



Bleeding after tonsillectomy



Zi Yang Jiang, MD

From the Pediatric Otolaryngology—Head and Neck Surgery, University of Texas Health Science Center at Houston, McGovern School of Medicine, Houston, Texas

KEYWORDS

Tonsillectomy;
 oropharyngeal hemorrhage;
 bleeding

Oropharyngeal hemorrhage after tonsillectomy is one of the most common postprocedural ENT emergencies that require immediate attention. Management choices depend on the severity of bleeding, underlying platelet or coagulation disorders, and the patient's maturity and age. Treatment range from simple observation to an emergent need to both secure the airway and stop the hemorrhage. The workup of the hemorrhagic patient will be discussed from the preoperative to postoperative time period. Surgical techniques in response to various acuity will be discussed to fully elucidate options to control the hemorrhage.

Published by Elsevier Inc.

Introduction

Epidemiology of tonsillectomy and tonsil bleeds

Tonsillectomy with or without adenoidectomy is one of the most common surgeries performed in the United States, especially for children, with rates exceeding half a million per year.¹ Posttonsillectomy hemorrhage or bleeding (PTB) remains a common source of phone calls and emergency center visits following tonsillectomy. A longitudinal study from the Pediatric Health Information System database involving 111,813 children from 2009–2013 suggest 2.8% rate of unplanned revisits for bleeding after tonsillectomy. Only 1.6% was readmitted from the emergency department and approximately 0.8% necessitated a procedure.² Significant variations do exist for revisits to the emergency department (range: 1.0%–8.8%).³

Contrary to anecdotal belief, PTB do not occur more frequently during the weekends than weekdays.⁴ However, the frequency of bleeding is higher at night (71.2% vs 28.8%, $P = 0.002$). In fact, more than 50% of the bleeding occurs from a 6-total hour window between 10 PM–1 AM and

6–9 AM.⁵ The reason for this is unclear but circadian rhythms may play a role in neuroendocrine and hemodynamic measures throughout the day. The vibratory effect of snoring and drier oral mucosa from chronic mouth breathing during sleep may also play a role. Furthermore, slight regional variation also exists in the United States with the lowest bleeding rate in the South at 2.5%, although the data did not incorporate all states in the country.⁶

The risk of bleeding in children with known coagulopathies may be as high as 53% although other estimates are lower with suggestions that the odds are twice as the normal population.^{7,8} Hemophilia A and B as well as Factor VII deficiency are coagulopathies that are often the most dramatic in presentation but are rare. Meanwhile, von Willebrand disease is relatively common in the general population with a prevalence of up to 2%.⁹ Patients may not always have an easy bruising or bleeding history. Tests for coagulopathies before tonsillectomies on children with no clinical suspicion for bleeding problems have low sensitivity, low bleeding predictive value, and are not routinely advised.^{10,11} Therefore, sporadic cases are difficult to identify preoperatively if the patient has no previous history of easy bruising or bleeding.

Risk factors

Posttonsillectomy hemorrhage can rarely occur in the first 24 hours after tonsillectomy (primary PTB). Com-

Address reprint requests and correspondence: Zi Yang Jiang, MD, Pediatric Otolaryngology—Head and Neck Surgery, University of Texas Health Science Center at Houston, McGovern School of Medicine, 6431 Fannin St MSB 5.036, Houston, TX 77030.

E-mail address: zi.yang.jiang@uth.tmc.edu

monly, it occurs more than 24 hours (usually 5-10 days) after tonsillectomy (secondary PTB).¹² Previous studies have identified older age as a possible risk factor for secondary PTB.¹³⁻¹⁵ In a large database study of 35,085 tonsillectomies performed at hospital-owned ambulatory and inpatient facilities, male sex and increasing age were found to be independent risk factors for revisits related to bleeding.¹²

The inherent risk of PTB with stratification by surgical indication is controversial. Some authors have suggested tonsillectomies performed on children with sleep apnea may have a higher risk of bleeding than those performed on children with chronic tonsillitis.¹⁶ The obstructive nature of sleep apnea has been theorized to increase the chance of bleeding by causing a stronger negative pressure gradient in the pharynx during the recovery period. A database study of over 138,998 procedures in California suggested older age and obesity as risk factors for PTB, but not sleep apnea.¹⁷ Still others have found increased bleeding risk in those patients who have chronic tonsillitis.^{14,15,18} Quinsy tonsillectomies has not been found to be associated with an increased hemorrhage rate.¹⁹

Intraoperative adjuncts such as peritonsillar injection of local anesthesia (with or without epinephrine) and painting of bismuth onto the tonsillar fossa has not found to be associated with a decrease chance of bleeding.¹³ Neither were the use of perioperative antibiotics and ketorolac. Use of sucralfate postoperatively also was not associated with an increased chance of bleeding.²⁰ A recent Cochrane review suggested a nonsignificant increased odd of bleeding requiring surgical intervention with nonsteroidal anti-inflammatory drug use (odds ratio = 1.69, 95% CI: 0.71-4.01).²¹ Similarly, the odds of bleeding requiring

nonsurgical intervention was found to be odds ratio of 0.99 (95% CI: 0.41-2.40) suggesting little if any effect of nonsteroidal anti-inflammatory drug use of bleeding risk after tonsillectomy.

Operative technique has been one of controversy surrounding PTB rates. More recent developments of intracapsular tonsillectomy have favored the technique as causing less bleeding risk and pain. The trade-off comes from the risk of tonsillar regrowth and return of chronic tonsillitis or worsening of sleep apnea in the future.²² Other studies have shown no difference in bleeding risk between electrocautery tonsillectomy and intracapsular tonsillectomy with a microdebrider.²³ Similarly, a study looking at blunt dissection vs bipolar electrocautery shows no difference in PTB rates.²⁴ Coblation vs electrocautery tonsillectomy has also been studied and the recent result of a meta-analysis suggests no difference in PTB rates.²⁵

Vascular anatomy

The tonsils are mainly supplied by branches of the external carotid artery: lingual, facial, ascending pharyngeal, and internal maxillary arteries (in ascending order).²⁶ The ascending pharyngeal artery is a terminal branch artery (no other branching before supplying the tonsils). Meanwhile, the lingual artery supplies the tonsils via the tonsillar branch, the facial via the ascending palatal and tonsillar branch, and the internal maxillary via the descending palatal branch (Figure 1). The lingual artery itself has occasionally a contribution from the hyoid branch of the superior thyroid artery.²⁷ The superior thyroid, lingual, and facial arteries can also arise together from the external carotid as the thyrolingual or facial trunk.²⁸

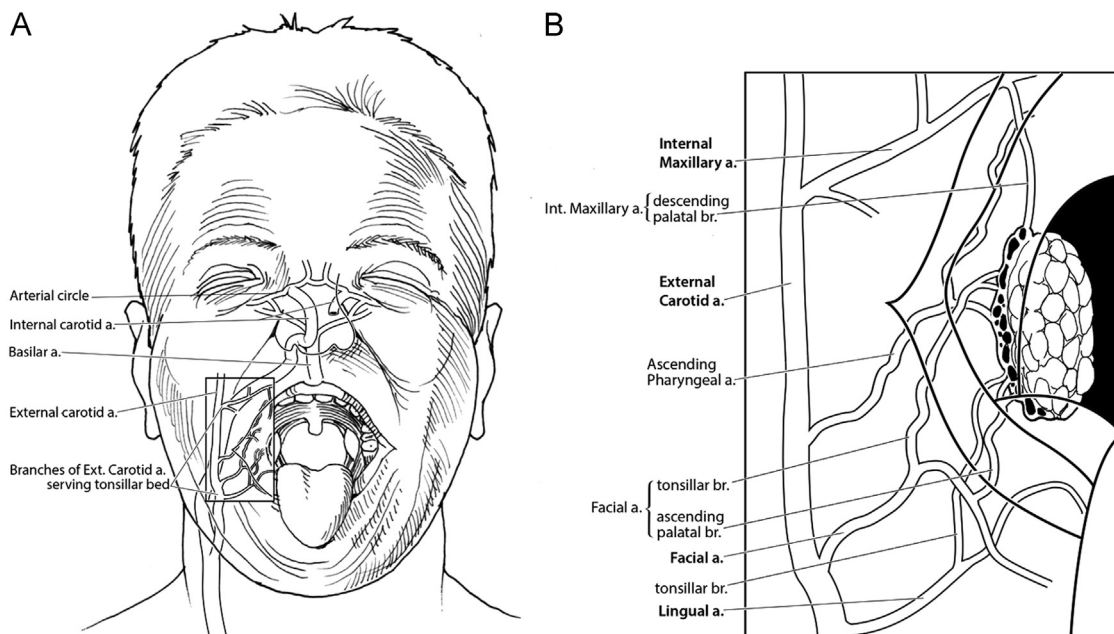


Figure 1 (A) Arterial branching patterns in the head and neck. (B) Branches of the external carotid artery supplying the tonsils and tonsillar fossa.

Download English Version:

<https://daneshyari.com/en/article/8806911>

Download Persian Version:

<https://daneshyari.com/article/8806911>

[Daneshyari.com](https://daneshyari.com)