

Case series

Prevalence of Post-tonsillectomy Bleeding: A Case Series Study

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Abstract

Post-tonsillectomy haemorrhage is one of the most serious complications of tonsillectomy and remains a major concern for otolaryngologists due to potential morbidity and mortality. Although tonsillectomy has been widely practiced in Libya for decades, no published local data exists regarding post-tonsillectomy bleeding. This study aimed to evaluate the incidence and the pattern of post-tonsillectomy haemorrhage at Tripoli Central Hospital. The objective of this study is to determine the incidence of post-tonsillectomy haemorrhage and its association with demographic and surgical factors. A retrospective case series study was conducted, including 1,048 patients who underwent tonsillectomy or adenotonsillectomy between 2019 and 2024. Data collected included age, sex, type of surgery, and type of postoperative haemorrhage (primary or secondary). Statistical analysis was performed using SPSS version 16. Post-tonsillectomy haemorrhage occurred in 31 patients (2.9%). Primary haemorrhage was observed in 11 patients (35.5%), while secondary haemorrhage occurred in 20 patients (64.5%). Age showed a significant association with post-tonsillectomy bleeding, whereas the type of surgery did not. Post-tonsillectomy haemorrhage remains a significant clinical challenge. The bleeding rate observed in this study is comparable to those reported in the international literature. Older age was identified as a significant factor, while the type of surgery was not significant.

Keywords. Tonsillectomy, Adenotonsillectomy, Haemorrhage, Complications.

Introduction

Tonsillectomy remains one of the most commonly performed surgical procedures worldwide. Absolute indications include adenotonsillar hypertrophy causing obstructive sleep apnoea, abnormal dento-facial growth, or suspicion of malignancy. Relative indications include recurrent or chronic tonsillitis, dysphagia, upper airway obstruction, and peritonsillar abscess [1]. Post-tonsillectomy haemorrhage is a potentially life-threatening complication and continues to be a major cause of post-operative morbidity and, rarely, mortality. In the literature, the post-tonsillectomy bleeding is recorded between 0.1% and 40%, whilst it causes death in between 0.001% and 0.006% of cases [2], with primary haemorrhage occurring in 1.6% of cases, secondary haemorrhage in 10% [3,4,5]. The rate of post-tonsillectomy haemorrhage can be found as low as 1-3% that's of primary haemorrhage, and 1-5% secondary haemorrhage [2,3,6].

Despite advances in surgical technique and perioperative care, postoperative haemorrhage remains a significant concern. Tonsillectomy techniques are broadly categorised into extracapsular (total) and intracapsular (partial). Extracapsular tonsillectomy involves dissection along the plane between the tonsillar capsule and the pharyngeal musculature, whereas intracapsular tonsillectomy preserves the capsule and removes the tonsillar tissue in a piecemeal fashion. Monopolar electrocautery, bipolar electrocautery, cold steel, harmonic scalpel, and advanced bipolar sealer/divider are used for the extracapsular technique, while micro-debrider, bipolar radiofrequency ablation, and laser are used for the intracapsular technique. In Tripoli Central Hospital, extracapsular tonsillectomy using sharp dissection and electrocautery is the most employed technique.

Post-tonsillectomy haemorrhage is classified as primary when it occurs in the first 24 hours postoperatively, usually due to slipped ligature or a local trauma, and secondary when it occurs after 24 hours, usually due to eschar sloughing, infection, or trauma [3]. This study aims to evaluate the incidence and the pattern of post-tonsillectomy haemorrhage in Tripoli Central Hospital. The study was conducted respectively and included 10,048 patients who underwent tonsillectomy and adenotonsillectomy between 2019 and 2024.

Methods

Study Design and Setting

This research was conducted as a retrospective case series in the Department of Otolaryngology and Head and Neck Surgery at Tripoli Central Hospital, Tripoli, Libya.

Study Population

A total of 1,048 patients who underwent tonsillectomy between 2019 and 2024 were included. All procedures were performed using extracapsular tonsillectomy with cold steel dissection. Hemostasis was achieved through ligation and bipolar diathermy.

Data Collection

Relevant information was extracted from hospital records and encompassed patient demographics (age and sex), surgical indications, type of surgery performed, and the occurrence and classification of post-tonsillectomy haemorrhage.

Statistical analysis

Data were analysed using SPSS version 16. Descriptive statistics were expressed as Mean \pm SD and percentages. Association between categorical variables was assessed using the Chi-square or Fisher's exact test, where appropriate. A $p \leq 0.05$ was considered statistically significant.

Results

Age distribution of the patients

The mean age for the patients was 13.6 ± 10.2 years (range: 3 – 70 years). Most patients (53%) were aged between 3 and 10 years. Females constituted 52.4% of the cohort, while males accounted for 47.6%. Adenotonsillectomy was performed in 74.4% of patients, tonsillectomy alone in 25.5%, and uvulopalatopharyngoplasty in 0.1%. Recurrent tonsillitis was the most common indication for surgery (99.3%). Post-tonsillectomy haemorrhage occurred in 31 patients (2.9%). Secondary haemorrhage was more frequent than primary haemorrhage. A statistically significant association was found between age and post-tonsillectomy haemorrhage ($P < 0.05$). No significant association was observed with the type of surgery.

Table 1. Age distribution of the patients

Age (Years)	Number Of Patients	%
3 – 10	555	53 %
11 – 20	256	24.4%
21 – 30	147	14 %
31 – 40	37	7 %
41 – 50	14	1.3 %
51 – 60	2	0.2 %
61 – 70	1	0.1 %
Mean, SD	13.6, 10.2	
Age range	3 – 70 years	

Gender distribution of patients

Among 1048 patients, 52.4% were females and 47.6% were males.

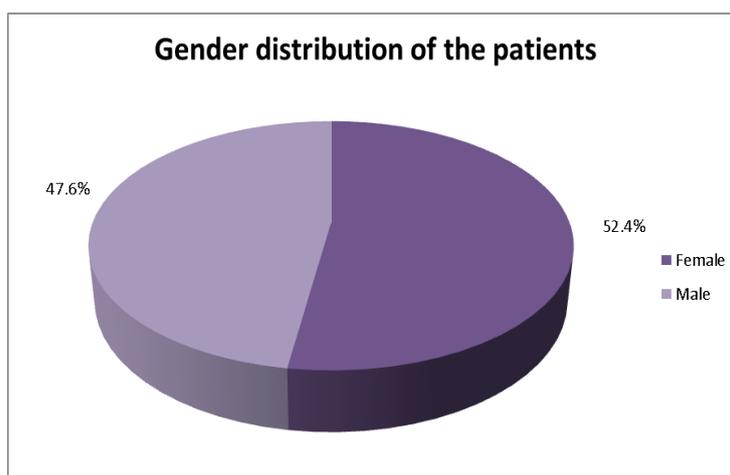


Figure 1. Gender distribution

Type of tonsillar surgery

Most patients (74.4%) had adenotonsillectomy, and 25.5% had tonsillectomy, 0.1% did UPPP, as shown in Figure 2 below.

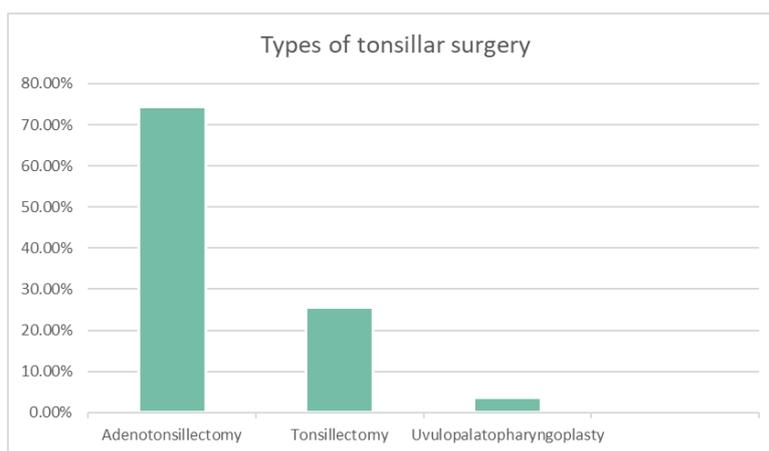


Figure 2. Types of tonsillar surgery

Indications for tonsillar surgery

Many patients (99.3%) had recurrent tonsillitis, as shown in Table 2.

Table 2. Indications of tonsillar surgery among patients

Indication	No. of Patients	%
Recurrent tonsillitis	1041	99.3%
Alteration of speech & swallowing	2	0.2%
Tonsillar mass	2	0.2%
Peritonsillar abscess	1	0.1%
Unilateral tonsillar hypertrophy	2	0.2%

Types of bleeding

Out of 1048 patients, around 31 patients had a history of bleeding (primary or secondary) during the surgery. Their distribution is shown below (Table 3).

Table 3. Types of bleeding among patients

Type of Bleeding	No. of Patients	%
Primary bleeding	11	35.5%
Secondary bleeding	20	

Types of surgery according to the sex of the patients

There is an obvious difference between the types of surgery and the sex of the patients. Males tend to have adenotonsillectomy more than females, and females tend to have more tonsillectomies than males. $P = 0.015$ (Table 4).

Table 4. Types of surgery according to the sex of the patients

Gender	Tonsillectomy	Adenotonsillectomy	Uvulopalatopharyngoplasty
Male	108 (40.4%)	391 (50.1%)	0 (0%)
Female	159 (59.6%)	389 (49.9%)	1 (100%)
P = 0.015			

Types of surgery according to the age of the patients

It is clear that adenotonsillectomy is more common among those who are less than 10 years old, and tonsillectomy among those 11 to 20 years old, $P < 0.001$ as shown below in Table 5.

Table 5. Types of surgery according to the age of the patient

Age (years)	Tonsillectomy	Adenotonsillectomy	Uvulopalatopharyngoplasty
1 – 10	38 (14.2%)	517 (66.3%)	0 (0%)
11 – 20	114 (42.7%)	142 (18.2%)	0 (0%)
21 – 30	77 (28.8%)	70 (9.0%)	0 (0%)
31 – 40	31 (11.6%)	42 (5.4%)	0 (0%)
41 – 50	6 (2.3%)	7 (0.9%)	1 (100%)
51 – 60	0 (0%)	2 (0.3%)	0 (0%)
61 – 70	1 (0.4%)	0 (0%)	0 (0%)
P = 0.001			

Discussion

Post-tonsillectomy haemorrhage is a serious complication that may require surgical intervention under general anaesthesia to control the bleeding. In the present study, the overall haemorrhage rate (2.9%) is consistent with the rates in the literature [7–15]. The potential risk factors associated with post-tonsillectomy haemorrhage and hospital admission include surgical technique, surgeon's skill level, sex and age of the patient, BMI, and indication for tonsillectomy [7,8,9,14]. In our study, age was found to be a significant risk factor, with higher bleeding rates observed in older patients. The finding aligns with previous studies suggesting increased risk with advancing age [8,10]. A statistically significant association was found between age and post-tonsillectomy bleeding. Previous studies have shown that age was found to be a major predictor of post-tonsillectomy haemorrhage. In contrast, Ordemann et al found that child age did not increase the risk of post-tonsillectomy haemorrhage [10]. Spektor et al found that children older than 11 years were more prone to post-tonsillectomy haemorrhage [12]. The theoretical underpinning of age-associated bleeding is the longer duration of tonsillitis in older patients. According to Tomkinson et al, the risk of post-tonsillectomy haemorrhage increased significantly in patients older than 12 years [13].

In the present study, although 74.4 % of patients underwent adenotonsillectomy, adding adenoidectomy to the surgery was not found to have a statistically significant impact on post-tonsillectomy bleeding. Similar findings have been reported in other studies, indicating that the addition of adenoidectomy (adenotonsillectomy) does not increase the bleeding risk.

This study is limited by its retrospective design. However, one of the strengths of this study was that it was the first cohort study on the issue of post-tonsillectomy bleeding in the region. Therefore, the findings of this study may serve as a baseline for future multicentre studies.

Conclusion

The problem of post-tonsillectomy haemorrhage remains an important challenge facing ENT surgeons. The incidence observed in this study is comparable to international data. Older age was identified as a significant factor, while the type of surgery was not. Multicentre national studies are recommended to further evaluate risk factors and outcomes.

Conflict of Interest

The authors declare that they have no conflict of interest.

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