

# Postoperative Complications in Post-Tonsillectomy Patients Without Post-Operative Antibiotics

Suman Raj Dongol, Rajeev Kumar Mahaseth, Ranishma Bista, Sarita KC

<sup>1</sup> Department of ENT, Head and Neck Surgery, College of Medicine, Nepalese Army Institute of Health Sciences, Bhandarkhal, Sanobharyang, Kathmandu - 44600, Nepal.

## Corresponding Author

Suman Raj Dongol,  
Assistant Professor,  
Department of ENT, Head and Neck  
Surgery  
College of Medicine,  
Nepalese Army Institute of Health Sciences,  
Bhandarkhal, Sanobharyang,  
Kathmandu - 44600,  
Nepal.  
Email: srdongol@gmail.com

## Keywords

Fever, Haemorrhage, Post-operative,  
Tonsillectomy

## Online Access



DOI: 10.3126/mjsbh.v22i2.66356

Date of submission - 2024 Apr 02

Date of acceptance - 2024 May 17

© The Author(s) 2023. This work is licensed under a Creative Commons Attribution 4.0 International License. (CC BY-NC)



## INTRODUCTION

Tonsillectomy is one of the commonest surgeries performed in adult and paediatric populations for recurrent tonsillitis, obstructive sleep apnoea syndrome (OSAS), and recurrent peritonsillar abscess. Tonsillectomy is associated with postoperative issues such as haemorrhage, fever, and pain. Amongst these post-tonsillectomy haemorrhage is a dreaded complication which may require blood transfusion or surgical management.<sup>1</sup> Primary haemorrhage which occurs within 24 hours of surgery and is resulted due to the opening of the vessel lumen. Secondary haemorrhage generally occurs from first post operative day and may last up to 28 days.<sup>2</sup> Various theories have been implicated for the cause of secondary haemorrhage including surgical technique, infection, clot dislodgement, and falling off slough. Most of the post-tonsillectomy haemorrhage

are controlled by using conservative methods such as the application of adrenaline, hydrogen peroxide packs, and clot removal. Refractory cases require active intervention of re-exploration in the operation theater and ligation or embolization of the feeder vessel. Fever is also a common complication following tonsillectomy which is largely attributed to the infection of tonsillar fossa.

American Academy of Otolaryngology, Head and Neck surgery clinical practice guidelines do not recommend antibiotic use post tonsillectomy.<sup>3</sup> Otolaryngologists have varied opinions regarding the use of antibiotics in postoperative periods. Those favoring the use of antibiotics consider its role in preventing infection thereby reducing post-operative complications such as haemorrhage and fever. Those not using antibiotic cite lack of evidence

## Abstract

**Introduction:** Empirical use of antibiotics has tremendous effects in the health sector in terms of medical expenses and antibiotic resistance. Current guidelines do not recommend antibiotic use post tonsillectomy however, some surgeons prefer antibiotic use in the post-operative period. This study aims to evaluate post-operative findings such as haemorrhage and fever in patients without the use of post-operative antibiotics.

**Methods:** This was a descriptive retrospective study conducted with chart review of medical records of the patients operated and not receiving post tonsillectomy antibiotics at the Department of ENT, Head and Neck Surgery, Shree Birendra Hospital, Chhauni, Kathmandu, Nepal. The post-tonsillectomy findings such as hemorrhage and fever were recorded and analyzed.

**Results:** There were a total of 146 patients (87 males and 59 females) aged four to 72 years with a mean age of  $26.76 \pm 12.07$  years during the study period. Haemorrhage was seen in eight (5.4%) patients. Two had primary haemorrhage and six had secondary haemorrhage. There was fever among seven patients (4.79%) out of which three had developed fever on 1st postoperative day (POD), two on second, one on fifth and one on eighth post operative day.

**Conclusion:** Post-tonsillectomy morbidity such as haemorrhage and fever were minimal in patients without post operative antibiotics.

showing direct causal link between infection and postoperative morbidity.<sup>4,5</sup> Tonsillectomy, if done properly, by dissecting in the plane of loose areolar tissue between the tonsillar capsule and pharyngeal muscle minimizes post-operative morbidities. Post-tonsillectomy haemorrhage is also associated with greater intraoperative trauma which results in clot sloughing in the post-operative period.<sup>6</sup>

There are rising concerns about the judicious use of antibiotics to prevent resistance and reduce the cost of treatment. The aim of this study is to evaluate post-operative findings such as haemorrhage and fever in patients without the use of post-operative antibiotics which will help to establish this practice at our center and minimize the use of unnecessary antibiotics.

## METHODS

A retrospective chart review of medical records was done for post-tonsillectomy findings such as haemorrhage and fever in patients who underwent tonsillectomy from Jan 2015 to Dec 2020 in the Department of ENT, Head and Neck Surgery, Shree Birendra Hospital, Chhauni, Kathmandu, Nepal. The study was conducted after obtaining approval from the Institutional Review Committee of the Nepalese Army Institute of Health Sciences (NAIHS). Patients with recurrent tonsillitis, OSAS, and recurrent tonsillar abscess were included in this study. Patients having bleeding disorders, medical conditions requiring perioperative antibiotics, and with co morbid conditions were excluded from the study. Demographic profile, and post-operative findings such as haemorrhage and fever were evaluated from the record and entered into an excel sheet. After the data collection, data analysis was done and results accrued. Statistical analysis was done using Microsoft Excel 2020 version 16.42.

## RESULTS

A total of 146 patients were included in the study. There were 87 males and 59 females in this study. Thirty-four patients were aged below 20 years, 98 were in age group 20 - 39 years, 12 were in age group 40 - 59 years and two in age group more than 60 years.

The postoperative finding of post tonsillectomy patients is shown in Table 1. Post tonsillectomy haemorrhage occurred in eight out of 146 patients (5.4%). Among these eight patients, two had primary haemorrhage and six had secondary haemorrhage. All the complications of haemorrhages were managed by conservative methods. None of these patients required active interventions. Fever was observed in seven out of 146 patients (4.79%). Out of these patients with fever, three developed fever on first post operative day, two developed fever on second post operative day, one on fifth post operative day and one

developed fever on eighth post operative day.

Table 1. Postoperative findings of post-tonsillectomy patients (N = 146)

Postoperative findings	Haemorrhage		Fever
	Primary	Secondary	
No of patients	2	6	7
Percentage (%)	1.3	4.1	4.7

## DISCUSSION

Tonsillectomy is routinely performed by otolaryngologist for various indications such as recurrent tonsillitis, OSAS, and recurrent peritonsillar abscess. With improvement in the surgical devices and techniques, the complication rates following surgery are decreasing. Presently, tonsillectomy is considered a safe procedure.<sup>4</sup> However, tonsillectomy is rarely associated with many complications. Among these complications, haemorrhage and fever are common. Among these complications of haemorrhage, most are controlled by conservative methods in the ward and few of them require active intervention in the form of ligation or embolization of the vessel in the operation theatre. There are reports for and against the use of antibiotics to reduce post tonsillectomy complication in literatures. Some surgeons opt to use antibiotics post tonsillectomy while others do not.<sup>4,7-9</sup>

Many researchers have studied the complications of tonsillectomy. Colreavy et al conducted a study among 44 patients who had received antibiotics and 34 patients who did not receive antibiotics. They found haemorrhage was more common in antibiotic group as compared to non-antibiotic group.<sup>7</sup> Similarly, Aljfout et al, in a study of 270 patients, reported post-tonsillectomy haemorrhage in 7.2% of antibiotics and 7.7% in the without antibiotic group. There was no statistical difference between the two groups regarding post tonsillectomy haemorrhage.<sup>8</sup> They also concluded that the use of antibiotics in post-tonsillectomy period is associated with increased nausea, vomiting, and abdominal pain. In the study of 60 patients by Baloch et al, there was post tonsillectomy haemorrhage in one out of 30 patients in antibiotics group and three patients without antibiotics group. The study showed antibiotics did not have an impact in reducing post-tonsillectomy morbidities.<sup>10</sup> In our study, the post-tonsillectomy haemorrhage was observed in 5.4 % without post-operative antibiotic which was lower than the study by KC et al, done in the same institute with the use of antibiotic.<sup>2</sup> Primary haemorrhage was seen in two patients which were managed conservatively. Six

patients developed secondary hemorrhage among which two required clot removal in operation theatre. None of these patients required any active intervention to control haemorrhage. This supports the view that antibiotics use has no effect on post tonsillectomy haemorrhage.

Another study conducted by Alkarzae et al among 53 patients reported that post tonsillectomy secondary haemorrhage was seen in 88.7%. The observation of secondary haemorrhage was cross-tabulated against post-operative rise WBCs and intraoperative antibiotics used and it was found to have no significance. This study thus concluded that infection is not a significant cause of post-tonsillectomy haemorrhage and antibiotics have no role in such cases.<sup>11</sup> Another study of 47 patients suggests clinical signs of infection are lacking in patients with post tonsillectomy secondary haemorrhage thus questioning the role of antibiotics in such scenarios.<sup>12</sup> Another study conducted among 121 patients, Sheikh et al reported post tonsillectomy haemorrhage was significantly lower in the patient receiving antibiotics, 1.18% as compared to 4.59% in those not receiving them.<sup>13</sup> He found that infection in the tonsillar bed leads to necrotic sloughing and erosion of blood vessels leading to haemorrhage. The incidence of post-tonsillectomy was lower than our group in this study.

Fever is another common complication encountered among post-tonsillectomy patients. Fever is attributed to infection of the tonsillar fossa however, supporting evidences are minimal. In our study, fever was seen among seven patients out of total 146 patients (4.79%). These patients had developed fever during different time periods in the post operative period. The post operative complications of fever in all these cases were managed by cold sponging and antipyretics. The present study could not find the definitive cause of fever in all these patients. Fever is a common post operative complications in most of the centres. There are conflicting findings regarding the use of antibiotics and fever post tonsillectomy. Many studies have demonstrated higher incidence of fever in no antibiotic group<sup>4,8</sup> than with antibiotic group. However, there are other researches which contradict this.<sup>7</sup> Recent meta-analysis comprising 12 papers fails to support clear evidence to use routine post-operative antibiotics to reduce post-tonsillectomy morbidities.<sup>4</sup>

This study is a novel study conducted among a pertinent topic of use of antibiotics in post tonsillectomy during the era of emerging antibiotic resistance. However, we have to acknowledge certain limitations. Firstly, this is a retrospective study conducted with the patient records. This is a single centric study conducted among the Army personals and their dependents and hence, generalization of our findings may not be appropriate. The study does not delve into the causes of the post tonsillectomy complications of

haemorrhage and fever. Hence, the findings of the present study should be validated with further, larger, multi centric, prospective studies in the future which may help in curbing down liberal use of antibiotics and fight the war against the antibiotics resistance.

## CONCLUSION

The present study concludes that there appears to be no role of post operative antibiotics in complications such as haemorrhage and fever in post tonsillectomy cases.

**ACKNOWLEDGEMENT** None

**FUNDING SOURCE** None

**CONFLICT OF INTEREST** None

## REFERENCES

1. Kwok MM, Subramaniyan M, Rimmer J, Karahalios A. Post-tonsillectomy haemorrhage in Australia—a multivariable analysis of risk factors. *Aust J Otolaryngol.* 2018;1.  
DOI: [10.21037/ajo.2018.01.06](https://doi.org/10.21037/ajo.2018.01.06)
2. KC S, Dongol S, Rayamajhi P. Prevalence of post tonsillectomy bleeding. *Nepal J ENT Head Neck Surg.* 2013;4(1):9-10.  
DOI: [10.3126/njenthns.v3i1.8180](https://doi.org/10.3126/njenthns.v3i1.8180)
3. Baugh RF, Archer SM, Mitchell RB, Rosenfeld RM, Amin R, Burns JJ, et al. Clinical Practice Guideline: Tonsillectomy in Children. *Otolaryngol Neck Surg.* 2011 Jan;144(S1).  
DOI: [10.1177/0194599810389949](https://doi.org/10.1177/0194599810389949)  
PMID:21493257
4. Abdelhamid AO, Sobhy TS, El-Mehairy HM, Hamid O. Role of antibiotics in post-tonsillectomy morbidities; A systematic review. *Int J Pediatr Otorhinolaryngol.* 2019;118:192-200.  
DOI: [10.1016/j.ijporl.2018.12.011](https://doi.org/10.1016/j.ijporl.2018.12.011)  
PMID: 30641307
5. Clavisi O. Does antibiotic and or steroid therapy reduce pain and secondary hemorrhaging after tonsillectomy. *Clayton Vic Cent Clin Eff.* 2000 Record ID 32003000667
6. Perkins JN, Liang C, Gao D, Shultz L, Friedman NR. Risk of post-tonsillectomy hemorrhage by clinical diagnosis. *The Laryngoscope.* 2012 Oct;122(10):2311-5.  
DOI: [10.1002/lary.23421](https://doi.org/10.1002/lary.23421)  
PMID:22778043
7. Colreavy MP, Nanan D, Benamer M, Donnelly M, Blaney AW, O'Dwyer TP, et al. Antibiotic prophylaxis post-tonsillectomy: is it of benefit? *Int J Pediatr Otorhinolaryngol.* 1999;50(1):15-22.

- DOI: [10.1016/S0165-5876\(99\)00228-1](https://doi.org/10.1016/S0165-5876(99)00228-1)  
PMID:10596882
8. Aljfout Q, Alississ A, Rashdan H, Maita A, Saraireh M. Antibiotics for post-tonsillectomy morbidity: comparative analysis of a single institutional experience. *J Clin Med Res.* 2016;8(5):385.  
DOI: [10.14740/jocmr2523w](https://doi.org/10.14740/jocmr2523w)  
PMID:27081424 PMCID: PMC4817578
9. Din I ud, Ullah S, Khan ARK, Hafeez MHM, Muhammad G, Ullah N. Secondary Haemorrhage In Post Tonsillectomy Patients. *J Med Sci.* 2016;24(3):114-8.
10. Baloch MA, Akhtar S, Ikram M, Humayun HN. The rationality of prescribing antibiotics after tonsillectomy. *J Pak Med Assoc.* 2012;62(5):445.  
PMID: 22755306
11. Alkarzae M, AlSanosi A, Alharbi M, Altamimi F, Alzendi N. Role of infection in post-tonsillectomy secondary haemorrhage-an experience at King Abdulaziz University Hospital, Riyadh, Saudi Arabia. *Glob J Otolaryngol.* 2017;6(2):26-30.  
DOI: [10.19080/GJO.2017.06.555681](https://doi.org/10.19080/GJO.2017.06.555681)
12. Ahsan F, Rashid H, Eng C, Bennett DM, Ah-See KW. Is secondary haemorrhage after tonsillectomy in adults an infective condition? Objective measures of infection in a prospective cohort. *Clin Otolaryngol.* 2007 Feb;32(1):24-7.  
DOI: [10.1111/j.1365-2273.2007.01381.x](https://doi.org/10.1111/j.1365-2273.2007.01381.x)  
PMID: 17298306
13. Sheikh NA, Nadeem K. Efficacy of prophylactic antibiotics in reducing post-tonsillectomy haemorrhage. *J Ayub Med Coll Abbottabad.* 2020;32(1):94-8.  
PMID: 32468765