

Hemorrhage after tonsillectomy in pediatric patients living in rural regions

Abstract

Objective: Tonsillectomy is the most commonly performed operation in otolaryngological clinics. There are many possible complications. We explored the incidence of hemorrhage, which is the most important complication because it can result in death.

Method: We included 83 pediatric patients who underwent tonsillectomies in a second-level state hospital. We retrospectively reviewed patients who developed postoperative bleeding.

Results: Forty-five patients were male and thirty-eight were female (mean age 8.2years). Bleeding after tonsillectomy developed in five patients. All bleeding was secondary (after the first 24h). Four cases developed in summer and one in winter. All hemorrhages were chemically cauterized using a silver nitrate rod under local anesthesia. No additional interventions were required.

Conclusion: Post-tonsillectomy hemorrhage in a rural area was caused by extreme heat. Thus, tonsillectomy is best performed in spring and autumn if possible.

Keywords: rural region, tonsillectomy, bleeding

Volume 9 Issue 3 - 2017

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Received: October 10, 2017 | **Published:** November 29, 2017

Introduction

The tonsilla palatina has a rich blood supply from the tonsillar, ascendant palatine, dorsal lingual, descendant palatine, greater palatine, and ascendant pharyngeal arteries. Bleeding after tonsillectomy is a serious (albeit rare) complication because it may be life-threatening. The incidence of the complication ranges from 0.1% to 9.3%.^{1,2} Bleeding is classified as primary or secondary, the former occurring within the first 24h after surgery and the latter happening after 24h but predominantly within the first 10days after surgery.^{3,4}

Material and methods

We evaluated tonsillectomy outcomes and post-bleeding complications in 83 pediatric patients treated between May 2014 and May 2016 at Hınıs State Hospital, Erzurum, Turkey, and a second-level state hospital. We took chest radiographs and performed hemographic, biochemical, and bleeding tests before surgery. All tonsillectomies were completed by the same surgeon under general anesthesia using cold dissection, and all patients received intravenous ampicillin/sulbactam and analgesics. All patients were followed-up in-hospital for 1day. The caregivers of all patients were given verbal and written instructions as to postoperative care and were provided with our contact information. We performed a hemogram and determined the international normalized ratio, prothrombin time, activated partial thromboplastin time, and bleeding time in patients who bled after tonsillectomy. We first commenced fluid therapy. Then we cleared clots in the tonsillae field. We compressed the tonsillae field by buffer containing 20mg/mL lidocaine and 0.0125mg/mL epinephrine (local anesthetics). We identified the bleeding point and performed chemical cauterization using a silver nitrate bar. We did not perform suture ligation, carotid artery ligation, or electrocautery.

Results

Of the 83 patients, 45 were male and 38 were female (mean age 8.2years). All patients lived in rural areas. Bleeding developed after

tonsillectomy in five patients; all bleeding was secondary. Three bleeders were males and two were females. The mean time to bleeding was 7.2days after tonsillectomy. Four bleeds occurred in the summer and one happened in winter (Table 1). The summer bleeds were associated with exposure to sunlight and the winter bleed was associated with sleeping near a stove. Thus, the common characteristic was extreme heat. All patients had followed the nutritional recommendations. The average hemoglobin level was 10.8g/dl. No other abnormalities were evident. During 2days of follow-up in the hospital, no advanced treatments or blood transfusions were required.

Table 1 Demographic characteristics of patients undergoing tonsillectomy and seasonal distribution of hemorrhages

	Number (n)
Gender	
Male	45
Female	38
Season	
Summer	4
Winter	1

Discussion

Tonsillectomy is frequently performed in otorhinolaryngological clinics, and is associated with possible bleeding, aspiration, laryngospasm, and circulatory collapse.^{4,8} Primary bleeding is thought to be associated with the surgical technique employed. Risk of aspiration, laryngospasm, and blood circulation collapse can become marked when there is primary bleeding because it is generally more severe than secondary bleeding.^{2,5} Secondary bleeding is not associated with surgical technique, is rarer, and generally develops within 10days postoperatively. However, deaths caused by secondary bleeding have been reported later than 39days after tonsillectomy.^{3,4}

Our cases, unlike what is generally reported, consisted entirely of secondary bleedings. Wei et al.,⁶ found that 89 of 90 bleeds were

secondary in 4,662 patients. The causes of secondary bleeding are residual tonsillar tissue, infection, an incorrect diet such as an acidic liquid or solid food, trauma, and the use of non-steroidal anti-inflammatory drugs.^{7,8} However, we attribute the bleeding in our patients to extremely hot environments.

Although the results remain controversial, many studies have shown that bleeding increases in hot seasons and in extremely hot environments.⁹⁻¹¹ Lee et al.,¹² reported that most bleeding occurred in winter. We suggest that this is because houses are overheated in winter.

Treatments for bleeding after tonsillectomy include observation, hydration, silver nitrate cauterization, and electrocauterization. If conservative methods are insufficient, surgical intervention is required, and may include suturing, electrocauterization, and/or ligation of the external carotid artery branches. Elbistanli et al.,⁷ reported that 77.7% of cases required surgical intervention; the figures of Wei, Sayin et al.,^{6,12} were 47% and 28%, respectively. We used chemical cauterization (a silver nitrate bar) only; no surgical interventions were required. Local anesthesia was sufficient.

As mentioned previously, the bleedings were attributed to seasonality and room temperature. In addition, bleeding developed after tonsillectomy in five patients. So, the shortcomings of this study; the environmental temperature record is not available and there is no control either, study is retrospective, and the number of patients with bleeding is low.

As emphasized in the literature, it is important to prevent hemorrhage after tonsillectomy; urgent treatment is required if bleeding develops. In addition, we suggest that if a tonsillectomy is planned for a patient living in a rural area, it is best to perform surgery in spring or autumn if possible. Chemical cauterization effectively treats any bleeding.

Acknowledgments

None.

Conflicts of interest

Author declares there are no conflicts of interest.

Funding

None.

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