Rates of Post-Tonsillectomy Hemorrhage at a Tertiary Care Center

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Introduction

The first documented tonsillectomy was performed in the first century A.D. by Cornelius Celsus in Rome. He used his finger to bluntly dissect an enflamed tonsil. Since that time better instruments and technical advances have allowed for the development of new techniques. For years the preferred method involved cold-knife dissection and snare. With this technique the tonsil is grasped, pulled to the midline and an incision is made in the oropharyngeal mucosa. The tonsillar capsule is identified and the tonsil is removed from the fossa with gentle traction. The inferior pole is snared and the tonsillar fossa irrigated with saline. Cold-knife dissection was the standard procedure for many years and is still used amongst many practicing otolaryngologists today.[1]

In 1968 Remington-Hobbs described the use of diathermy, or "hot dissection," for tonsillectomy. The use of bipolar diathermy has become perhaps the most common technique for tonsillectomy.[2] The rising use of electrocautery along with a movement towards reducing the cost of healthcare has resulted in a reduction in the rate of inpatient admissions post-tonsillectomy.

The published rates of post-tonsillectomy hemorrhage range from 0.1%-8.1% depending on severity[4], though a universal rate of 4-5% at high-volume centers is generally accepted. The reduction in the rate of post-tonsillectomy hemorrhage is correlated with technical developments such as the use of diathermy for hemostasis.[5]

Methods and Materials

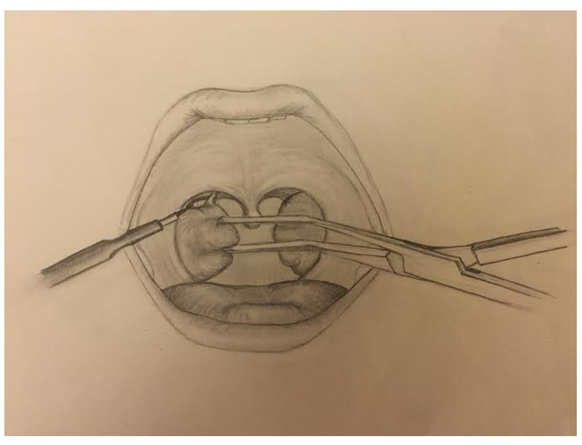
Institutional Review Board approval was obtained through the Louisiana State University Health Sciences Center-Shreveport for this retrospective chart review. Data was retrospectively collected from patients undergoing tonsillectomy and adenoidectomy from 2011 through 2015.

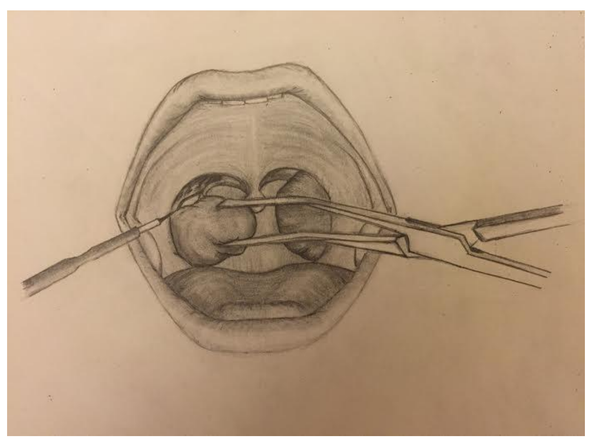
All patients received tonsillectomy and adenoidectomy for obstructive sleep apnea or recurrent tonsillitis. The population consisted of all-comers with a variety of co-morbidities including sickle cell disease, asthma, and down syndrome among others. The procedures were performed by second and third year rotating residents.

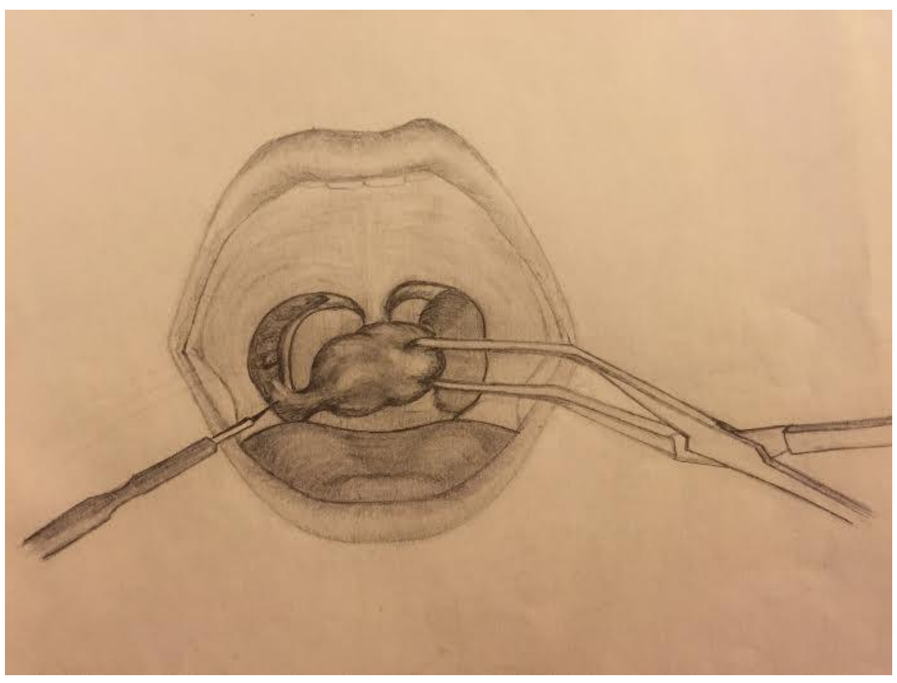
Results

There were 374 patients (197 males, 177 females) included in the study. Mean age was 6.3 years. 372 patients underwent tonsillectomy with adenoidectomy, 2 underwent tonsillectomy alone. All patients underwent a bilateral tonsillar excision with the needle tip bovie with preservation of the inferior pole. The anterior and posterior pillars were sutured together caudally in all patients.

The primary and secondary hemorrhage rates using our technique were 0.3% and 0.8% respectively. Overall post-tonsillectomy hemorrhage rate for our technique was 1.1%.







Objectives

Our objective is to describe a surgical technique that reduces the rate of post-tonsillectomy hemorrhage. Our technique for tonsillectomy is anatomy based and serves to deliver the least amount of thermal damage by using a small bovie tip. The inferior pole is preserved with our technique. The anterior and posterior pillars are sutured together which helps to reduce the incidence scarring, speech complications and velopharyngeal insufficiency. By using a needle-tip bovie, preserving the inferior pole and suturing together the anterior and posterior pillars, we believe that the rate of post-tonsillectomy hemorrhage can be reduced to less than 1%.

Discussion

Unplanned return visits to the emergency department and hospital readmission after tonsillectomy account for significant cost and burden to the healthcare system.[6] One study by Sun et al. estimated an additional cost of $1828 for post-tonsillectomy hemorrhage and $30,081 if the child required mechanical ventilation, compared to children without post-tonsillectomy hemorrhage.[7]

Our study consisted of all comers, often with significant co-morbidities. The majority of tonsillectomies were performed by residents. We found that using our technique the overall rate of post-tonsillectomy hemorrhage was 1.1%. Only 0.8% required a return trip to the OR. This is much lower than the universally accepted rate of 4-5%. In a healthy patient population and experienced hands the rate of post-tonsillectomy hemorrhage using our technique could feasibly become negligible.

Conclusions

The use of a needle tip bovie, preservation of the inferior pole, and suturing together the anterior and posterior pillars caudally can reduce the rate of post-tonsillectomy hemorrhage in pediatric patients.

Contact

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