

Characteristics of Post-Tonsillectomy Hemorrhage Patients and Our Approach to These Patients

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Abstract: Tonsillectomy is one of the most common operations performed by Otorhinolaryngologists in practice and can lead to important complications. Post-tonsillectomy hemorrhage is one of the major complications. The aim of the study was to present the characteristics and treatment approaches of patients who were admitted to our clinic with post-tonsillectomy hemorrhage, followed-up and treated. Patients who applied to Otorhinolaryngology Clinic of our hospital between January 2014 and December 2020 with complaints of bleeding from the tonsil after tonsillectomy were included in this study. Patient files and hospital automation system were reviewed retrospectively. A total of 634 tonsillectomy operations were performed in our clinic between 2014 and 2020. Of these, 34 patients had post-tonsillectomy hemorrhage. 20 (58.8%) patients were male and 14 (41.2%) were female, and the mean age was 20.5 years (7-40 years). Of the 34 patients who were intervened in our clinic, 14 (41.1%) were in the pediatric age group and 20 (58.9%) were in the adult age group. 7 (20.5%) of the cases were primary hemorrhage that occurred in the first 24 hours after the operation. In the present study, 14 patients had bleeding from both sides and 14 patients from the left side. Patients who present with post-tonsillectomy hemorrhage should be hospitalized, even for observation purposes, vascular access must be established, and both examination and vital signs and hematological parameters should be closely monitored, and life-threatening complications should be prevented by timely interventions. © 2021 NTMS.

Keywords: Tonsillectomy; Hemorrhage; Complication.

1. Introduction

Liver cirrhosis is one of the common causes of Tonsillectomy is one of the most common surgeries performed by Otorhinolaryngologists (ENT) (1, 2). Tonsillectomy was first described in the literature 3000 years ago (3). Obstructive sleep apnea and recurrent throat infections are the most common indications for tonsillectomy surgery (4). Most common complications

after tonsillectomy are nausea, vomiting, respiratory problems, respiratory restriction, dehydration, fever and bleeding (5). Among these complications, tonsil bleeding is one of the most serious and common complications of tonsillectomy surgery (6). In various studies, the frequency of bleeding after tonsillectomy ranges between 0.8% and 18% (7).

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Primary hemorrhage occurs in the first 24 hours after the operation and can be more dangerous. Bleeding after 24 hours is called secondary hemorrhage (8).

Many studies have tried to reveal the factors associated with post-tonsillectomy hemorrhage (9). While investigating the causes of secondary hemorrhage after tonsillectomy, factors such as age and gender, surgical technique and experience, recent infections, and hematological parameters have been proposed. However, in many studies, the effects of very few of the factors mentioned above were found to be statistically significant on post-tonsillectomy hemorrhage (10, 11).

In this study, we aimed to present the characteristics and treatment approaches of patients who were admitted to our clinic with post-tonsillectomy hemorrhage, and followed-up and treated.

2. Material and Methods

The study was started after the approval of Clinical Research Ethics Committee of Erzincan Binali Yıldırım University (access number: E.21142744-04/04). Patients who applied to Mengücek Gazi Training and Research Hospital Otorhinolaryngology Clinic and Dilber private clinic between January 2014 and December 2020 with complaints of bleeding from the tonsil after tonsillectomy were included in this study. Patient files and hospital automation system were reviewed retrospectively, 34 patients who presented with bleeding were identified and included in the study. Patients with missing information in their files and patients who could not be reached, and patients with only adenoid bleeding were excluded from the study. None of the patients with post-tonsillectomy hemorrhage were treated as outpatients. The patients were evaluated in terms of age, gender, time after tonsil surgery, and intervention for bleeding. In addition, cases that were hospitalized and treated with the complaint of PTH were evaluated for time of hemorrhage after tonsillectomy, how many days they were kept under observation, the severity of hemorrhage (minor/major bleeding), the procedure applied to stop the bleeding, whether there was a need for blood transfusion, and the presence of infection in the tonsillar bed.

All cases were hospitalized for routine follow-up at least one night regardless of the severity of bleeding. Laboratory tests included complete blood count, prothrombin time (PTZ), and activated partial thromboplastin time (aPTZ). After the physical examination, oral feeding was stopped in all patients and intravenous fluid supplementation was initiated. All clots detected in the tonsils were cleared. Patients gargled with cold water containing adrenaline and hydrogen peroxide, and gauze tampons soaked in 2 ml of local anesthetic containing 20 mg/ml lidocaine and 0.0125 mg/ml epinephrine were held with Allis forceps

and compressed on the bleeding area. Cases that did not respond to this conservative treatment or had severe bleeding were intervened in operating room conditions under general anesthesia. Local compression, bipolar electrocauterization and/or suture-ligation were performed under general anesthesia. The cases were discharged according to their general conditions, bleeding parameters and hemoglobin values.

2.1. Statistical analysis

Statistical analysis was performed using SPSS (SPSS 20.0 for Windows, Inc. Chicago, IL, USA) package program. The data were evaluated using descriptive statistics and the Mann-Whitney U Test. $P < 0.05$ was considered significant in all analyses.

3. Results

A total of 634 tonsillectomy operations were performed in our clinic between 2014 and 2020. Of these, 34 patients had post-tonsillectomy hemorrhage. 20 (58.8%) patients were male and 14 (41.2%) were female, and the mean age was 20.5 years (7-40 years). Of the 34 patients who were intervened in our clinic, 14 (41.1%) were in the pediatric age group and 20 (58.9%) were in the adult age group. The onset of bleeding occurred anywhere from the first 24 hours to 14 days following surgery (mean: 6.5 days) (figure I). 7 (20.5%) of the cases were primary hemorrhage that occurred in the first 24 hours after the operation. 27 (79.5%) of the cases were secondary hemorrhage that occurred more than 24 hours after the operation. In 22 (64.7%) of the patients who were treated in our clinic, bleeding was controlled with cold application, local compression and topical hemostatic agent application after clearing the clot in the field under local anesthesia. Surgical treatment in operating room conditions was preferred in patients whose bleeding could not be controlled with conservative methods under local anesthesia. Hemorrhage intervention was performed under general anesthesia in 12 (35.3%) patients whose bleeding could not be controlled by local intervention, and suture-ligation and coagulation methods with bipolar cautery were primarily preferred.

Table 1: Time of hemorrhage according to gender.

Gender	N	Mean \pm SD	p
Male	20	5.8 \pm 3.5	0.31
Female	14	7.5 \pm 4.5	

N: Number; SD: Standard deviation.

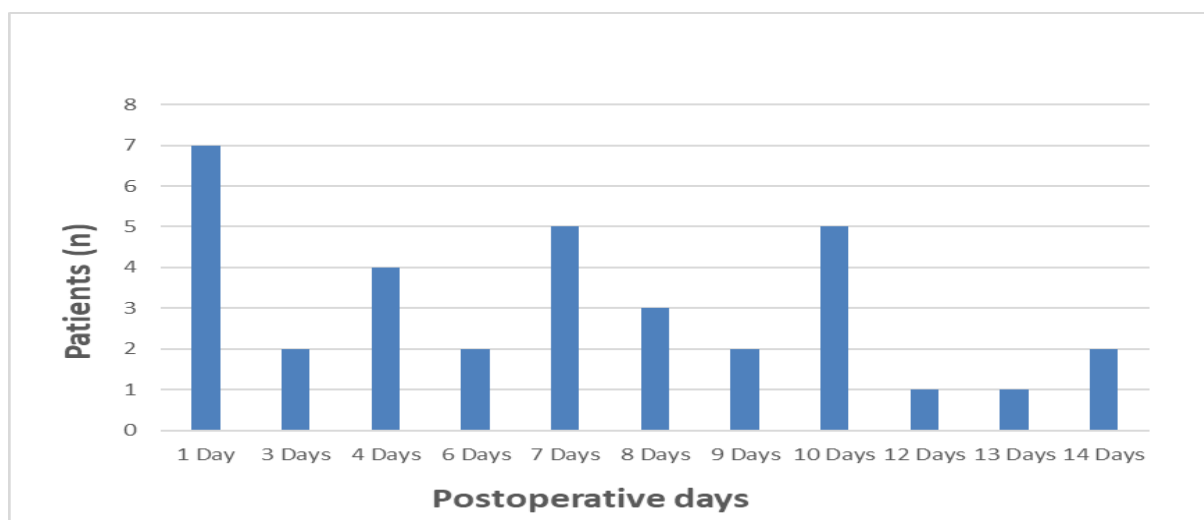


Figure 1: Distribution of the number of bleeding after tonsillectomy by days.

In the present study, 14 patients had bleeding from both sides, 14 patients from the left side and 6 patients from the right side. No significant difference was found between bleeding times according to gender ($p: 0.31$) (Table 1). In the complete blood count performed during the evaluation phase of the patients, hemoglobin values were within normal limits and none of the patients required blood transfusion. No pathological indications were found in the blood analysis performed for bleeding diathesis investigation.

4. Discussion

Although the incidence of complications after tonsillectomy has decreased thanks to surgical techniques developed in recent years, post-tonsillectomy hemorrhage is still the most common and life-threatening complication of this operation⁷. In many studies, the frequency of post-tonsillectomy hemorrhage has been reported to vary between 0.8% and 18% (12-14). In the present study, the frequency of bleeding was 5.36%, with 34 cases observed after 634 tonsillectomy operations.

Postoperative bleeding may lead to negative consequences such as re-hospitalization, emergency reoperation, and death (5). It has been suggested that primary bleeding occurs due to acute vascular injuries during surgery, whereas secondary bleeding is associated with dissolution of clot in previously coagulated foci and fibrinolysis, which can sometimes be seen due to surgical wound infection (1). A bleeding complication can lead to readmission after discharge from the hospital. Patients presenting with bleeding complications may be followed only with close clinical observation initially, or in more severe cases, they may require surgical intervention under local or general anesthesia due to bleeding (1-15). Furthermore, post-tonsillectomy hemorrhage may result in mortality, albeit rare. Post-tonsillectomy hemorrhage is more common in adults than in children (15-18). In our clinic, postoperative hemorrhage rate was calculated as 41.1% in the pediatric group and 58.9% in the adult group. While hemorrhage seen in the first 24 hours after

surgery is evaluated as primary, hemorrhage after 24 hours is evaluated as secondary (1, 14, 15, 19). The rate of primary hemorrhage was 20.5%, while the rate of secondary hemorrhage was 79.5%. Mortality was not observed in the present study.

Although there is no clear relationship between sex and bleeding, many studies have reported more post-tonsillectomy hemorrhage in men than in women (16, 20-22). Similarly, in our study, the rate of men was higher than women but they are dissimilar to those reported by Carmody et al and Myssiorek et al (23, 24). In the study conducted by Taşlı H. et al., when the time of admission with post-tonsillectomy hemorrhage was examined, the average time of admission was 7.6 (1-16 days) after surgery (25). In the study conducted by DO. Francis et al., When the time of admission with secondary post-tonsillectomy hemorrhage was examined, the average time of admission was 5.5 (3-10 days) after surgery (4). Similarly, the average time of admission in our clinic was determined to be 6.5 days after surgery (1-14 days).

In most clinics, during tonsil surgery, intraoperative bleeding foci are intervened by suturing or ligation after 5-7 minutes of tamponade containing adrenaline, and sometimes cauterization with bipolar cautery is applied. In 22 (64.7%) of the patients who were treated in our clinic, bleeding was controlled with cold application, local compression and topical hemostatic agent application after clearing the clot in the field under local anesthesia. Surgical treatment in operating room conditions was preferred in patients whose bleeding could not be controlled with conservative methods under local anesthesia. In the present study, hemorrhage intervention was performed under general anesthesia in 12 (35.3%) patients whose bleeding could not be controlled by local intervention, and suture-ligation and coagulation methods with bipolar cautery were primarily preferred.

5. Conclusions

Patients who present with post-tonsillectomy hemorrhage should be hospitalized, even for

observation purposes, vascular access must be established, and both examination and vital signs and hematological parameters should be closely monitored. Life-threatening complications should be prevented in these patients by timely interventions

Conflict of Interests

None

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Author Contributions

Concept-Dilber M; Design-Salcan İ, Erhan E, Bayram R; Supervision-Salcan İ; Resources-Salcan İ, Dilber M, Keşan S; Materials- Dilber M, Sönmez F, Kaya SV; Data Collection and/or Processing-Salcan İ, Dilber M, Erhan E; Analysis and/or Interpretation-Salcan İ, Bayram R; Literature Search-Salcan İ, Dilber M, Keşan S, Sönmez F, Kaya SV; Writing Manuscript- Dilber M; Critical Review-Salcan İ.

Ethical Approval

The study was started after the approval of Clinical Research Ethics Committee of Erzincan Binali Yıldırım University (Access Number: E.21142744-04/04).

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