



# Pre-surgical child behavior ratings and pain management after two different techniques of tonsil surgery

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## KEYWORDS

Children;  
Post-operative pain;  
Anxiety;  
Behavior;  
Tonsil surgery;  
Anesthesia

## Summary

**Objective:** The purpose of this investigation was to compare child behavior before surgery with experience of pain and anxiety in relation to two techniques of tonsil surgery, to relate previous experiences of surgery/tonsillitis with anxiety and pain, and to compare the children's, parent's and nurse's rating of pain.

**Method:** Ninety-two children (5–15 years) with sleep-disordered breathing (SDB) and with or without recurrent tonsillitis were randomized to partial tonsil resection/tonsillotomy (TT) or full tonsillectomy (TE). **Measures:** Parents: Child Behavior Checklist (CBCL). Children: State-Trait-Anxiety Inventory for Children (STAIC) and seven-point Faces Pain Scale (FPS). Parents/staff: seven-point Verbal Pain Rating Scale (VPRS). Pain relievers were opioids, paracetamol and diclophenac.

**Results:** These children with SDB scored significantly higher on CBCL than did normative groups, but no connection was observed between CBCL rating and experience of pain. There was no relation between pre-operative anxiety and pain. The post-operative anxiety level (STAIC) correlated with pain. The TE-group scored higher on STAIC after surgery. Previous experience of surgery or tonsillitis did not influence post-operative pain. The TE-group rated higher experience of pain despite more medication. The nurses scored pain lower than the parents/children and under-medicated.

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**Conclusion:** SDB may influence children's behavior, but with no relation to post-operative pain. The surgical method predicts pain better than does the child's behavior rating. The nurses underestimated the pain experienced by the child.  
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## 1. Introduction

Among children, tonsillectomy is one of the most common surgical procedures in otorhinolaryngology. For younger children, the most common indication for surgery is sleep-disordered breathing (SDB), but many children have also had several tonsillitis by the time they are put on the waiting list for surgery. Tonsillectomy causes considerable pain and morbidity, which often lasts more than 7 days [1–3]. The post-operative pain is poorly managed [4,5], and under-treatment of pain leads to increased morbidity as well as post-operative behavioral changes [4–9]. Several investigators have tried to explain insufficient post-operative pain medication with difficulties for the nurses to assess children's pain and resulting in prescription of analgesics in doses that are too low [10–12].

The present study is a part of a project investigating children's health and well being in connection with tonsil surgery. Two methods for surgery are compared where different levels of pain can be expected. The two methods are partial tonsil resection using radiofrequency technique (RF) here referred to as "tonsillotomy" (TT) versus blunt dissection total tonsillectomy (TE).

The first part of the project where the effect on snoring and post-operative morbidity was compared

for TT and TE is published [13]; and demonstrated faster recovery for the TT-group. The primary effect on obstructive problems was good for both methods (TT and TE). The throat condition, healing, food intake and the children's weight favored the TT-method.

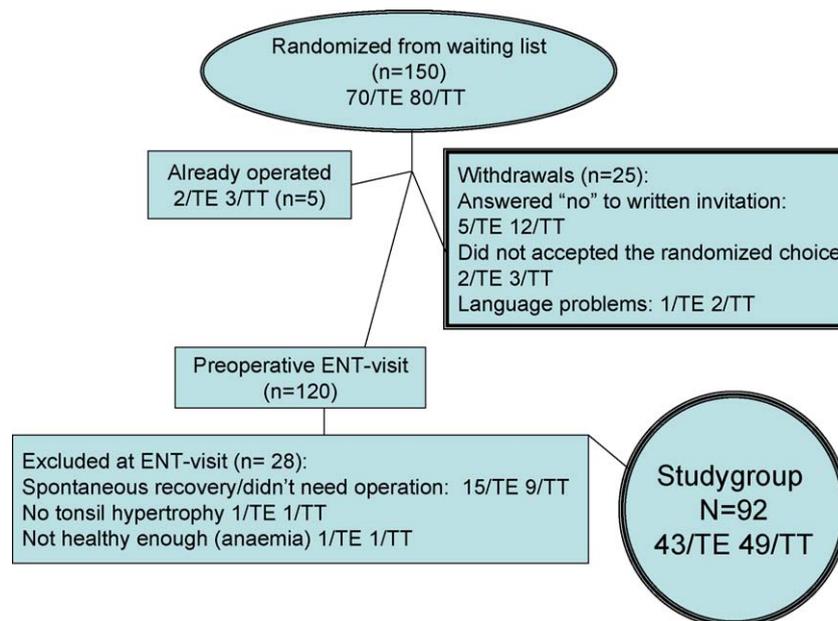
The purpose of the present investigation is to compare child behavior before surgery with experience of pain and anxiety in relation to the two techniques of tonsil surgery and to explore whether a connection exists between a child's previous experiences of surgery and/or tonsillitis and their anxiety and experience of pain, and to compare the children's, parent's and nurse's rating of pain, also with regard to age and gender.

## 2. Method

The study was approved by the Human Research Ethics Committee, Faculty of Health Science, Linköping University.

### 2.1. Subjects

Ninety-two children (5–15 years) were operated after randomization to TT (49) using radiofrequency surgery or to TE (43) [13]. All families received the



**Fig. 1** Diagram of the study enrollment, exclusion and dropouts.

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