Short Communication

A Structured Discharge Letter and an Illustrated Booklet Increase Awareness and Compliance after Tonsillectomy

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Abstract

Background: Post-tonsillectomy bleeding is life threatening. A previous study found that 30% of patients who suffered from post-operative bleeding did not seek medical assistance although instructed to do so. We therefore compiled a new list of instructions and a colorful illustrated booklet written in 4 languages.

Aims:
1. To assess comprehension of the post-operative instructions for tonsillectomy
2. To evaluate the utility of the booklet

Methods: 110 patients were prospectively studied. After detailed explanation of the post-operative instructions, the patients were randomly divided into 2 groups. One received an additional information booklet. A telephone questionnaire was conducted on the 10th post-operative day. The amount of correctly answered questions was noted and compared between the two groups. Cases with post-operative bleeding were compared to the previous study.

Results: Fifteen patients suffered from post-tonsillectomy bleeding; 1 early and 14 late. Of the late bleeders, 13 (92.8%) sought medical assistance compared to 70% in the previous study. In the “booklet receivers” group there was a total of 90% correct answers compared to 68% in the “non-receivers” group (p=0.0123).

Conclusions: A structured discharge letter increases awareness and to some extent compliance. Adding a booklet significantly increases comprehension regarding many aspects of post-tonsillectomy behavior. We thus recommend adding such a booklet.

INTRODUCTION

Tonsillectomy was described as early as the 1st century AD [1]. The most common indications for tonsillectomy are obstructive sleep apnea (OSA) and recurrent tonsillitis [2]. Hundreds of tonsillectomies (complete or partial) are performed in Israel every year.

The efficacy of tonsillectomy for OSA was proven when the condition was associated with enlargement of the tonsils and the adenoid [3,4]. In case of recurrent tonsillitis, the surgery is especially effective for patients meeting the Paradise criteria (at least 7 tonsil infections in one year, or 5 infections in the last two years, or 3 infections in the last three years) [5].

Although the surgical procedure is simple and relatively short, it has potential risks and complications, with bleeding being the most significant. Post-tonsillectomy bleeding may occur during surgery, in the immediate post-operative period, or more commonly later, during the first week after surgery. Post-tonsillectomy bleeding may be extensive and life threatening. It is interesting to note that the most commonly reported rate of post-tonsillectomy bleeding is 0.2-2.2% for early bleeding (less than 24 hours post-operatively) and 0.1-3.7% for late bleeding (more than 24 hours after surgery) [6,7]. However, the true rate of late bleeding may be under-rated, since there is no consensus on the exact definition of “bleeding”. How a study defines post-tonsillectomy bleeding directly affects the reported incidence rate. Therefore, different authors use variations in the definition of “significant” post-tonsillectomy bleeding as functions of the goals of their individual studies, all producing results that are not directly comparable [8]. According to our own experience, some centers and some patients do not relate to “redness of the saliva” or to a very short episode of mild bleeding which stopped spontaneously with no evident bleeder, while others, like us, do. In a review of 4,610 papers, 63 had reported post-tonsillectomy bleeding rates. The weighted mean, standard deviation and 95% confidence intervals were calculated for...
these papers. The mean (4.5%) plus two standard deviations (9.4%) suggested a maximum “expected” sustained bleeding rate of 13.9%. There were three reports of bleeding rates in the literature (which should reflect optimum results) in the 18-20% range [9]. A study by Blogmren et al [10], found that 32.8% of a mixed adult and pediatric population had experienced some secondary hemorrhage following tonsillectomy.

At our department, we define post-tonsillectomy bleeding as any bleeding incident, which results in clinical evaluation of the patient. Like Handler et al [11] and Liu et al [8], we include all bleedings reported by parents and hospital staff, regardless of examination findings or eventual management, and, thus, can assess all bleeding incidents. Similar to the above authors, we also believe that not only those patients seen with frank hemorrhage, but also those who report blood-tinged sputum and vomitus should be included, for these are among the more common post-tonsillectomy bleeding presentations.

One of the important aspects of morbidity and mortality prevention after tonsillectomy is the education of the patient and care-givers regarding measures that should be undertaken in order to decrease the chance of bleeding, and in addition, how to behave in case bleeding occurs.

A prospective study [12] was conducted in 2008 at our department in order to: 1) estimate the post-tonsillectomy complication rate; 2) estimate our post-operative bleeding rate and its causes; and 3) to assess the patient’s compliance with the post-operative instructions. This study found a rate of 28% of post-operative bleeding, higher than the most commonly reported rates cited in the literature. Another finding was that 30% of patients, who suffered from post-operative bleeding, did not comply with the post-operative instructions and did not seek adequate medical assistance, although clearly instructed to do so in the discharge letter, and by both the discharging nurse and the surgeon.

In light of these results, we employed in 2009 several measures in order to reduce the post-operative bleeding rate. These measures, such as the shift from tonsillectomy to tonsillotomy in OSA patients, as well as other measures, and the following successful reduction of more than 50% in post-tonsillectomy complications and bleeding rate, will be reported in another manuscript. In addition, in order to improve awareness and compliance to the post-operative guidelines, we compiled a new uniform list of instructions in accordance with principles of health literacy, some of which based on scientific evidence and some on common sense and on personal experience [11,13].

These instructions were summarized in every post-tonsillectomy discharge letter and explained to the patient and/or caregivers in a standard manner, by both the discharging nurse and the surgeon. However, since we were also aware that some patients did not understand the discharge letter well, as it was not written in their mother tongue, and that some patients handed it to their family physician, thus finding themselves at home without any instruction form, we have also composed a colorful written and illustrated instruction booklet, providing further information for post-operative behavior. This booklet was provided alongside the discharge letter and the patients and/or caregivers were instructed to hang it on their refrigerator and to act accordingly during the post-operative period. The booklets were written in the four main spoken languages in our country.

The purpose of the current study was to assess if the addition of these detailed instruction discharge letters and booklets changed patient’s understanding and compliance in the post-operative period after tonsillectomy.

OBJECTIVES

1. To assess the comprehension of the new post-operative instructions for tonsillectomy;
2. To evaluate the utility of the booklet.

METHODS

The local Internal Review Board (Helsinki) committee approved the study. One hundred and ten consecutive patients undergoing tonsillectomy or tonsillotomy with or without adenoidectomy were included in this analytical prospective study.

In all cases, before discharge, the patient and/or caregivers were given a discharge letter with detailed instructions for the post-operative period. According to our routine, and the same to our previous study, the instructions were clearly explained in a standard manner by both surgeon and discharging nurse. If necessary, a translator was used. Emphasis was made on post-operative pain and dehydration and on the possibility of post-tonsillectomy bleeding, with a comprehensive instruction to return immediately to the hospital in case of uncontrolled pain resulting dehydration and in case of any bleeding, even traces of blood in the saliva. As mentioned before, we thought that this inclusive definition would allow all sub-classifications of bleeding to be included. In addition, although patients with minor, self-limiting bleeding probably do not have to present acutely to the emergency room, and although there is, to the best of our knowledge, no evidence that this improves overall health outcomes, we thought that this is the only reliable way to assess our goals.

The patients were then divided randomly into two groups. The random assignment to the 2 treatment arms was by a simple randomization of flipping a coin. The treatment group received an additional information booklet, written in their native spoken language, while the control group did not.

In the booklet, we have specifically addressed the instructions for post-operative dehydration and bleeding. It was written in the four main spoken languages in our country: Hebrew, English, Arabic and Russian (Appendix 1 – The English version). Before the initiation of the study, the comprehension of the instructions written in the booklets was tested on 10 people and the booklets were modified accordingly.

A telephone survey was conducted on the 10th post-operative day in order to assess comprehension of the post-operative instructions. The survey was conducted in Hebrew and if necessary, a translator was used. The patients and caregivers new that a telephone survey would be conducted during the first 14 post-operative days, however, they were not aware of the...
exact timing, and thus could not prepare by reading the booklet immediately before the expected phone call.

After verifying that the patient has complied with the instruction to hang the leaflet on the refrigerator, or in another noticeable place at home, the following questions were presented:

1. What would you do in case of bleeding?
2. What would you do in case of high fever?
3. What food is allowed after surgery?
4. When is it allowed to return to a regular diet?
5. Which drugs are allowed in case of pain?
6. Is a physical exertion allowed after surgery?
7. Is it allowed to take a shower?
8. Where should the child sleep if he or she is below the age of 10 years?
9. When is it allowed to go back to school/kindergarten?

The amount of correctly answered questions was noted and compared between the two groups, “receivers of the booklet” vs. “non-receivers”. In addition, all cases of post-operative bleeding were recorded and analyzed. After we were certain that, the participants in the current study were generally comparable to the participants in the 2008 study (Table 1), a comparison was made to the group analyzed in 2008.

**Statistical analysis**

In order to compare the percentage of post-tonsillectomy bleeding events in two studies Fisher’s exact test was used. In order to assess a qualitative relationship between the study results a Fisher’s exact test was used. A quantitative comparison was made using a t-test or a Mann Whitney test.

**RESULTS**

One hundred and ten consecutive patients who underwent tonsillectomy/tonsillotomy with or without adenoidectomy were prospectively assessed. Sixty-two were males (56%) and 48 were females (44%). The age ranged between 1.4 years and 62 years old (mean = 9.2).

In 54% of cases, the indication for surgery was sleep disordered breathing. In 29% the indication was recurrent tonsillitis. 9% had combined sleep disordered breathing and recurrent throat infections. In 8% of cases, there were other indications for surgery.

Table 1 summarizes the current and the previous (2008) study group characteristics. As may be seen, the 2 studies were comparable regarding their general characteristics. In the current study, forty-six patients (42%) received the instruction booklet. There was no difference between the two groups concerning demographics or indications for surgery.

Thirty-seven patients (33%) sought medical assistance of any kind after surgery compared to 31.1% in the 2008 study. The most frequent complaint was bleeding in 13 cases. Six patients suffered from dehydration or dysphagia. The rest suffered from pain, vomiting, otalgia and nose bleeding.

Overall, there were 15 cases of post-tonsillectomy bleeding (13.6%); 1 early and 14 late bleeding cases. The patient with early bleeding presented before discharge from the hospital and underwent surgical bleeding control in the operating theatre. Of the late bleeders, 13 patients (92.8%) sought medical assistance, while one did not. All suffered from a short episode of very mild bleeding or from bloody sputum and none required further treatment as the bleeding stopped spontaneously. Half of the patients suffering from post-operative bleeding received the new instructions booklet, while the other half did not.

<table>
<thead>
<tr>
<th>Study group</th>
<th>2012-2013</th>
<th>2007-2008</th>
<th>P-value* (comparing 2 studies)</th>
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<tr>
<td></td>
<td>Number of patients</td>
<td>Percentage</td>
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<tr>
<td><strong>Total</strong></td>
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<td>56%</td>
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<td><strong>Indications for surgery</strong></td>
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<td>60</td>
<td>55%</td>
<td>52</td>
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<td>28</td>
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<td>58%</td>
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</table>

*Fisher’s exact test
All patients complied with the instruction to hang the leaflet on the refrigerator or in another noticeable place at home. The percentage of correctly answered questions in the post-operative telephone questionnaire is presented in Table 2. Statistically significant differences were found in 6 out of 9 questions. In the “booklet receivers” group there was a total of 90% correct answers compared to 68% in the “non-receivers” group (p=0.0123). More than 95% of patients in both groups answered correctly that they should seek immediate medical assistance in case of bleeding. The improvement in comprehension of the post-operative instructions led to an increased rate of patients seeking medical assistance compared to only 70% in the 2008 study (p=0.0123). Thus, the addition of the booklet significantly increased the comprehension of patients and caregivers regarding many aspects of post-operative behavior.

In addition, an overall rise of 32% in correctly answered questions was seen in the group receiving the booklet compared to the group that did not. A total of 90% correct answers were found in the “receivers” group compared to only 68% in the “non-receivers” group (p=0.0123). Thus, the addition of the booklet significantly increased the comprehension of patients and caregivers regarding many aspects of post-operative behavior. We are aware of the limitations of our study. The sample size is relatively small, the population is heterogeneous with a wide age range, the surgical technique and the surgeons vary, a shift towards tonsillotomy instead of tonsillectomy in OSA cases, a telephone questionnaire may not be accurate enough, and comparison is made to a previous historic study, which may have differed in population although statistically comparable. However, we believe that this study has clearly shown the benefits of a structured discharge letter and booklet, emphasizing the importance of patient’s awareness and comprehension, when actively strengthened by relatively simple measures.

**CONCLUSION**

According to the above-mentioned results, we may conclude that a structured discharge letter with or without an additional booklet, may increase the patients’ and caregivers’ awareness in the post-operative period, thus potentially reducing the incidence of post-tonsillectomy bleeding related to non-compliance.

Adding a colorful, descriptive booklet to the discharge letter, as an additional explanatory material, significantly increased the comprehension of patients and caregivers regarding many aspects of post-operative behavior. We thus recommend adding such a booklet.

**REFERENCES**


Cite this article