Gender	Hemorrhage	
	Primary (%)	**Secondary (%)**
Male	1 (25)	5 (38.46)
Female	3 (75)	8 (61.54)
Total	**4 (100)**	**13 (100)**

DISCUSSION:

Tonsillectomy is probably the most common operation performed by an otolaryngologist. One of the most significant complications is post operativehemorrhage.[9-10] Episodes of post tonsillectomy hemorrhage are unpredictable and sometimes life threatening.[11] We planned this study keeping in view that very few studies ae published on this topic and results of the study may draw the attention of the surgeons to post procedure morbidity so that during procedure more care be given to avoid this morbidity.

The results of the study reveals 24.49% between 3-5 years, 28.57% between 6-8 years, 21.94% between 9-11 years and 25% between 12-14 years of age, mean and SD was calculated as 8.34 ± 5.87 years, 39.29% were male and 60.71% were female patient, post operativehemorrhage was recorded in 8.67% patients, out of these patients 23.53% had primary and 76.47% had secondary hemorrhage.

The findings of the study are in agreement with the Qureshi S et al[8], wo recorded 15% of the patients with primary hemorrhage and 85% with secondary hemorrhage, while findings regarding frequency of post operativehemorrhage is in contrast with the study as they recorded only4% of the patients who developed post operativehemorrhage while this frequency is higher in our study, though overall frequency of post operativehemorrhage is not significantly higher being 8.67%.

A number of previous studies the secondary hemorrhage rate was higher. Benson and Mitchell[12]found that 16% of children had experience some bleeding when contacted at 2 weeks postoperatively. Rautet al[13] found 16.9% secondary hemorrhage rate in 200 patients while assessing 15-17 days postoperatively. Blogmrenet al[14] found that 32.8% of a mixed adult and pediatric population had experienced some secondary hemorrhage following tonsillectomy. Some researchers showed post tonsillectomy bleeding rate of 5.1% in adults and PTB rates of 6.75% in pediatric patients. In a literature based study by Blakley[15] he concluded that post tonsillectomy bleeding rates of about 5% are typical. In another study by D'Agostinoet al[16]on 3306 patients undergoing elective adenotonsillectomyby five senior surgeons with different surgical techniques, they found late post operative hemorrhage rate of 1.78% which started all at home.

The above mentioned studies are comparatively lower rate of secondary hemorrhage than ours but this difference is due to the reason that they calculated the frequency of secondary hemorrhage on overall patients' frequency while we calculated this incidence out of total post operative hemorrhage patients i.e. 13 (76.47%) cases out of total 17 (8.67%) cases who developed secondary hemorrhage among 196 of total patients of the study. The same way to calculate the frequency of the morbidity is adopted in study conducted by Qureshi S and workders[8] and our findings are in agreement with their study. But, the findings of all these trials like our study showed that the rate of primary hemorrhage was too low to dictate the length of stay. The wide variation of hemorrhage rates among different studies was probably due to different criteria used in the definitions. However all of these studies as well as ours considered adenotonsillectomy safe as a day case procedure in patients that had inclusion criteria for DCT.

CONCLUSION:

The results of the study conclude that the frequency of post tonsillectomy secondary hemorrhage in children between 3-14 years undergoing tonsillectomy is higher as compare to

the primary hemorrhage more attention for the surveillance of the problem.

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