

*Original Research Article*

**Incidence of Post-Tonsillectomy Bleeding in Al Hilla General Teaching Hospital**

Lateef Hussain Alwan<sup>1\*</sup> Harith Fathi Hameed<sup>1</sup> Safaa Sahib Najir<sup>2</sup>  
<sup>1</sup>Al Hilla General Teaching Hospital, Hilla, IRAQ  
<sup>2</sup>College of Medicine, University of Babylon, Hilla, IRAQ

\*E-mail : Lateefhussain75@gmail.com

Accepted 2 January, 2017

**Abstract**

This is a prospective study of 606 tonsillectomies patients, which were performed in the theatre of ENT department of Al-Hilla General Teaching Hospital, in the period between July 2012 to July 2014 , to estimate the age- specific incidences of post-tonsillectomy bleedings.

We collected a number of patients less than 15 years old (1-14) (pediatric group) and another number of 15 years and more patients (adult group) who did tonsillectomy

Our study demonstrates: the incidence of post tonsillectomy bleedings ,bleeding rates according to time, age, sex, and indications and fatality.

We found he following :

\*post – tonsillectomy bleeding occurred more often in adult group than in pediatric group (3.8% vs. 1.5%) .

\*reactionary bleeding (24hours postoperatively) was more common in adult than pediatric group (81.8% vs. 60%).

\*post – tonsillectomy reactionary bleedings more common in males than females (2-1) while secondary is equal (1-1).

post – tonsillectomy bleedings are more common in patients who have a history of chronic and recurrent infections .

\*fatality nil.

**Key Words:** ENT, Ear, Nose, Throat, Post-Tonsillectomy.

**الخلاصة**

هذه الدراسة لـ 606 مريض اجريت لهم عملية استئصال اللوزتين في صالة عمليات شعبة الانف والاذن والحجرة في مستشفى الحلة التعليمي العام في الفترة بين شهر تموز 2012 الى شهر تموز 2014 لتقييم نسبة حدوث النزف بعد عملية استئصال اللوزتين في دراستنا هذه جمعنا المرضى الاصغر سنا من 15 سنة (1 – 14) سنة (مجموعة الاطفال) و عدد اخر بعمر ( 15 ) سنة او اكثر (مجموعة البالغين) والذين اجريت لهم عملية استئصال اللوزتين. :ان الهدف من هذه الدراسة لتقييم نسبة حدوث النزف بعد عملية استئصال اللوزتين طبقا للوقت و العمر و الجنس و السبب و نسبة الوفاة. أظهرت النتائج ما يلي:

النزف بعد عملية استئصال اللوزتين يحدث بنسبة اكبر في مجموعة البالغين من مجموعة الاطفال ( 3,8 % VS 1,5 % )

النزف الاولي خلال اول 24 ساعة بعد العملية كان اكبر في مجموعة البالغين من مجموعة الاطفال (81.08 VS 60 %).

النزف الاولي بعد عملية استئصال اللوزتين كان اكثر شيوعا في الذكور منه في الاناث ( 2 – 1) بينما النزف الثانوي كان متساويا ( 1 – 1 )

النزف بعد عملية استئصال اللوزتين كان اكثر شيوعا عند المرضى اللذين لديهم التهاب متكرر او مزمن في اللوزتين. لا توجد حالة وفاة.

**الكلمات المفتاحية :** اذن ، انف ، حنجرة ، استئصال اللوزتين.

## **Introduction**

Post surgical bleeding is a most important complications of tonsillectomy and life threatening condition which classified as reactionary (< 24 hours after surgery) or secondary (> 24 hours) [4]

reactionary bleeding is considered to be more serious than secondary one although it has been found that secondary bleedings can also be sever and massive and may requires treatment under GA.

It has been believed that age is associated with risk of postoperative bleedings.

The American Medical Association classifies people as:-

- 1-Neonates(< 1 month of age).
- 2-Infants (1 month- 2 years).
- 3-Children (2-13years).
- 4-Adolescents (13 – 17 years).
- 5-Adults grater or equal to 18 years of age [5].

On the other hand ,many children societies use 15 years as a separation value or limit for adulthood [6]; therefore reports of surgical results which depend only in children are of limited values (not representative) in educating clinicians.

In our study we classified patients less than 15 years as children and patients 15 years and more as adults.

-Embryogenesis and anatomy of palatine tonsils:

Palatine tonsils are part of lymphoid tissue which begin to develop early in the third m. from the ventral portion of the 2nd pharyngeal pouch, by the fourth month 8-10 solid endodermal (epitheloid) buds or ledges grow into mesenchyma surrounding the pharyngeal wall [1].

Tonsils are a mass of lymphoid tissues lies in the lateral wall of the oropharynx ,where it lies within the tonsillar fossae by the diverging palatopharyngeal and palatoglossal arches [2].

Tonsillectomy: indications:

1- recurrent tonsillitis; repeated attacks of acute tonsillitis is a definite indication; seven or more attacks in preceding year, five or more attacks in preceding 2 years or 3 attacks/ year in preceding 3 years.

Acute tonsillitis is a significant identifiable illness with severe sore throat, pyrexia, often dysphagia and generalized systemic upset, this must be distinguished from more vague minor or chronic sore throat [4].

2- peritonsillar abscess (Quinsy); a patients who have had one quinsy are liable to have a 2nd or third[4]

3- tonsillectomys for biopsy purposes; when a tonsils are thought to be the sites of a tumour.

4- other indications; it is common to do tonsillectomy for sleep apnoea syndromes when the patients undergoing palate-pharyngoplasty (ppp).

Also when the glossopharyngeal nerve want to be exposed in treatment of glossopharyngeal neuralgias or the styloid process for Eagle's syndromes [4].

Contraindications to tonsillectomy include Bleeding disorders, recent infections, and oral contraceptives [4].

## **Materials and Methods**

In this prospective study 606 cases of tonsillectomy were performed at the theatre of otolaryngology in Al-Hilla teaching hospital in the period between July 2007 to July 2008.

Pediatric group: was made of 321 patients, age from 3.5-14.9 years;170 (53%) of patients were boys and 151 (47%) of patients were girls.

Adult group: was made of 285 patients age 15-45 years; 131 (46%) were males and 154 (54%) were females.

All patients had preadmission case history sheet including a review of significant medical problems, physical examinations and laboratory testing consisting of at least hemoglobin levels, bleeding and clotting times, urine analysis,

blood grouping and Rh. Chest X-rays and ECG in special situations.

The patients were admitted the day before surgery with discharge planned for the first postoperative morning.

All the procedures performed under general GA with endotracheal tube. Tonsillectomies done by dissection technique and hemostasis was done by suture ligation, cautery was not used, and all patients had postoperative antibiotics cover.

All procedures were performed under supervision of consultant surgeons.

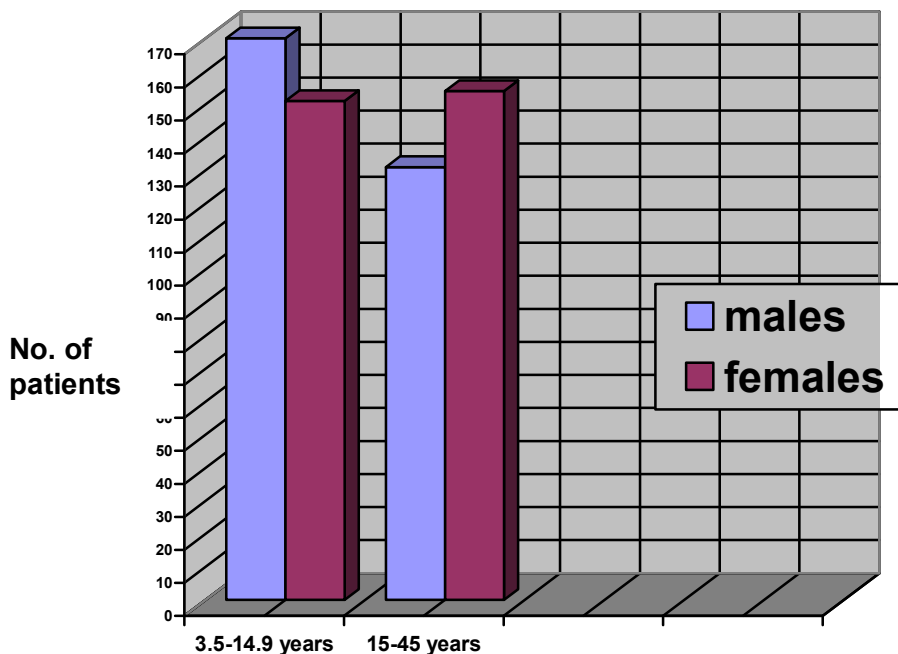
Patients with potentially complicating medical disorders were eliminated from this study (e.g. blood dyscrasias, malignancies, immunosuppression and etc).

All patients were monitored postoperatively in the recovery room and transferred when fully awake to ENT unit, analgesia obtained using paracetamol 500 mg tablet or antipyrol syrup 5 mL 8 hourly with postoperative antibiotics given for one week[8,9]. Examination of the tonsillar beds were done twice daily in the first postoperative day, any bleeding occurred in the first 24 hours postoperatively was regarded as reactionary bleeding and any one occurred after 24 hours postoperatively was regarded as secondary bleeding. The patients were discharged on the next morning with postoperative home instructions were reviewed before discharge.

## **Results and Discussion**

### ***I. Age and sex distribution:***

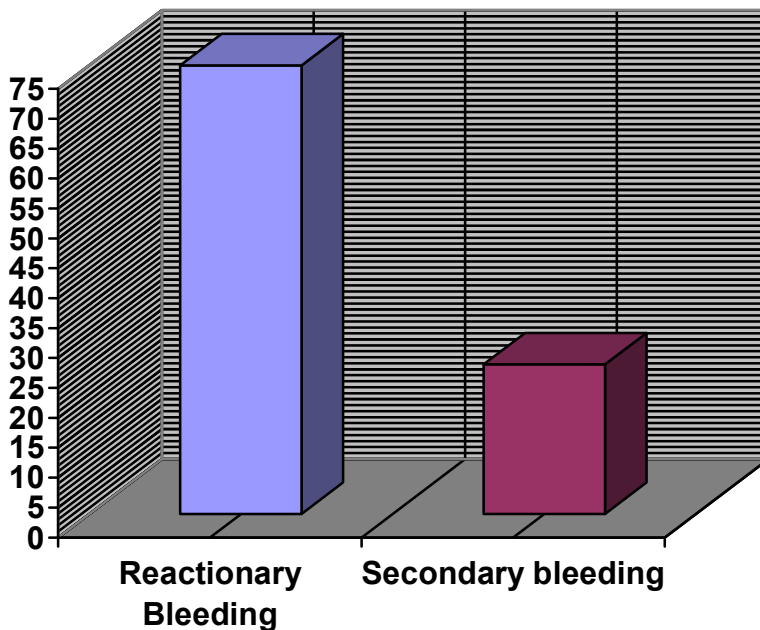
<b>Age/year</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
3.5-14.9	170	151	321
15-45	131	154	285
Total	301	305	606



**II. The number of tonsillectomy according to indication:**

Indication	No. of patients	%
Recurrent attacks of acute tonsillitis	534	88.11
Tonsillar hypertrophy causing airway obstruction	54	8.91
Previous peritonsillar abscess	13	2.14
Bilateral chronic suppurative otitis media not responding to medical treatment	5	0.82

**III. Percentage of bleeding according to type:**



**IV. Incidence of bleeding according to the type of bleeding:**

No. of post tonsillectomy bleeding (%)	No. of reactionary bleeding cases (%)	No. of secondary bleeding cases (%)
16(2.64%)	12(1.98%)	4(0.66%)

**V. Incidence of post-tonsillectomy bleedings in relation to the indications of tonsillectomy**

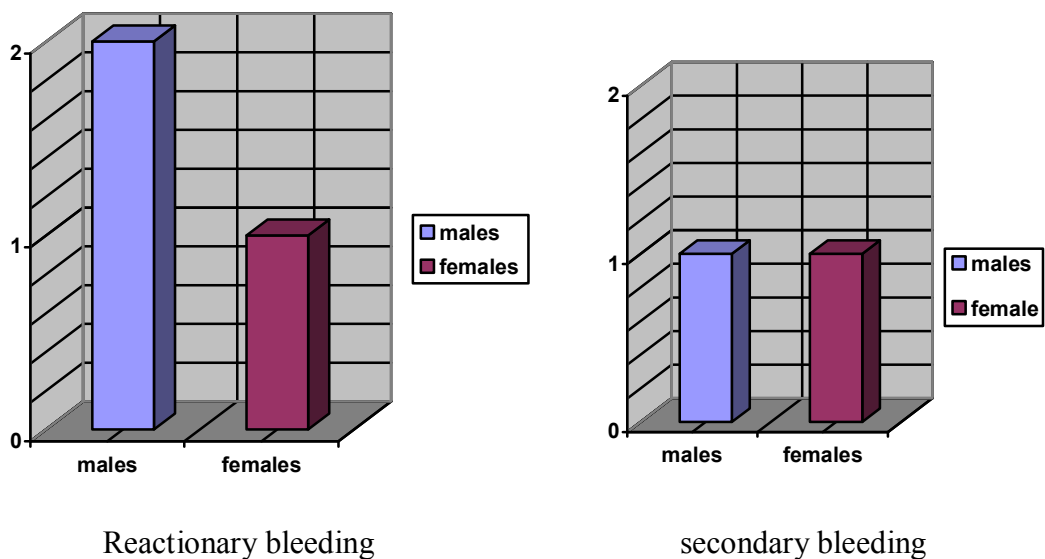
Age group	Indication of tonsillectomy	Total No. of patients	No. of post tonsillectomy bleeding
Pediatric	Recurrent attacks of acute tonsillitis	266	5
	Previous peritonsillar abscess	0	0
	Tonsillar hypertrophy	52	0
	Chronic otitis media not responding to medical treatment	3	0
Adult	Recurrent attacks of acute tonsillitis	268	9
	Previous peritonsillar abscess	13	2
	Tonsillar hypertrophy	2	0
	Chronic otitis media not responding to medical treatment	2	0

**VI. Bleeding rates according to ages:**

Age group	No. of Post tonsillectomy bleeding/total	%
Pediatric	5/321	1.5%
Adult	11/285	3.8%

**VII. Bleeding rates according to sex:**

Age group	Reactionary bleeding		Secondary bleeding		Total
	Male	Female	Male	female	
Pediatric	2	1	1	1	5
Adult	6	3	1	1	11
Total	8	4	2	2	16



**Figure 3 :** Post tonsillectomy bleeding in relation to the sex.

**VIII. Bleeding rates according to time of onset:**

Time	Reactionary bleeding	Secondary bleeding
1 h	2	-
2 hs	1	-
3 hs	2	-
4 hs	2	-
5 hs	3	-
6 hs	2	-
Day 5	-	1
Day 6	-	1
Day 7	-	1
Day 8	-	1
Total	12	4

IX. Severe complications and fatality: Among the total of 606 patients, there is no severe complications and there is no fatality.

Tonsillectomy is one of the most common operation performed in ENT practice in the world. This study demonstrates: the incidence of post-tonsillectomy bleeding, bleeding rates according to time, age, sex, and indications, severe complications and fatality. 1: incidence of post-tonsillectomy bleeding. In this study, the incidence of post-tonsillectomy bleeding is 2.64%; with 12 patients (1.98%) got reactionary and 4 patients (0.66%) got secondary bleeding Carmody and et al. in his study for 3756 tonsillectomies performed over five years period reported 1.03% reactionary and 1% secondary bleeding [10]. Kirstensen 1984 in his study reported 1.6% reactionary and 1.2% secondary bleeding [11]. Kurt Breson and Jaap Diepeveen for 1000 tonsillectomies reported 1.4% reactionary and 3.2% secondary bleeding [12]. Lee reported 3000 tonsillectomies performed in 4 years period with 0.7% reactionary and 1.5% secondary bleeding [13]. So that the incidence of post-tonsillectomy bleeding in our study is less than Kurt Breson and Diepeveen and Kirstensen study (Tables 8,9). Also incidence of secondary bleeding in our study is less than that of the other studies possibly due to the use of post-operative antibiotics and encourage patients for swallowing and eating. Reactionary bleeding is more serious because it occurs when the patient's responsiveness and protective airway reflexes are blunted by post-anesthetic or narcotic effects, also it is usually more brisk and profuse than secondary bleeding [14]. Generally there is agreement that the surgical techniques is a cause of reactionary bleeding [3,15], a vessel that did not clot or was not ligated at the time of initial operation is generally accepted cause of reactionary bleeding while Kumar R. Faxsil suggested that an infection in tonsillar fossae may be responsible initiating secondary bleeding [8], i.e. recent infection prior to surgery (Tables 8,9).

Study	%
O. Carmody	2.03
Gary K. Tomas and Robert A.	1.5
Kurt Breson and Jaap Diepeveen	4.6
Lee ,I. N.	2.2
Kirstensen	2.8
Martynz and et al	2
Hander and et al	2.62
Rex S. Haberman	2.4
Our study	2.64

**Table (8):** Comparison with other studies on the incidence of post tonsillectomy bleeding

Study	Reactionary %	Secondary %
Carmody et al	1.03	1
Breson and Diepeveen	1.4	3.2
Kirstensen	1.6	1.2
J. Worsoe-Petersen	1.5	1.9
Lee	0.7	1.5
Our study	1.98	0.66

**Table (9):** Comparison with other study on the type of post tonsillectomy bleeding

## 2. Onset of post-operative haemorrhage

A. Reactionary bleeding: In our study 63% of reactionary bleeding occurred within 4 hours after operation and all reactionary bleeding occurred within 6 hours of surgery (table 7). Cariether and et al found 14 (46.7%) out of 30 reactionary bleeding cases occur within 4 hours and all reactionary bleeding occurred within the first 11 hours post-operatively. Guida and Mattucci in their study for 1000 tonsillectomies reported that 63% of reactionary bleeding occurred within the first 6 post-operative hours.

B. Secondary bleeding: Secondary bleeding can occur at any time during the first two post-operative weeks. It is classically occurs at 10 days<sup>(4)</sup>. Infection of the tonsillar fossae has been suggested to be



a cause responsible for initiating it(i.e. infected tonsillar bed). Poor eating habits following tonsillectomy increase the rate of secondary bleeding<sup>(16)</sup>. In our study, all the 5 cases readmitted to the ward within 8 days from the time of operation and presented with fever, throat pain, otalgia and give history of improper use of antibiotics and poor eating habits(table 7). Martynz Slodlak and et al reported that secondary bleeding occurs by the 4<sup>th</sup> and 10<sup>th</sup> post-operative days<sup>(16)</sup>.

3. Effects of the age, sex and indications of tonsillectomy on post-tonsillectomy bleeding. In our study we found that 5 cases (1.557%) are in pediatric group (less than 15 years), three males and 2 females and 11 cases (3.859%) are in adult group(15 years and more),7 males and 4 females, so there is a significant association between age and sex and post-tonsillectomy bleeding (table 6 ).In general, post-tonsillectomy bleeding occur in less than 10% of cases. Most of these bleeds are primary. Secondary bleeds can occur at any time during first 2 post-operative weeks<sup>(5)</sup>. Taml and et al in 1987 found no significant association between both, sex and age, and reactionary bleeding<sup>(14)</sup>. Martynz Siodia K, and et al found that neither age nor sex influenced the incidence of secondary bleeding<sup>(16)</sup>. Carmody and et al found that the incidence is more common in adults than in children and suggested that chronicity of tonsillar infection might be important<sup>(10)</sup>.

*Pediatric group:* made up of 321 patients aged 3.4-14.9 years, 170 patients (53%) were boys and 151 (47%) were girls. Tonsillectomy was performed in 266 patients (82.8%) for recurrent episodes of tonsillitis (> 5 episodes per year in two preceding years ); 52 cases of these patients (16.19%) to relieve obstruction caused by tonsillar hypertrophy (kissing tonsils), three cases (0.9%) to treat condition with bilateral chronic suppurative otitis media not responding to medical treatment.

*Adult group:* made up of 285 patients aged 15-45 years; 131 (46%) men and 154 (54%)

women. Tonsillitis was performed in 268(94%) for recurrent episodes of tonsillitis (more than 5 episodes per year in two preceding years); 13 cases (4.5%) with previous peritonsillar abscess; two cases(0.7%) with tonsillar hypertrophy and 2 cases (0.7%) with bilateral chronic suppurative otitis media not responding to medical treatment. According to our results chronic or recurrent infection likely plays a role in the incidence of post-operative bleeding, this is based on the fact that reactionary bleeding was more common in adult group, and secondary bleeding in 98.5% of adult group underwent tonsillectomy for treatment of infection(recurrent attacks of tonsillitis, abscess) compared with 82.8% of pediatric group, also the rate of bleeding was 100 in children who underwent tonsillectomy for infection. Post-tonsillectomy bleeding occurred significantly more often in adult group than in pediatric group(3.8 vs. 1.5%).Reactionary bleeding was significantly more common in adult group than in pediatric group(81.8 vs. 60%). Post-tonsillectomy reactionary bleeding more common in males than in females(2-1) while secondary bleeding occurred equally in both sexes(1-1) (Table 6) (Figure 3).

4. Fatality None.

Study	%
Cumming 1945	0.045%
Barry E Linden	0
Kurt Breson	0
O. Carmody	0
Guida and Mattucci	0
<i>Our study</i>	0

**Table (10):** Incidence of deaths in various studies

### **Conclusions**

- 1- Reactionary bleeding is more common than secondary bleeding (3:1).
- 2- Reactionary more common in adults.

3-Reactionary bleeding is more common if tonsillectomy has been done for recurrent attacks of acute tonsillitis.

4-Reactionary bleeding is more common in males (male to female ratio is 2:1 while secondary bleeding is equal 1:1).

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