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**Citation**

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**Abstract**

**Objective:** The objective of the study was to determine the percentage of patients presenting with post tonsillectomy haemorrhage requiring surgical haemostasis who had signs of systemic infection.

**Design:** Retrospective analysis of the data taken from patient's records.

**Settings:** Community general hospital and private practice.

**Material:** The study group included 23 patients who required surgical intervention for the control of post-tonsillectomy haemorrhage over a period of two years. Twenty of them had a secondary tonsillectomy bleed and presented between the 3rd and 10th post-operative day.

**Results:** The mean body temperature and white blood cell counts of the patients with secondary tonsillectomy bleed were  $36.65^{\circ}\text{C}$  ( $\text{SD}\pm 0.35$ ) and  $8920\text{ cells/mm}^3$  ( $\text{SD}\pm 2.6$ ) respectively. Only three patients had evidence of systemic infection.

**Conclusion:** The majority of patients presenting with secondary post-tonsillectomy haemorrhage did not have any evidence of systemic infection.

**INTRODUCTION**

Haemorrhage is the most frequent complication of tonsillectomy and is responsible for the majority of post-tonsillectomy hospital admissions<sup>2</sup>. Traditionally, the postoperative bleeding has been classified into primary (within 24 hours of the surgery) and secondary (after 24 hours of the operation)<sup>3</sup>. The incidence of post-tonsillectomy haemorrhage varies from 0.28 to 20%<sup>4</sup>. This wide range probably represents the inconsistency among the otolaryngological community<sup>3</sup> observed by a number of other authors when electrocautery techniques were employed for dissection and haemostasis<sup>5</sup>.

**MATERIAL AND METHODS**

Patients admitted in our institution with post-tonsillectomy haemorrhage, who have returned to the operating room for surgical haemostasis over a 2-year period were included. Patients who had post tonsillectomy bleed but required only conservative, non-surgical management were not included as it was difficult to determine the amount of bleeding which may not be obvious at the time of admission.

Using the procedure code of surgical haemostasis for post tonsillectomy bleeding, a list of all patients who had this

procedure was generated from the computer record. The patient's case charts were then retrieved and all the necessary data were collected without recording any personally identifiable information. Patients were then divided into two groups: those presented with bleeding within the first 24 hours of the surgery (primary) and those presented with bleeding after 24 hours of the operation (delayed).

Daily record of body temperature and white blood cell counts were collected to assess the severity of systemic infection. Mean of the body temperature during the first 24 hours of admission was then calculated.

**RESULTS**

The study group included 23 patients, 11 males and 12 females, with age ranging from 9 to 65 years. The mean age was  $25.5$  ( $\text{SD}\pm 15.1$ ). Twenty of our 23 patients had secondary tonsillectomy haemorrhage and all of them presented between the 3rd and 10th post-operative day. The mean interval of presentation of this group was 6.5 days ( $\text{SD}\pm 1.7$ ). The average of the documented temperature from the daily records of body temperature during the first 24 hours of presentation was taken to calculate the mean for the study group and was found to be  $36.65^{\circ}\text{C}$  ( $\text{SD}\pm 0.35$ ).

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Temperatures above 37° C were recorded only for two patients. The mean white blood cell count of this group was 8920 cells/mm<sup>3</sup> (SD± 2.6). The maximum recorded was 14300, and minimum was 5400. Only three patients had raised white blood cell counts, i.e. counts above 11000cells/mm<sup>3</sup> and two of these three patients had a raised body temperature too. The use of antibiotics was justified in these patients.

In contrast to the above group, the mean body temperature of the 3 patients presented with primary post tonsillectomy haemorrhage was 37.2 (SD± 0.5) with two of them had an average body temperature greater than 37° C. The mean WBC of this group was 12.3 (SD± 1.2) with all three had elevated level of white blood cell counts, i.e. levels above 11000 cell/mm<sup>3</sup>.

## DISCUSSION

The incidence of significant post-tonsillectomy bleeding that requires hospitalization is reported to be 3.4%<sup>6</sup>. In a large study involving more than 200,000 patients who have undergone tonsillectomy, only 0.82% returned to operating room for surgical arrest of post-tonsillectomy haemorrhage<sup>7</sup>. Eighty percent of the secondary bleeds occurs within 7 days. The exact aetiology of secondary bleed is uncertain but believed to be due to an infection of the tonsillar fossa<sup>8</sup>. The cause of primary bleeding is generally acknowledged to be due to poor surgical technique and inadequate perioperative haemostasis. In primary haemorrhage, undetected coagulation diseases (mainly von Willebrand's disease) have been diagnosed, often post-operatively. It was reported that the incidence of bleeding increases with increasing age. The other risk factors include chronic tonsillitis, infectious mononucleosis and male patients<sup>9</sup>. In addition to the technique of tonsillectomy, length of operating time, primary mode of haemostasis, a loosened tie and the slough of a superficial eschar were also indicated as possible factors responsible for post-tonsillectomy haemorrhage.

In a study looking at the incidence of post-tonsillectomy haemorrhage, the authors observed that none of their patients with secondary bleed had signs of upper respiratory tract infection at the time of presentation<sup>9</sup>. In another series, throat swabs taken at the time of admission from patients presented with secondary haemorrhage did not grow any pathological organisms in more than 90% of the cases<sup>10</sup>. The role of antibiotics in preventing post tonsillectomy bleed has been well debated.

A systematic review to define the role of antibiotics in improving the recovery following tonsillectomy failed to show any beneficial effects for antibiotics in reducing the incidence of significant post-operative bleeding<sup>11</sup>. An audit to determine the role of prophylactic antibiotic treatment following tonsillectomy reported an increased incidence of secondary haemorrhage in antibiotic treated patients<sup>12</sup>. Another similar study confirmed that prescribing antibiotics during post tonsillectomy period did not have a role in decreasing the incidence of haemorrhage<sup>13</sup>. Interestingly, the mean WBC count and the mean body temperature of the three patients admitted with primary bleeding were higher compared to those admitted with delayed bleeding. Although, a statistically significant difference was observed, we believe that the numbers of the primary group were too small to derive any conclusion. The elevated WBC count and the raised body temperature in the primary group may represent a body response to the surgical trauma.

A study performed in 2008 found that bacterial colonization of the tonsillar fossa may contribute to post-operative haemorrhage<sup>14</sup>. It has been reported in the past that postoperative infection of the tonsillar fossa may contribute to and even actually cause secondary haemorrhage<sup>15</sup>. This probably forms the basis of aggressive antibiotic treatment of patients presenting with delayed tonsillar bleeding. However, a number of studies, since then, reported that antibiotics do not have any role in reducing the incidence of post-tonsillectomy haemorrhage. As observed in our study, all except three patients with secondary bleed did not have either raised body temperature or elevated white blood cell counts.

## CONCLUSION:

Post tonsillectomy haemorrhage is a serious complication and many patients presenting with a post-tonsillectomy bleed require hospital admission for observation. Resuscitation must be the first step; however, active and continuous bleeding may warrant surgical intervention to attain haemostasis. There is no published evidence to support the practice of routine administration of antibiotics for patients presenting with secondary tonsillectomy bleeding. Eighty five percent of our patients presented with secondary post tonsillectomy haemorrhage did not have any evidence of systemic infection at the time of presentation. We suggest that treatment with antibiotics may be necessary only when signs of systemic infection are present. A larger study is required to draw definitive conclusions.

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## References

1. McClelland L, Jones NS. Tonsillectomy: haemorrhaging ideas. *Journal of Laryngology & Otology*. 2005 Oct 1;119(10):753-8.
2. Windfuhr JP, Chen YS. Post-tonsillectomy and adenoidectomy hemorrhage in nonselected patients. *Annals of Otology, Rhinology & Laryngology*. 2003 Jan;112(1):63-70.
3. Perkins JN, Liang C, Gao D, Shultz L, Friedman NR. Risk of posttonsillectomy hemorrhage by clinical diagnosis. *The Laryngoscope*. 2012 Oct 1;122(10):2311-5.
4. Liu JH, Anderson KE, Willging JP, Myer III CM, Shott SR, Bratcher GO, Cotton RT. Posttonsillectomy hemorrhage: what is it and what should be recorded?. *Archives of Otolaryngology–Head & Neck Surgery*. 2001 Oct 1;127(10):1271-5.
5. Audit NP, van der Meulen J. Tonsillectomy technique as a risk factor for postoperative haemorrhage. *The Lancet*. 2004 Aug 27;364(9435):697-702.
6. Rogers MA, Frauenfelder C, Woods C, Wee C, Carney AS. Bleeding following coblation tonsillectomy: a 10-year, single-surgeon audit and modified grading system. *The Journal of Laryngology & Otology*. 2015;129(S1): S32-7.
7. Clark MP, Waddell A. The surgical arrest of post-tonsillectomy haemorrhage: hospital episode statistics. *Annals of the Royal College of Surgeons of England*. 2004 Nov;86(6):411.
8. Robertson A, Wallace B, White A. Four-Year Prospective Audit of Tonsillectomy Practice in Argyll and Clyde. *Scottish Medical Journal*. 2004 May 1;49(2):70
9. Windfuhr JP, Chen YS, Remmert S. Hemorrhage following tonsillectomy and adenoidectomy in 15,218 patients. *Otolaryngology—Head and Neck Surgery*. 2005 Feb;132(2):281-6.
10. Kumar R. Secondary haemorrhage following tonsillectomy/adenoidectomy. *The Journal of Laryngology & Otology*. 1984 Oct 1;98(10):997-8.
11. Dhiwakar M, Clement WA, Supriya M, McKerro W. Antibiotics to reduce posttonsillectomy morbidity. *Clinical Otolaryngology*. 2013 Apr 1;38(2):154-5.
12. Lee WC, Duignan MC, Walsh RM, McRae-Moore JR. An audit of prophylactic antibiotic treatment following tonsillectomy in children. *The Journal of Laryngology & Otology*. 1996 Apr 1;110(04):357-9.
13. Baloch MA, Akhtar S, Ikram M, Humayun HN. The rationality of prescribing antibiotics after tonsillectomy. *Journal of the Pakistan Medical Association*. 2012;62(5):445.
14. Stephens JC, Georgalas C, Kyi M, Ghufoor K. Is bacterial colonisation of the tonsillar fossa a factor in post-tonsillectomy haemorrhage?. *The Journal of Laryngology & Otology*. 2008 Apr 1;122(04):383-7.
15. Fox SL. Bleeding following tonsillectomy. *The Laryngoscope*. 1952 Apr 1;62(4):414-25.

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