



# Effect of Postoperative Antibiotic on Postoperative Infection in Tonsillectomy Operations -- Prospective Study at Benghazi Medical Center Between October 2012 and May 2013

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**Abstract:** *Background:* Tonsillectomy remains one of the most common surgical procedures performed in the world. Despite advances in anesthetic and surgical techniques, post-tonsillectomy morbidity remains a significant clinical problem. Among them, postoperative bleeding is the most frequent and severe one. Other common short-term complications of tonsillectomy are nausea, vomiting, fever and Pain after tonsillectomy, which been regarded as a major morbidity in the early post-operative period. A prospective study was designed to determine the effect of postoperative antibiotics to reduce or prevent the postoperative complications at, Benghazi medical center . From October 2012 to may 2013 over a period o. *Method:* the same doctors operated 100 patients of varying ages and both sexes. Patients divided into two groups, (50) patients received postoperative antibiotic (amoxicillin) and (50) patients did not received antibiotics. All patients scheduled to return for a routine follow up appointment one week following surgery and examined for complications. *Results:* seven (7%) develop post tonsillectomy infection two (2%) using antibiotic and five (5%) were not using antibiotic. Among the infected patients one (1%) had post tonsillectomy bleeding, two (2%) had infection with pus and four (4%) have sever sore throat with dehydration. In infected patients not using antibiotic two (2%) age (3-12) years old and three (3%) age (>12) years old. four (4%) have last attack of tonsillitis less than one month and one (1%) have the last attack more than one month. two (2%) time required to perform the operation less than thirty minutes and three (3%) more than thirty minutes. In infected patients use antibiotic no patients (0%) age (3-12) years old and two (2%) age (>12) years old. One (1%) has last attack of tonsillitis less than one month and one (1%) have the last attack more than one month. No patients (0%) time required to perform the operation less than thirty minutes and two (2%) more than thirty minutes.

**Keywords:** Tonsillectomy, Tonsillitis, Post Tonsillectomy Infection, Sore Throat, Post Tonsillectomy Hemorrhage

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## 1. Introduction

Adenoidectomy and tonsillectomy are historically the surgical procedures most commonly performed in the ENT specialty, [5] having its main incidence in the pediatric population. At the beginning of the 20th century, there was a boom in the use of such surgeries, being more frequently conducted in the presence of minimum symptoms. As of the 60's, because of the advance in immunology, a movement towards standardizing and defining the precise indications to

the surgery gained momentum. It has been observed a decline in the use of these surgeries, but despite this tendency, they are still the most frequent surgical procedures performed, [7]. The main indications for the conduction of tonsillectomy with or without adenoidectomy are recurrent infections and upper airway obstructions, which may lead to recurrent sinusitis, repetitive otitis media, [8] snoring and apnea.

Despite the main use of tonsillectomy with or without

adenoidectomy in our center, these procedures are not free from complications. Among them, we can highlight a postoperative hemorrhage as the most frequent and severe one. [10] Other common short-term complications of tonsillectomy are fever and an inability to eat or drink. [13] Pain after tonsillectomy has been regarded as a major morbidity in the early post-operative period. It delays the early resumption to oral intake and therefore late discharge from the ward. Pain occurs due to trauma to the local tissue, releasing inflammatory mediators. [1] postoperative antibiotics are used to decrease the inflammation of pharyngeal tissues following tonsillectomy due to colonization of bacteria. The benefits of antibiotics also include pain reduction, improving oral intake and possibly decreasing postoperative bleeding. Although, there is controversy to the use of antibiotics due to growing concern for bacterial resistance.

*The aim of the study to:*

Demonstrate the effect of use of postoperative antibiotics to reduce or prevent the postoperative infection in relation to the age, last attack of tonsillitis and the length of procedure.

## 2. Patients, Methods and Materials

Our study population was made up of 100 patients, aged 3 years to 35 years, male and females who had undergone inpatient tonsillectomy at Benghazi medical center, Department of ENT. From October 2012 to march 2013.

The indications for tonsillectomy, with or without adenoidectomy, were chronic or recurrent tonsillitis and upper airway obstruction. All patients had been admitted one day before operation or on the morning of the procedure (day case) and discharged at the discretion of the surgeon, with input from parents and nurses. All patients had been examined in first postoperative day. All patients had been scheduled to return for a routine follow up appointment one week following surgery, and all had been placed on similar dietary and activity restrictions and given instructions to call if persistent bleeding or any other complication occurred. All 100 patients underwent surgery under general anesthesia and with nasal or oral intubation, tonsillectomy done by classical dissection method. Any bleeding that occurred after pressure had been applied with gauze was controlled by suture ligation (silk3.0) or diathermy. Patients were instructed to refrain from eating and drinking for four hours following surgery.

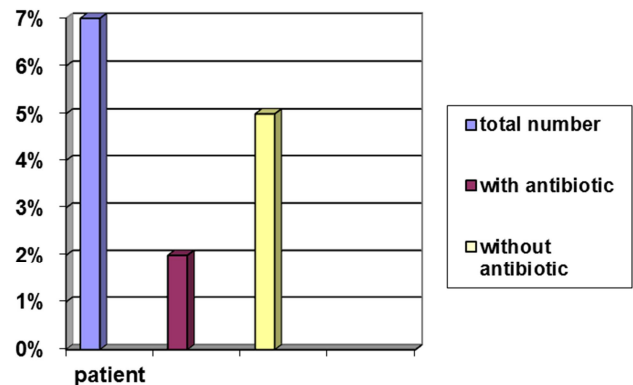
Patients divided into two groups, (50) patients received postoperative antibiotic (amoxicillin), (50) patients not received antibiotic. The two groups had been scheduled to return for a routine follow up appointment one week following surgery and examined for complications (pain in the throat, referred earache, intermittent fever, foul odor from the mouth, post-operative bleeding and duration for which analgesics were used). All the information regarding the age [child (3-12) adult >12 years], postoperative antibiotics, last attacks of tonsillitis before operation, length of procedure and present or absent of complications are recorded.

## 3. Results

**Table 1.** Shows the number of postoperative infected patient's with and without using antibiotics.

Post operative infection	Number	%
Total number	7	7%
Use antibiotic	2	2%
Not use antibiotic	5	5%

According to table and fig (1) from (100) patient, seven (7%) develop post tonsillectomy infection two (2%) using antibiotic and five (5%) not using antibiotic.

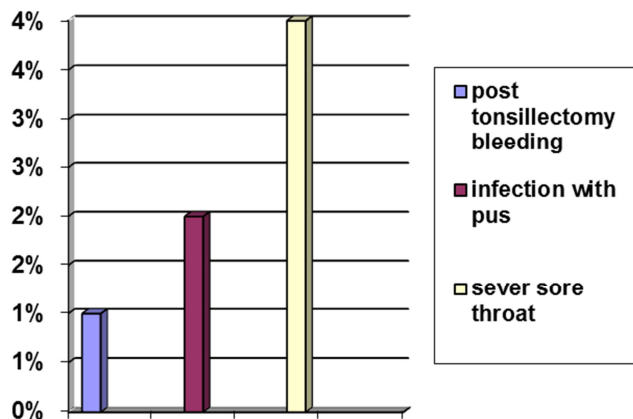


**Figure 1.** Post operative with and without antibiotics.

**Table 2.** Shows the types of complication among infected patients.

Types of complication	Number	%
Post tonsillectomy bleeding	1	1%
Congested throat with pus	2	2%
Sever sore throat with dehydration	4	4%

According to table and fig (2), among the infected patients one (1%) patient develop post tonsillectomy bleeding, two (2%) have sore throat and with examination, throat is severely congested with pus. four (4%) complain of sever sore throat and with examination, congested throat without pus.

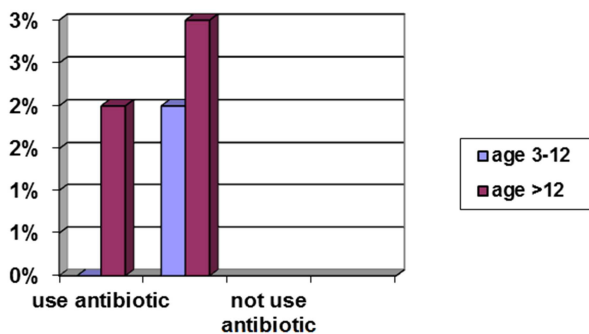


**Figure 2.** Types of complications deveoped postoperatively.

**Table 3.** Shows the relationship between developing post tonsillectomy infection and age of patients.

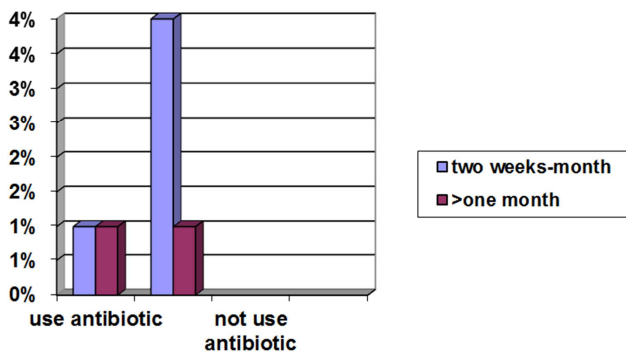
age		Infected patient
> 12 years.	3-12 years	
2%	0%	Use antibiotic
3%	2%	Not use antibiotic

According to table and fig (3) no patients develop post tonsillectomy infection in age between (3-12) years old with using antibiotic and two (2%) of patient with same age not using antibiotic develop post tonsillectomy infection. Two (2%) of patients with age more than 12 years old using antibiotic develop infection while three (3%) of patients with same age and not using antibiotic develop infection.

**Figure 3.** Relation of patient's age to developing infections in both groups.**Table 4.** Shows the relationship between develops of post tonsillectomy infection and last attacks of tonsillitis before operation.

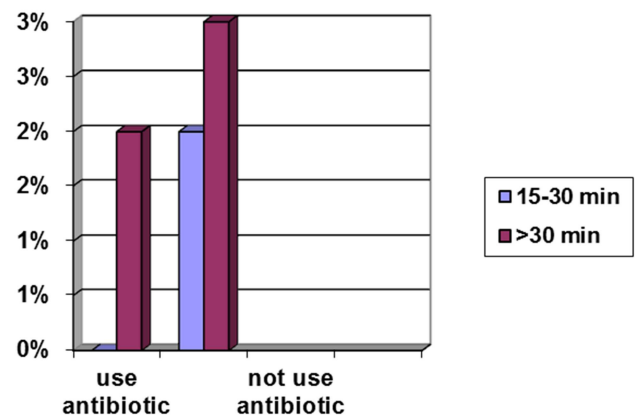
Last attack of tonsillitis		Infected patient
> One month.	Two weeks-one month	
1%	1%	Use antibiotic
1%	4%	Not use antibiotic

According to table and fig (4) in patients have last attacks of tonsillitis two weeks to one month before operation infection develop in one (1%) of patients using the antibiotic and four (4%) of patients not using antibiotic. Patients with last attacks of tonsillitis more than one month the infection develop in one (1%) of patients, using antibiotic and one (1%) of patients not use antibiotic.

**Figure 4.** Shows relation of post operative infection to the last preoperative tonsillitis.**Table 5.** Shows the relationship between develops of post tonsillectomy, infection and time required performing the operation.

Time required		Infected patient
> 30 minutes	15-30 minutes	
2%	0%	Use antibiotic
3%	2%	Not use antibiotic

According to table and fig (5) with time required to perform the tonsillectomy operation lasting from (15-30) minutes, no patients develop infection with using of antibiotic while two (2%) of patients not using the antibiotic develop infection. With time more than (30) minutes infection develop in two (2%) of patients using antibiotic and three (3%) of patients not using antibiotic.

**Figure 5.** Shows peroperative time and developing infections.

## 4. Discussion

In the study, the effect of postoperative antibiotic in tonsillectomy operation we found that the percentage of post tonsillectomy infection is (7%) which is more among the patients not receive antibiotic (5%) as compare to patients that receive antibiotic (2%). Among the infected patients most of them complain from sever sore throat and on examination there is congested throat with out pus, two (2%) present with sever sore throat and on examination we found pus in operation field, the two groups treated with parenteral antibiotics with out readmission to hospital, only one (1%) patient develop post tonsillectomy bleeding, patient admitted to hospital and bleeding subside with intravenous antibiotics without surgical intervention. Telian et al [12] conducted a randomized controlled trial to evaluate the effect of ampicillin on recovery from tonsillectomy in children. The ampicillin group had significantly fewer fevers, improved oral intake, and required fewer days to normal activity. The study done by Iqbal H U daipurwala. [4] In his study of role of antibiotic in reducing post tonsillectomy infection, he found that there is significant better outcome and reduction in postoperative morbidity in patients receiving antibiotic. In addition, studies done by Colreavy MP et al [2] examined the use of amoxicillin/clavulanic acid in a randomized controlled trial in

children. (78) Patients were randomly assigned to either receive antibiotics or not. They compared tonsillar core, surface and postoperative tonsil fossa bacterial colonization profiles in the two groups. Bipolar tonsillectomy was performed in both groups. Their results indicated tonsil core bacteria were *H. influenza* (64%) 9.5% of which produced  $\beta$ -lactamase, *Strep viridans* (55.9%), *S. aureus* (37%) 86% of which produced  $\beta$ -lactamase, and anaerobes (25%). More importantly, the pain scores, days to normal diet, and analgesic use in the group treated with antibiotics were significantly lower. This study concluded that it is logical to treat chronic carriers of  $\beta$ -lactamase producing organisms following tonsillectomy with amoxicillin/clavulanic acid. O'Reilly, et al. [6] conducted a randomized double-blind controlled prospective trial of the effect antibiotics in adults following tonsillectomy. The antibiotic group received intraoperative and postoperative antibiotics. Patients were questioned at follow-up or sent a questionnaire to assess postoperative bleeding, postoperative pain. The technique used varied, but electrocautery was most commonly used. The results of this study indicated that antibiotics had no influence on postoperative pain and bleeding.

Regarding the age and developing of post tonsillectomy infection, we found that adults' patients develop post tonsillectomy infection more than children and the use of post tonsillectomy antibiotic significantly reduce the Percentage of infection in both ages. Study conduct by Schmidt et al. [11] they published retrospective study and found that patients' age more than ten years old was at risk of complication; children younger than ten years old had a three fold lower incidence. We found that there is a relation between last attack of tonsillitis and develop of post tonsillectomy infection. Patients with last attack of tonsillitis less than one month have more chance to develop post tonsillectomy infection than patients with last attack of tonsillitis more than one month and the postoperative antibiotic reduce the percentage of infection.

We found that, there is relation between tonsillectomy infection and the time required to perform the tonsillectomy operation. longer time required to perform the operation, which depend on skills of surgeon, bleeding during operation or difficulty of dissection because of fibrosis or atrophic tonsil has the greater chance to develop the post tonsillectomy infection which can be significantly reduce by use the post tonsillectomy antibiotic. Study done by Gabriel et al. [3] they study the relation between clinical feature history of patients and the perioperative bleeding with post tonsillectomy infection, they report that short history of tonsillitis before operation, and abnormal coagulation test give more chance to develop post tonsillectomy infection. Randall DA et al. [9] have the same result in their study in complication of tonsillectomy.

## 5. Conclusions

Antibiotic has significant effects to reduce the post tonsillectomy infection especially with:

- 1- Adult patients.
- 2- Patients have recent attack of tonsillitis before operation.
- 3- When time required to perform the operation is long either because intraoperative bleeding or too much tissue dissection.

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