



Reducing the exposure of the tonsillar fossa does not impact postoperative pain levels in children undergoing tonsillectomy: A double-blind randomized controlled trial



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ABSTRACT

Background: It is not established whether reducing the exposure of the tonsillar fossa would be an effective strategy for postoperative pain relief among the pediatric population submitted to tonsillectomy. We assessed the impact of closing this region using absorbable sutures on pain, on the resumption of normal diet and on the healing process until seven days after surgery.

Methods: Randomized, double-blind, controlled trial comparing postoperative pain in 132 children between the ages of 5 and 12 years undergoing tonsillectomy having bilateral closure, unilateral closure or non-closure of the tonsillar fossa.

Results: No differences in pain levels were reported both at discharge and on postoperative day 7. The day of resumption of normal diet was similar in all patients. Less granuloma and edema of the uvula were noted in patients with non-closure of the tonsillar fossa.

Conclusion: These results showed that reducing the exposure of the tonsillar fossa after the removal of the palatine tonsils was not an effective method for postoperative pain relief in children. Moreover, its closure was associated with slower healing.

1. Introduction

Postoperative pain following the removal of the palatine tonsils in children is a major concern to patients and families. Surgery can cause difficulties in swallowing, dehydration, infection, hemorrhage, delay of hospital discharge, hospital readmission [1], and slower resumption of normal diet [2]. In the United States alone, more than 500000 tonsillectomies are performed every year [3,4]. The high prevalence of this procedure among the pediatric population necessitated the development of several techniques to reduce postoperative pain and bleeding following the use of traditional methods for palatine tonsillar excision [2,5–10]. Among those are the coblator [11,12], radiofrequency ablation [13–15], the harmonic scalpel [16–18], and low-intensity laser [19]. The closure of the tonsillar fossa using absorbable sutures is another technique employed by numerous surgeons. The associated decrease in pain is believed to be a result of reducing the exposure of the raw area during the postoperative period [20–22]. However, there is

insufficient evidence to validate its effectiveness. In addition to the scarcity of literature, previous studies are limited by small sample sizes [23], inclusion of children under 5 years of age with low cognitive abilities [21,24], inclusion of adults in the sample whose methodology of pain evaluation is diverse [21,23,25,26], multiple surgeons performing the procedures [21,23,26], and inadequate blinding of surgeons [23,24] (Table 1).

The purpose of this study was to assess the impact of closing the tonsillar fossa using absorbable sutures on pain relief and the resumption of normal diet following tonsillectomy. In addition, we assessed the differences in the healing characteristics between the groups.

2. Methods

2.1. Participants

This was a randomized, double-blind, controlled trial, in which 132

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Table 1
Previous clinical trials comparing closure versus non-closure of the tonsillar fossa for pain relief following tonsillectomies.

Author	Year	Methods	Patients with suture	Patients without suture	Age of patients (years)	Surgical Technique	Pain Variable (outcome)	Postoperative pain (Sutured vs Unsutured)	Seventh day pain (Sutured vs Unsutured)	Results	Jadad Scale (points)	Limitations
Weighill	1986	Randomized, controlled trial, one side was sutured and the other was not	60 ^a	60 ^a	≥16	Not described	Questionnaire, patient had to say the most painful side in days 1, 2, 3, and 6 weeks after.	–	–	No difference.	1	Multiple surgeons, no children included.
Nandapalan	1995	Randomized, controlled trial, patient blinded, one side was sutured and the other was not	50 ^a	50 ^a	≥15	Cold dissection and snare	Visual analogue scale from the first to the tenth post-operative day (0–5; 5 hurts worst).	3.6 vs. 4 (p < 0.001)	2.8 vs. 3.1 (p < 0.001)	Days 1 and 2, sutured side more painful; days 5–10, unsutured side more painful.	3	Multiple surgeons, no children included.
Genç	2006	Randomized controlled trial, patient and pain evaluator blinded, one side was sutured and the other was not	39 ^a	39 ^a	3 to 15	Cold dissection and snare	Wong-Baker faces scale (0–10; 10 hurts worst) in days 1, 3, 5, 7, and 10.	6.51 vs. 6.69 (p > 0.01)	0.90 vs. 2.54 (p < 0.01)	No difference in pain on the first postoperative day, less pain on the sutured side days 3–10 after surgery.	3	Included children younger than 5 years, multiple surgeons, randomization bias as surgeons selected the side to be sutured at the time of surgery.
Sendi	2009	Randomized controlled trial, patient and pain evaluator blinded, one side was sutured and the other was not	30 ^a	30 ^a	7 to 36	Cold dissection and snare	Questionnaire, patient had to say the most painful side on days 1, 5, and 10.	–	–	No difference (p = 0.052).	3	Small sample size, unpowered, included adults also, procedure done by a junior resident.
Matt	2012	Randomized controlled trial, pain evaluator blinded, one side was sutured and the other not	763 ^a	763 ^a	8–264 months (mean 6.3)	Electrocautery dissection (most cases), cold dissection and snare, and harmonic scalpel	Ordinal pain scale days 1, 7, 14, 21, and 28. They asked, “As of today, which side hurts more?” and categorized the responses as [1 = left, 2 = right, 3 = equal, 4 = unable to determine, 5 = no pain]	–	–	40% increase in the odds ratio of postoperative pain on the sutured side compared to unsutured side (95% confidence interval = 1.21–1.64, p < 0.001).	5	Included children younger than 5 years, multiple surgeons, different surgical techniques, other surgeries also performed such as supraglottoplasty, use of electrocautery which increases pain.

^a Paired data.

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