

Analysis of Timing of Post-adenotonsillectomy Bleeding in Imam Khomeini and Apadana Hospitals (Khuzestan, Iran)

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ABSTRACT

Tonsillectomy with or without adenoidectomy is still the most common surgery performed in the field of otorhinolaryngology (ENT) all over the world. Bleeding is the most frequent and the most urgent complication during and after surgery. The present study aims at discussing bleeding time and comparing the findings with the data available in literature. This was a retrospective cross-sectional study conducted on 764 patients hospitalized in Imam Khomeini and Apadana Hospitals in Ahvaz (Khuzestan, Iran). They were referred to the hospitals for tonsillectomy surgery with or without adenoidectomy during March 21, 1998 to June 20, 2008. The information including age, gender, type of surgery performed, indication for surgery, bleeding time, bleeding area, taken measured, and rate of blood transfusion were collected. All the patients were examined every week during one month after surgery. The patients ranged 14 months to 74 years old. The mean age of the patients was 11 years (± 5.37) and the most frequency was related to the age group of 7 to 9 years old. The surgery indications were often included recurrent infections of tonsils and their obstructive hypertrophy that form 755 cases (96.3%) of the indications. Bleeding was only seen in 16 (2.04%) out of 784 patients. Eleven cases (68.75%) had bleeding within the first 24 hours as early bleeding. Comparing with other studies, frequency of early bleedings in our study is high. It points out the necessity of improving accuracy in creating hemostasis during surgery, removing tonsils and adenoid tissue completely, and further skill of surgeons in adenotonsillectomy surgery. In our study, which is similar to the other studies, early bleeding was seen in most cases. Therefore, patient care and bleeding control are important.

Key words: Complications, Bleeding, Adenoidectomy, Ahvaz.

INTRODUCTION

Tonsillectomy with or without adenoidectomy is still the most common surgery performed in the field of otorhinolaryngology (ENT) and head and neck surgery all over the world^{1-5,8}. On average, it constitutes 20% to 40% of the surgeries in this field⁶. Various techniques have been invented for surgery, but there is not a uniform

method for performing surgery. Common methods include using cauterys, stitches, laser, coblations, and radio waves⁷.

Adenotonsillectomy is a surgical method that should be included in the basic training program of each ENT specialist^{6,8}. The main indication of these surgeries is hypertrophy of tonsils and adenoids, which is highly prevalent. In spite of

the preliminary technique of these surgeries, their complications might be potentially serious. The most frequent and the most urgent complication would be bleeding during surgery and after it^{7,9}.

Postoperative bleeding is the most common serious complication related to adenotonsillectomy. Its rate was reported differently, ranging from 5% to 10% with respect to the different surgical techniques^{9, 10}. Bleeding may start during surgery or 24 hours after it (early bleeding) and/or after 24 hours (late bleeding). Bleeding during surgery may be due to coagulopathy or injury to a large blood vessel or surrounding tissues during surgery or upper respiratory tract infection (URTI). An electric cautery or a ligator can be used to control bleeding during surgery. Under severe conditions, large artery ligation through cervical exploration might be necessary^{10, 11, 16}. Three to five percent of bleedings leads to rehospitalization¹¹. Apart from bleeding, complications such as hematoma on tonsillar bed, surgical wound contamination, severe edema on soft palate and uvula, adhesion in the Eustachian tube, dislocation of atlanto-occipital and temporo-mandibular (TMJ) joints may occur^{1, 2, 4, 15}. In order to reduce bleeding risk, preoperative testing should be performed routinely. A careful history should be obtained to evaluate symptoms of coagulopathy. Moreover, a careful history of the medications that may increase bleeding risk should be received^{2, 3, 6}. Our research aims at studying bleeding time and comparing the study findings with the data available in the nationwide and global literature.

MATERIALS AND METHODS

This retrospective cross-sectional study was carried out on the patients who referred to the ENT wards of Imam Khomeini and Apadana Hospitals in Ahwaz (Khuzestan, Iran) during March 21, 1998 to June 20, 2008 and underwent tonsillectomy surgery with or without adenoidectomy. They were put under general anesthesia through endotracheal intubation through mouth and/or nose. Adenoidectomy of patients was performed in the hospital using curettes. Then a pack was put inside nasopharynx to create hemostasis. In Tonsillectomy, upper mucosa was incised by a knife first. Then, the

dissection was carried out using cold dissection of blunt tonsil for detaching tonsil from its bed and erenos was used to detach lower tonsillar bed. A temporary pack was placed to control bleeding. Stitching the bleeding area was performed using vicryl 02. The records of the patients suffering from postoperative bleeding - as their bleeding had not been controlled by applying conservative non-surgical procedures and they needed surgical intervention under general anesthesia - were studied and a questionnaire was prepared encompassing the following information: age, gender, type of surgery, indication of surgery, bleeding time (during surgery, the first 24 hours, after 24 hours), bleeding area, cause of bleeding, measures taken in operating theater and blood transfusion. All the above information was available from the patients' records. The information was collected and all the data reflex patients' viewpoints in a descriptive manner. All the patients are examined every week within one month after surgery.

Statistical Analysis

All the information was analyzed using SPSS 16. The data were shown as quantities and percent.

RESULTS

This retrospective cross-sectional study was carried out on 784 adenotonsillectomy surgeries performed between 1998 and 2008 in Imam Khomeini Hospital affiliated to Medical Sciences University of Jundishapur, Ahwaz and Apadana Hospital and following results were achieved. The patients ranged 14 months to 74 years old. The mean age of the patients was 11 years (± 5.37) and the most frequency was related to the age group of 7 to 9 years old. There were 16 cases (2.04%) of bleeding (Table 1). Surgery indications often consist of recurrent infections of the tonsils and their obstructive hypertrophy that form 755 cases (86.3%) of the indications. Other causes for surgery include eleven cases of peritonsillar abscess (1.4%), 5 cases of styloid process hypertrophy (0.64%), 7 cases of sleep disorders (0.89%), and 6 cases of malignant plexus (0.7%) (Table 2). Six hundred and ninety seven cases of adenotonsillectomy (T&A) (88.9%), 49

Table 1: Distribution of age, gender, and bleeding time in the operated patients

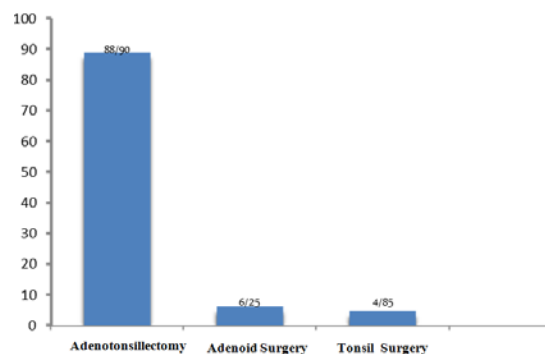
Patient	Age (year)	Gender	Type of Surgery	Bleeding Time
Patient 1	7	Male	T&A	First 24 Hours
Patient 2	6	Male	T	First 24 Hours
Patient 3	12	Female	T	Late Bleeding
Patient 4	34	Male	A	First 24 Hours
Patient 5	14	Male	T	Late Bleeding
Patient 6	15	Male	A	First 24 Hours
Patient 7	22	Male	T	First 24 Hours
Patient 8	8	Male	T	First 24 Hours
Patient 9	12	Female	T	First 24 Hours
Patient 10	18	Male	T	First 24 Hours
Patient 11	19	Male	T	Late Bleeding
Patient 12	7	Male	T	First 24 Hours
Patient 13	8	Female	T	First 24 Hours
Patient 14	9	Female	T&A	First 24 Hours
Patient 15	23	Male	T	Late Bleeding
Patient 16	11	Male	T	First 24 Hours

Table 2: Causes for Tonsils and adenoids surgery

Causes for Surgery	Frequency	Percent
Obstructive and Infection Causes	755	96.3%
Peritonsillar Abscess	11	1.4%
Sleep Disorders	7	89%
Malignant tumor	6	77%
Elongated Styloid Process	5	64%

cases of adenoidectomy (A) surgeries (6.25%), 38 cases of tonsillectomy (T) surgeries (4.85%) surgeries were performed (Figure 1). Recurrent infections and obstructive cause were among the most common surgical indication of those who suffered from bleeding. However, the patients with records of recurrent infections form a high proportion of the bleeding cases. Tonsillar bed was the most common area of bleeding. There were 12 cases of tonsils, 2 cases with adenoids and 2 cases with both. Right tonsils exceeded left tonsils. Bleeding time of 11 cases (68.75%) occurred within the first 24 hours, i.e. early bleeding. There were 5 late bleeding, between days 5 and 18 after surgery. The patients suffering from postoperative bleeding were between 6 and 34 years old. No complication was seen in the patients under 5 years old. Three patients (18.75%) suffering from bleeding were

transfused blood. In an attempt to control bleeding of one patient, his/her right external carotid artery was ligated.

**Fig. 1: Distribution of the types of surgeries**

DISCUSSION

In the study of Windfuhr *et al.* on 2567 children under 15, 41 (6.1%) suffered from postoperative bleeding; there were 27 preliminary bleeding (9.65%) and 14 cases (1.34%) of late bleeding¹². In another study carried by Montreal during a 7-year period, the overall bleeding prevalence was 2.5%; seventy-eight percent of them occurred within the first 12 hours¹⁰. In a retrospective study in Anna Hospital, bleeding rate was reported as 2.1%; 94.1% of which occurred within the first 24 hours⁸. Bleckley studied 3240 children, 6% of them needed operating theater for controlling bleeding¹³. In a study conducted by Abdolhossein Faramarzi *et al.*, they only found 3 cases of bleeding out of 150 surgeries¹¹. Agostino *et al.* conducted a study on 4386 children under 13 and realized that 57% of the patients needed for treatment to control the preliminary bleeding. All the bleedings occurred within the first 6 hours after surgery¹⁴. In another study conducted during a 3-year period on 1107 patients operated in Tabriz Children Hospital, surgical indicate of 47% of the patients suffering from bleeding had infection and obstructive causes together and 41% of them had only infection causes. The incidence of bleeding in the operated patients was in a way that 1.53% of them needed the operating theater again¹⁷. In a study conducted in Tohid Hospital in Sanandaj, postoperative preliminary bleeding and secondary bleeding were seen in 8.1% and 7.2% of the patients, respectively¹⁸. A study carried out in Minnesota revealed that secondary bleeding was more common than preliminary bleeding and they were often postoperative¹⁹.

Comparing our study with other studies shows that obstructive and infection causes are majorly discussed as surgery indications. Histories and physical examinations are used for specifying surgical indication and the histories were often obtained from their parents. Surgical indications are often recurrent infections of tonsils and their obstructive hypertrophy that form 755 cases (96.3%) of the indications. Bleeding was only seen in 16 (2.04%) patients. Eleven cases (68.75%) had bleeding within the first 24 hours, i.e. early bleeding. Rate of early bleeding in our study exceeds other studies, which indicates the necessity of improving accuracy in creating hemostasis during surgery, removing tonsils and adenoid tissue completely, and further skill of surgeons in adenotonsillectomy surgery.

CONCLUSION

In our study and the studies conducted by others, most of the early bleeding occurs within the first few hours; therefore, patient care and bleeding control are important. It is proposed to perform surgeries within the early hours in the morning to be able to do better multi-hour postoperative care under better conditions and reduce its complications by on-time diagnosis and treatment.

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