Comparing Cold/Liquid Diet vs Regular Diet on Posttonsillectomy Pain and Bleeding

Mohammad Faramarzi, MD¹, Sima Safari, MD², and Sareh Roosta, MSc, MA¹

Abstract

Objective. Tonsillectomy is a common operation; however, there are controversial opinions regarding the posttonsillectomy diet. The aim of this study was to compare the effects of cold/liquid diet vs regular diet on posttonsillectomy pain and bleeding.

Study Design. Prospective randomized controlled trial.

Setting. Tertiary referral center.

Subjects and Methods. In total, 194 children who underwent tonsillectomy (with or without adenoidectomy) were randomly allocated into 2 groups. A total of 100 patients were allocated in the cold/liquid diet, and 94 patients were allocated in the regular diet group. Pain score was recorded for the first 7 days, and rate of hemorrhage was recorded for 10 days after surgery.

Results. The participants’ age range was 3 to 17 years. The mean pain score level in the regular diet group after breakfast, lunch, and dinner was not statistically significant in comparison with the cold/liquid diet group. One patient in the regular diet group was admitted to the hospital due to secondary bleeding, but it stopped without any intervention.

Conclusion. Most otolaryngologists believe in dietary restrictions following tonsillectomy. However, there is much controversy regarding posttonsillectomy dietary advice in the literature. In addition, only a few randomized clinical trials have focused on this subject. We found that there was no difference between regular diet and cold/liquid diet in terms of posttonsillectomy pain and bleeding. Hence, we do not recommend a limited posttonsillectomy diet.

Keywords

tonsillectomy diet, posttonsillectomy pain, posttonsillectomy bleeding

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Onsilllectomy is a common operation performed in children. Its postoperative course might have some complications, such as pain and bleeding within the first 7 to 10 days. An important feature of postoperative quality of life is the ability to return to a normal diet as soon as possible, but there is much controversy with respect to posttonsillectomy dietary advice. Some surgeons suggest merely using a liquid diet right after the operation.¹ In a study by Thomas et al,² the authors evaluated dietary preferences in children during the posttonsillectomy period and revealed that children chose liquids followed by soft diet instead of solids. They also mentioned that liquid and soft diet improved feeding after the operation. Some authors believe that solid food might lead to postoperative bleeding, infection, and pain along with delayed healing.³,⁴ Others believe that by eliminating lukewarm beverages, we can prevent vessel dilation in the operative site.⁵,⁶

On the contrary, there are those children who beg for their regular diet, and in some cases, they even ask for junk food. A retrospective cohort study by Giger et al⁷ found that men preferred a less strict diet during the postoperative phase. In a study by Zagolski,⁸ the author found that parents were more satisfied with a nonrestricted diet. In addition, some authors suggest that by consuming solid food, muscle spasm in the tonsil bed can be eliminated.⁹ Hence, it was recommended to immediately resume the use of solid foods as soon as patients returned to the ward.⁹,¹⁰ Tabaee et al¹¹ compared postoperative complications following pediatric tonsillectomy in 2 groups of patients. One group was urged to drink clear liquid before their discharge, while the others drank whatever they desired. The authors found that obligatory oral fluid intake should not be compulsory, which can ultimately lead to a higher incidence rate of emesis. On the other hand, a third point

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of view recommends that patients eat whatever they desire or whatever they can tolerate.12-14

In 2014, the French Oto-Rhino-Laryngology—Head and Neck Surgery Society designed a comprehensive clinical practice guideline to manage posttonsillectomy pain. It concluded that instructions given by otolaryngologists varied significantly from clinic to clinic and within centers from surgeon to surgeon.15

The Iranian traditional diet has one of the most complete and enriched menus in terms of ingredients and spices. Different groups of ingredients, such as cereals, nuts/grains, vegetables, herbal green vegetables, dairy products, and animal/seafood proteins, are found in the Iranian traditional diet. It consists of a wide variety of foods, such as Chelow with different types of Kebab (white rice served with lamb meat). Also, there are different types of Khoresht (stews) (Table 1). Among them, Chelow Kebab, Ghalehmahi, and Khoresht Fesenjan are high-calorie foods. In terms of temperature and texture, the Iranian regular diet is similar to other “regular” diets around the world.

Therefore, this study was designed to discover whether or not the regular diet is an appropriate posttonsillectomy diet. The aim of this study was to determine whether or not regular diet has any effect on posttonsillectomy pain and bleeding. Our hypothesis was that there is no difference regarding posttonsillectomy pain and bleeding between 2 dietary groups.

Methods

This was a prospective randomized single-blind study. The statistician was blind to the selection process. The clinical study was carried out in the otolaryngology center of Dastghheib Hospital, affiliated with the Shiraz University of Medical Sciences, which is one of the referral otolaryngology centers in the south of Iran. One otolaryngology resident supervised and followed patients and collected the data. The research protocol was approved by the Shiraz University of Medical Sciences ethics committee. Written informed consent was obtained from all patients. This study was approved by the Iranian Registry of Clinical Trials, Primary Registry in the World Health Organization (WHO) Registry Network (code IRCT2014012115496N6). From May 2016 through June 2017, 194 patients participated in this study. Due to time limitations, we simply enrolled all tonsillectomies.

Using a study by Klemetti et al, we calculated the sample size with a power of 85% and a significance level of 5% (2-sided) for detecting a difference of 1.25 visual analog scale (VAS) means between the intervention and control groups. Hence, the required sample size was determined at 91 patients in each group (ie, a total sample size of 182).16

At first, 212 patients were randomly divided into 2 groups by a block randomization method. Given a block size of 2, there were 2 possible ways to assign participants to a block: AB or BA (A stands for cold/liquid diet and B stands for regular diet). With Excel software (Microsoft, Redmond, Washington), we generated 106 numbers (equal to the sample size in each group) between 0 and 9. For even numbers (0, 2, . . . , 8) we selected the AB order and considered the BA order for odd numbers (1, 3, . . . , 9). For AB, the first patient was assigned to cold/liquid and the second to regular diet, while this order was reversed for BA.

A total of 106 patients were assigned to the cold/liquid posttonsillectomy diet group (control group), and 106 patients were assigned to the regular diet group.

Inclusion criteria were (1) age range 3 to 17 years, (2) patients who had undergone tonsillectomy (with or without adenoipectomy) due to recurrent tonsillitis, and (3) minimum education level of parents of at least a high school diploma. Exclusion criteria were (1) preoperative medical problems, such as asthma, diabetes, coagulation disorders, cardiovascular disease, basic metabolic disorder, and chronic liver or renal disease, and (2) inadequate follow-up and uncompleted questionnaires.

Primary outcomes were pain score within 7 days and postoperative bleeding within 10 days after operation. Pain was evaluated by a VAS by trained parents. A patient was considered to have postonsillectomy bleeding when he or she (1) developed simple oropharyngeal bleeding that required electrical or chemical cauterization requiring outpatient management, (2) had complicated bleeding that required hospitalization merely for observation, or (3) required surgical intervention and ligation of bleeders in the operating room. Because our center is the main otolaryngology center in the city, we advised the patients to refer to our emergency department as soon as they developed any bleeding. Also, the otolaryngology resident did the follow-
up and recorded the bleeding rates through either phone calls or when patients were referred to the hospital.

The same technique of surgery and method of anesthesia was used for all patients. Adenoidectomy was performed by curette, and hemostasis was achieved through nasopharyngeal packing. Next, tonsillectomy was performed by cold dissection, and hemostasis was done by bipolar electrocautery. Details of the operative method were described in another article.\(^{17}\)

During the first 24 hours after surgery, patients’ conditions were assessed for vital signs, pain, and hemorrhage by a nurse in the otolaryngology ward. After gaining consciousness, both groups were allowed to resume their diet and were discharged after 24 hours. All parents were given verbal and written information regarding the postoperative diet. Both groups were prescribed amoxicillin suspension 250 mg every 8 hours for 1 week and acetaminophen syrup in a dosage of 10 to 15 mg/kg every 6 hours if their pain score was more than 3. A special questionnaire was given to each parent that consisted of charts to record the daily pain score according to the Wong Baker FACES Pain Rating Scale, which is a pain score ranked by facial expressions from 1 (no pain) to 10 (worst, unbearable pain).\(^{18}\) Pain score was evaluated 3 times a day: after breakfast, lunch, and dinner. At the same time, the otolaryngology resident called the parents every other day until the 10th day to check the condition of patients, answered their concerns, and encouraged them to fill the VAS form. During the first and second weeks after the operation, patients were visited by the same otolaryngology resident. All the recorded data from questionnaires were collected by the same otolaryngology resident in the clinic.

Statistical analysis was done using repeated-measures analysis of variance; \(\chi^2\) test and \(t\) test were used for comparing the results. All statistical analyses were carried out using SPSS software version 18 (SPSS, Inc, an IBM Company, Chicago, Illinois).

**Results**

A total of 250 patients entered this study; initially, 38 were excluded since they did not meet the inclusion criteria or declined to participate. The rest were randomly divided into 2 groups of 106 patients. At the end of the study, 100 patients in the cold/liquid diet group and 94 in the regular diet group returned for analysis (Figure 1). Demographic characteristics of patients are shown in Table 2. Both groups were similar with respect to age and sex (\(P > .05\)). No patient in either group had primary bleeding within the first 24 hours. Also, Table 2 shows that the secondary bleeding rate was not statistically significant between groups (\(P = .612\)).

There were no statistically significantly differences in pain scores between both groups after breakfast, lunch, and dinner from the first to seventh days after the operation (\(P = .058, P = .081\), and \(P = .062\), respectively).

The mean posttonsillectomy pain from the first to seventh days in the regular vs cold/liquid diet is shown in

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**Figure 1.** CONSORT trial flow diagram.
There was no significantly higher level of pain in the regular diet group in comparison with the cold/liquid diet group ($P = .071$).

**Discussion**

In this study, we found no statistically significant differences between the cold/liquid posttonsillectomy diet and regular diet regarding posttonsillectomy pain and bleeding. It seems that resuming a normal diet after tonsillectomy was the main aim in many studies; nonetheless, dietary intake after tonsillectomy is still up for debate. The traditional opinion is that soft or cold diets are beneficial in reducing postoperative pain as well as in reducing the risk of bleeding.19,20

A survey by Kay et al12 showed that most American Society of Pediatric Otolaryngology members believe in dietary restrictions following tonsillectomy.

On the contrary, Talbot9 stated that muscle spasm at the site of tonsillectomy is the main cause of pain, and consuming normal solid food can reduce pain. Also, it has been shown that a normal diet leads to a better postoperative recovery and reduced pain.3,16 In addition, Kay et al12 found that more than half of American Academy of Otolaryngology—Head and Neck Surgery members never recommend dietary restrictions after tonsillectomy.

Only a few researchers have talked about the possible effect of a posttonsillectomy regimen on pain and bleeding. Cook et al21 conducted a study on 137 patients older than 16 years and evaluated 3 different types of diet: soft, solid, or nonspecific diet (ie, their regular diet). However, they did not state their method of operation, and tonsillectomy was performed by a team of surgeons. Thus, the surgeons’ experience might be a confounding factor. In addition, homeostasis was achieved by 2 different techniques: ties by suturing or monopolar diathermy that could have affected postoperative pain. Last, they recommended that there was no need for a strict diet, and surgeons should advise patients to consume their regular diet.21 In 1993, Brodsky et al22 assessed 2 groups of children who had undergone tonsillectomy (liquids/soft diet vs regular food). Again, no significant difference was found in terms of pain score or returning to a regular diet. However, they only measured pain score, activity, and diet on the third and seventh days after the operation. According to their result, it seems that none of the group members obeyed the postoperative instruction regarding their diet.22 In 1995, Hall and Brodsky23 conducted a study on the effect of liquid/soft vs unrestricted diet only during the initial 12 hours after the operation and found no significant difference regarding pain score. A prospective study by Zagolski8 on children who underwent adenoidectomy with or without partial tonsillectomy found the least amount of pain in the nonrestricted diet group after surgery. However, 51.6% of the children underwent only adenoidectomies, which was a confounding factor when the result was interpreted. It should be noted that the pain score in adenoidectomy is less than that in tonsillectomy. Recently, Manica et al14 conducted a study on children with and without dietary restrictions after tonsillectomy. However, they only reported pain on the third and seventh postoperative days and did not find any significant difference in pain score between the groups.

On the other hand, various posttonsillectomy bleeding rates have been reported ranging from 0.3% to 14%.17,24-31 It is worth mentioning that we did not observe any primary bleeding within the first 24 hours, and the overall secondary bleeding rate was 1.55%, which is an acceptable rate. Our study showed that a regular posttonsillectomy diet might not be associated with a higher rate of bleeding. Our findings are in agreement with the results of a systematic review conducted by Bannister and Thompson.32

One of the strengths of our study was its design, which was a randomized clinical trial, and the other was that all the operations were performed by a single surgeon. Hence, level of expertise was not a confounding factor. However, the only major drawback of our study was that the investigated population was relatively low. Also, postoperative prescription of antibiotics is routine in our country. Other current research projects are needed about usage of antibiotics in our ward.

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**Table 2. Baseline Characteristics and Posttonsillectomy Bleeding of Patients.**

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<th>Characteristic</th>
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<th>Regular Diet (n = 94)</th>
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<tr>
<td>Sex, male, No. (%)</td>
<td>64 (64)</td>
<td>58 (61.7)</td>
<td>.741</td>
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<td>Age, mean ± SD (range), y</td>
<td>6.9 ± 2.7 (3-17)</td>
<td>6.3 ± 2.5 (4-17)</td>
<td>.110</td>
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<td>Posttonsillectomy bleeding, No. (%)</td>
<td>1 (1)</td>
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**Figure 2.** There was no significantly higher level of pain in the regular diet group in comparison with the cold/liquid diet group ($P = .071$).

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**Figure 2.** The mean posttonsillectomy pain from the first to seventh days in the regular diet and cold/liquid diet groups.

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using the 2011 clinical practice guideline recommendation from the American Academy of Otolaryngology—Head and Neck Surgery Foundation. Overall, since both arms of the study received antibiotics, its impact was similar.

**Conclusion**

In summary, we were able to confirm that there was no significant correlation between different types of posttonsillectomy diet and postoperative pain. In addition, it would be prudent to say that regular diet will not increase bleeding. Hence, we were able to conclude that a limited posttonsillectomy diet should not be advised. Further multicenter studies with larger populations are recommended to show the effect of a posttonsillectomy diet on postoperative bleeding.

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**Author Contributions**

Mohammad Faramarzi, designed study, wrote article, final approval; Sima Safari, collected data, revised article, final approval; Sareh Roosta, analyzed data, revised article, final approval.

**Disclosures**

**Competing interests:** None.

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**References**