Curr Pediatr Res 2012; 16 (2): 150-152

ISSN 0971-9032
Scientific Publishers of India

Post-tonsillectomy pain and bleeding in children: A comparison of traditional tonsillectomy with electrodissection tonsillectomy.

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Abstract

Post-tonsillectomy pain and bleeding among children undergoing traditional tonsillectomy with those undergoing electrodessiction tonsillectomy were compared. A total of 190 children (2 -12 years old). Eighty-Nine males and 101 females, who were admitted to Al-Namas General Hospital during the period of 2008 to 2011 for tonsillectomy were randomized into either traditional tonsillectomy (97 patients) or electrodissection tonsillectomy (93 patients). Post-tonsillectomy severe pharyngeal pain was more experienced by patients who underwent tonsillectomy by electrodissection. Pain was significantly higher on day 5 (p=0.029). Postoperative hemorrhage was experienced by 6 cases who underwent traditional tonsillectomy (6.2%) and 2 cases who underwent tonsillectomy by electrodissection (2.2%). Difference between both study groups regarding postoperative hemorrhage was not statistically significant. Electrodissection tonsillectomy technique is associated with significantly higher postoperative pain and slightly less incidence of post-tonsillectomy bleeding than that associated with postoperative traditional tonsillectomy technique.

Keywords: Tonsillectomy, Children, Electrodissection, Postoperative pain, Hemorrhage.

Accepted April 12 2012

Introduction

Tonsillectomy is a common surgical procedure in the Kingdom of Saudi Arabia and most countries of the world [1]. There are different techniques of tonsillectomy, e.g., laser tonsillectomy, cryosurgery, guillotine excision, electro-dissection tonsillectomy and traditional tonsillectomy [2]. Ideally, the procedure to be employed should be fast, safe, painless, and bloodless, and associated with rapid recovery [3].

After tonsillectomy procedure performed the colonization of the open tonsillar fossa by oral bacterial flora may cause severe localized inflammatory reaction with subsequent pain exacerbation after the tonsillectomy. Infection of the tonsillar fossa may contribute to secondary hemorrhage. The estimates about the incidence of postoperative hemorrhage vary from 0-20% [4].

This study has been conducted to compare postoperative morbidity of traditional tonsillectomy with that of tonsillectomy by electrodissection.

Patients and Methods

This study included 190 patients (2 -12 years old) who were admitted to Al-Namas General Hospital in Aseer Region for tonsillectomy during the period from 2008 to 2011. Al-Namas Hospital is a 100-bed hospital and the only hospital in the Municipality of Al-Namas, Aseer Region, Kingdom of Saudi Arabia. Those patients were randomized into either traditional tonsillectomy or tonsillectomy by electrodissection. Data obtained were as follows: age, sex, technique of tonsillectomy (either traditional or electrodissection), post-tonsillectomy complications (pain, hemorrhage or infection).

The Caucasian version of the 'Oucher picture pain scale' was applied for postoperative pain grading. Generally, children as young as three are able to use this tool. It is a validated and useful measure for pre-school as well as for primary school-aged children. It scale consists of six gradations (0, 20, 40, 60, 80, 100). Pain was assessed via facial expression. A score of 0 was assigned to a child who was calm and complaisant, and 100 to a child in a state of severe distress, accompanied by constant crying

and a grimacing expression [5]. Severe pain was defined as an Oucher pain score above 60 [6]. In case of severe pain, 0.5 µg/kg of intravenous fentanyl was administered.

Patients who had postoperative hemorrhage were readmitted to the hospital and were treated conservatively by keeping them fasting for 24 hours and then were allowed to have orally a cold liquid diet, IV antibiotics and analgesics under close observation.

Data were analyzed using the Social Package for Social Sciences (SPSS version 17). Tests of significance were applied (i.e., χ^2). P-values less than 0.05 were considered as statistically significant.

Results

This study included 190 patients (89 males and 101 females). Their age ranged between 3 to 12 years (mean±SD = 6.7±2.3 years). A total of 97 patients (51.1%) underwent traditional tonsillectomy while 93 patients (48.9%) underwent electrodissection tonsillectomy. Personal characteristics were not significantly different according to type of tonsillectomy (Table 1).

Post-tonsillectomy severe pharyngeal pain (i.e., Oucher pain score >60) was more experienced by patients who underwent tonsillectomy by electrodissection. Pain was significantly higher on day 5 (p=0.029). On the other hand, postoperative hemorrhage was experienced by 6 cases who underwent traditional tonsillectomy (6.2%) and 2 cases who underwent tonsillectomy by electrodissection (2.2%). Difference between both study groups regarding postoperative hemorrhage was not statistically significant (Table 2).

Table 1. *Personal characteristics of patients according to type of tonsillectomy*

	Type of tonsillectomy			P-value
Variables	**Traditional**	**Electrodissection**	**Total**	
Number of patients	97 (51.1%)	93 (48.9%)	190 (100.0%)	---
Age in years (Mean±SD)	6.8±2.3	6.6±2.5	6.7±2.3	0.567
Sex:				
Males	46 (47.4%)	43 (46.2%)	89 (46.8%)	
Females	51 (52.6%)	50 (53.8%)	101 (53.2%)	0.870

Table 2. *Postoperative morbidity according to type of tonsillectomy*

Morbidity	**Traditional (n=97)**	**Electrodissection (n=93)**	**P-value**
Pain score >60:			
Day 1	97 (100.0%)	93 (100.0%)	1.000
Day 3	97 (100.0%)	93 (100.0%)	1.000
Day 5	75 (77.3%)	83 (89.2%)	0.029
Day 7	39 (40.2%)	42 (45.2%)	0.490
Day 9	6 (6.2%)	10 (10.8%)	0.258
Day 11	0 (0.0)	3 (3.2%)	0.119
Hemorrhage	6 (6.2%)	2 (2.2%)	0.167

Discussion

Since the beginning of tonsillectomy surgery, techniques of tonsillectomy have been improved to decrease the incidence of post-tonsillectomy morbidity [7-8]. Postoperative morbidity (e.g., pain infection and hemorrhage) are the most common issues that are usually discussed when comparing different surgical techniques and surgeons should always select the technique that, in their own hands, offers the minimum morbidity [2].

The present study revealed that postoperative severe pain was experienced by all children in both study groups till the third day. However, patients of the electrodissection group experienced significantly more pain by the 5th postoperative day 5, after which patients within both groups did not experience significantly different prevalence rates in postoperative severe pain.

Pain is the most common problem within the first 2 weeks after tonsillectomy.[9] Several studies revealed no significant difference in post-tonsillectomy pain during the first 24 hours after surgery between traditional and electrodissection tonsillectomy [3,10-11]. However, Wexler et al.[12]

and Bukhari and Al-Ammar[2] reported less post-tonsillectomy pharyngeal pain attributed to tonsillectomy by cold dissection compared with tonsillectomy by electrodissection in pediatric patients. The systematic review of Leinbach et al. [13]. indicated significantly higher grades of pain severity during postoperative days 4-10 among patients who underwent electrodissection tonsillectomy.

This study showed that incidence of postoperative hemorrhage was 6.2% among those who underwent traditional tonsillectomy compared with 2.2% who underwent tonsillectomy by electrodissection, with no significant difference between both groups.

This finding is in agreement with that of Bukhari and Al-Ammar [2], who reported no significant difference in postoperative bleeding between the 2 tonsillectomy techniques. Incidence of post-tonsillectomy bleeding is quite low across most previous studies[14-17], with no significant differences between the cold and hot techniques [15-16].
In conclusion, electrodissection tonsillectomy technique is associated with significantly higher postoperative pain and slightly less incidence of post-tonsillectomy bleeding than that associated with postoperative traditional tonsillectomy technique.

Acknowledgment

The author would like to thank and acknowledge Dr. Ossama Abdel Rahman Mostafa of the Department of Family and Community Medicine, College of Medicine, King Khalid University, Abha for his support with statistical analysis.

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