Research Article ISSN 2639-846X

Anesthesia & Pain Research

Parent Pain Management at Home After Tonsillectomy: A Prospective, Observational Study in Albert Royer Children's Hospital at Dakar

Traore MM[1*], Ndoye MD[1], Leye PA[3], Gaye I[3], Rjafallah R[1], Dieng S[4], Ba EHB[2], Niang F[1], Loum B[1], Ndiaye PI[2], Bah MD[2] and Diouf E[3]

[1]*Hôpital d'Enfants Albert Royer de Dakar, Senegal.*

[2]*Centre Hospitalier National Universitaire de Fann Dakar, Senegal.*

[3]*Hôpital Dalal Jamm Dakar, Senegal.*

[4]*Institut d'ondotologie UCAD, Dakar.*

[*]Correspondence:
TRAORE MM, Hôpital d'Enfants Albert Royer de Dakar, Senegal.

Received: 03 Sep 2024; **Accepted:** 10 Oct 2024; **Published:** 19 Oct 2024

Citation: Traore MM, Ndoye MD, Leye PA, et al. Parent Pain Management at Home After Tonsillectomy: A Prospective, Observational Study in Albert Royer Children's Hospital at Dakar. Anesth Pain Res. 2024; 8(4): 1-4.

ABSTRACT

Introduction: *Tonsillectomy is one of the most common interventions in children. The pain secondary to the procedure is intense and long lasting. It is often performed on daily inpatient care, leaving parents and those close to them to provide care at home. We conducted this study to audit pain management at home by parents for kids.*

Patients and Methods: *We conducted a prospective, single-center, qualitative study including families of children aged 0 to 15 years undergoing tonsillectomy or adenotonsillectomy. Pain was assessed before discharge to the PACU and over the telephone on a questionnaire that the parents had to answer. The questionnaire was developed according to the FLACC scale. Home care according to discharge orders was also assessed.*

Results: *A total of 81 patients were collected, including 20 excluded due to call failed. The average age was 7 years (2 – 15) with an average weight of 25.9 kg (12 – 72). The female gender was predominant and sex ratio 0.97. Tonsillectomy was indicated for recurrent angina in the majority at 44%. Intraoperative analgesia was administered with paracetamol, ketoprofen or diclofenac, and ketamine. Tonsillectomy was performed with an electrocautery in 77% following a mean operating time of 52.3 min (15 – 90). The discharge FLACC score was less than or equal to 2 in 92% of patients. On the telephone, the complaints collected were pain in 64% of cases, nausea and dizziness in 20% and no complaints in 16%. The last analgesic intake within 6 hours at home was noted in 59% of children mainly with paracetamol only in 85% of cases. The association with an NSAID was noted in 15% of cases. Compliant knowledge of home prescriptions by parents was 56%. The main reason for non-compliance with prescriptions was respect for the patient's sleep.*

Conclusion: *Pain after tonsillectomy is a reality at home. It is taken care of by parents or those around children who do not have the skills necessary for the evaluation and administration of treatments.*

Keywords
Tonsillectomy, Home, Pain, Parents.

Introduction
Tonsillectomy is one of the most common interventions in children [1]. In our structure it is the second intervention after hernia repair. Pain secondary to tons illectomy is a real problem due to its psychosocial impact in children and its duration over several postoperative days of up to 14 days [2]. Despite everything, tonsillectomy is generally performed on an outpatient care, leaving the care to the parents or those close to them. This care is mainly focused on the management and control of postoperative pain which requires the administration of analgesics at an effective dose, at a regular taking. Pain assessment is delegated to patients or their entourage. In our country, no study has documented what happened at home when these children had a tonsillectomy

regarding the management of this pain by the parents. We conducted this work to audit the management of postoperative pain following tonsillectomy by parents at home.

Patients and Methods

This is a prospective and descriptive single-center cohort study running from January 19 to July 31, 2023 in the operating room at Albert Royer National Children hospital, a tertiary and teaching hospital in Dakar. Parental or legal tutor consent was obtained. We included in the study patients who underwent tonsillectomy or adenotonsillectomy whatever the indication aged 0 to 15 years. Patients who did not adhere to the study protocol and patients in whom good communication in Woll of (local language) or French could not be established were not included. Children who presented with a psychiatric disorder were also not included in the study. We excluded patients lost to follow-up, patients who had intra- or post-operative complications and patients who underwent surgical reintervention to fix bleeding.

Participants and Procedure

After general anesthesia on an inhalation induction with sevoflurane or intravenous propofol depending on the patient. Fentanyl was also administered during induction, sevoflurane provided maintenance. Intraoperative analgesia was administered as follows:

- Paracetamol intravenously at 15mg/kg,
- Ketoprofen at 1mg/kg or Diclofenac at 3mg/kg intravenously,
- Ketamine due to 0.2 mg/kg intravenously.

Tonsillectomy was performed either by cold scalpel dissection or electrocautery dissection. The administration of analgesics was carried out from the induction of anesthesia, 4 hours post-operatively, the end of the intervention with paracetamol associated with NSAIDs was carried out in the outpatient unit before resuming food and discharge.

Exit Criteria

Surveillance for a minimum duration of 4 hours was mandatory. Control of bloodless tonsillar compartments, absence of persistent postoperative nausea or vomiting and resumption of food were also necessary. Instructions to be observed at home were explained to the patient's parents or companions before discharge.

Telephone Follow-up

Parents had to be available at all times by telephone, able to communicate in Wolof or French. A good understanding of the instructions was necessary regarding home monitoring as well as the parameters of the simplified FLACC scale in order to allow the caller to establish the correct score. The FLACC score could be established according to the clinical elements described by the parents. The availability of the discharge order was first checked. Those in charge of home treatment were asked to reestablish the prescriptions according to the discharge in order to assess understanding of the treatment. We also collected the painful or non-painful opinion based on the parents' own impression. Thus, a therapeutic adjustment could be recommended in the event of reported pain. The treatment adjustment was to combine an anti-inflammatory and paracetamol at fixed times.

Data Collection

A survey sheet was established for this purpose taking into account variables relating to sociodemographic, clinical, paraclinical and surgical aspects. An effective ENT examination centered on the oropharyngeal sphere was performed in all our patients.

The following parameters were studied:

- Frequency, age, sex, weight
- Medical and surgical history
- Operative indications, mode of anesthesia, analgesics used intraoperatively, operative technique, duration and intraoperative complications
- Postoperative settings: clinical condition at discharge, assessment of pain with the FLAAC score (Table 5), telephone follow-up (simplified FLACC score, last analgesic intake, type of product, route of administration, complaints, parents' assessment of pain, need to adjust treatment, availability of a prescription).

Data was collected from:

- Operating protocol registers
- Anesthesia sheets
- On-site assessment
- Home monitoring

Data Analysis and Processing

Our data were entered and analyzed using software specialized in Sphinx plus² statistical processing. Qualitative variables were expressed as percentages and continuous variables as standard deviation and standard deviation.

Results

During the study period, 81 cases out of a total of 720 patients were operated on, representing a frequency of 8.8%. Of the 81 cases collected, 20 were excluded from our study due to lack of response to telephone follow-up.

Table 1: Patient clinical parameters.

Age (years)		**7 (2 - 15)**	
Sex ratio		0.96	
Weight (kg)		25.9 (12 - 72)	
Background			
Medical			
	asthma	12	20%
	sickle cell anemia	3	5%
	atopy	11	18%
	bronchitis	3	4.90%
	epigastralgia	3	4.90%
Surgical			
	appendectomy	1	1.60%
	laparotomy	1	1.60%
	cholecystectomy	1	1.60%

Table 2: Surgical Parameters.

Pathologies					
	recurrent angina				44%
	Tonsillitis + adenoid syndrome				28%
	tonsil hypertrophy + adenoid syndrome				14%
	Recurrent angina + adenoid syndrome				9%
	hypertrophy + recurrent angina				2%
	Obstructive tonsil				3%
Adenotonsillectomy					
	electrocautery dissection				77%
	cold scalpel dissection				23%
Duration (min)					52.3(1590)

Anesthetic and Analgesic Modalities

General anesthesia with orotracheal intubation was the anesthetic technique applied in all patients. The products used for general anesthesia were fentanyl in all patients combined with propofol. Ketamine was generally administered in 34 patients, a percentage of 56%. Intravenous paracetamol was the analgesic used in all patients. Other analgesic agents used in different proportions illustrated in Table 3.

Table 3: Distribution of analgesics used intraoperatively.

Nature of analgesics		**Effective**	**Percentage**
PARACETAMOL		61	100%
NSAIDs	Ketoprofen	48	79%
	Diclofenac	24	39%
NEFOPAM		1	2%

Home Discharge Settings

Consciousness, respiratory and hemodynamic states were correct in all patients. Food resumption as well as oral analgesics were effective. Pain assessment by FLACC score before discharge is shown in Table 4.

Table 4: Distribution of FLACC score at home discharge.

FLACC score	**Effective**	**Percentage**
1	23	38%
2	33	54%
3	5	8%
Total	61	100%

Home Monitoring

On the telephone, the complaints collected were pain in 64% of cases, nausea and dizziness in 20% and no complaints in 16%.

The last analgesic intake within 6 hours at home was noted in 59% of children mainly with paracetamol only in 85% of cases. The association with an NSAID was noted in 15% of cases. Compliant knowledge of home prescriptions by parents was 56%. The main reason for non-compliance with prescriptions was respect for the patient's sleep.

Table 5 shows the subjective assessment of pain by the parents, 19% of whom felt there was no pain.

Table 5: Assessment of pain by parents and those close to them.

Pain assessment /parents	**Effective**	**Percentage**
Low pain	15	25%
Severe pain	10	16%
Moderate pain	36	59%
Total	61	100%

A therapeutic adjustment was necessary in 18% of children.

Discussion

The audit of pain management after tonsillectomy at home by parents reveals in this work as a major problem. Pain scores on call assessment as well as parents' assessment of pain remain high. This study confirms several series of literature. Alm et al. in a prospective cohort study involving 299 children, patients and their entourage in charge of treatments report a difficult recovery inherent to pain [3]. As far as Lima et al. in Canada through a more recent study in 2022 demonstrated the difficulty of pain management by parents [4]. Their parental survey based on a questionnaire established postoperatively confirmed this difficulty.

The impact of pain after tonsillectomy is considerable on the postoperative outcome of these children. Behavioral and dietary disorders responsible for dehydration with weight loss are reported in this work. In fact, the pain after a tonsillectomy is intense and lasting pain over a week to ten days for a surgery often carried out on an outpatient care [5,6]. Postoperative care is therefore entrusted to the parents. Therapeutic education provided to those responsible for these children must be precise and complete for better postoperative comfort. This comfort essentially revolves around good control of postoperative analgesia, one of the imperatives of ambulatory anesthesia. Our results in this study demonstrate a defect in analgesia administered at home. Indeed 64% of parents expressed pain during the telephone interview even though the last time they took painkillers was at least 6 hours ago in 59% patients. Paracetamol was the product used in the majority as single therapy despite the nociceptive and inflammatory nature of pain secondary to tonsillectomy [7]. The data on the character, type and evolution of this pain are well known from the literature. The effectiveness of non-steroidal anti-inflammatory drugs in combination with paracetamol has been documented [8,9]. However, in this work which sought to audit the management of this pain at home while maintaining the observational aspect of the service's practices, we noted a lack of common analgesia protocol well established between actors. The ENT doctors at discharge offered the parents a discharge prescription after checking the tonsillar compartments without the agreement of the anesthetists authorized to manage this pain. This lack of collegiality in the approach certainly explains these high pain scores at home. On the prescription drawn up by ENT doctors, paracetamol is the analgesic often prescribed alone. Its use as monotherapy does not allow this type of pain to be controlled. Therefore, the main element identified as a maintenance factor for pain is the inadequacy of the prescription. This fact was reported in a Swedish study where the parents' ability to assess pain and the inadequacy of the prescription were factors in postoperative pain. The misunderstanding of the instructions

given to patients and those around them also constituted an important factor in the persistence of this pain. On the other hand, the telephone interview revealed that for some children, parents respected sleep rather than waking them up to follow the painkiller prescription. This therefore made it impossible to respect the analgesic administration times. Clearly, for postoperative analgesia to be effective, it must be administered at the right dose and at a fixed time using a multimodal approach. Precisely timed administration of analgesics seems most appropriate to encourage adherence, as suggested by the study by Sutters et al. [10] or children who received paracetamol-hydrocodone had reduced pain scores at rest and swallowing. For better care, there is a need to educate parents about their child's painful behaviors and to prohibit the administration of analgesics on demand. On-demand use will face the problem of parental subjective variability regarding their child's pain and their personal pain trajectory.

Hamers et al. in a study on pain at home after tonsillectomy demonstrates that approximately 50% of parents reduce and even interrupt paracetamol treatment while 81% describe their child as painful [11]. Accompaniment by a description of the intensity of the pain does not seem to improve analgesia or compliance with treatment. It can, however, constitute an aid to visual detection and parental assurance. Our study confirmed, among other things, the other pitfalls of outpatient tonsillectomy, namely the management of postoperative nausea and vomiting. The occurrence of PONV is a fairly common morbidity in this type of surgery [12]. In our series, 20% of children presented PONV compared to 15% in the study by Karling et al. [13]. These significant proportions should make it systematic through its pharmacological prevention using dexamethasone and ondansetron. Indeed, for many authors, the occurrence of PONV interferes with compliance with oral analgesic treatment on the one hand and increases the incidence of re-hospitalization. In the extreme case, there are hydration disorders leading to dehydration [14]. The strength of our study is based on the original nature of the audit of pain management after tonsillectomy by parents, which to our knowledge has never been investigated in Senegal. However, the weaknesses lie outside the observational nature of the study, the subjectivity of the parents in expressing pain and the absence of a reliable assessment at home.

Conclusion

Pain after tonsillectomy is a reality at home. It is taken care of by parents or those around them who do not have the skills necessary for the evaluation and administration of treatments. It is therefore essential to issue an adequate discharge order and therapeutic education of parents to limit the harmful effects of postoperative pain. Collegiality of analgesic prescriptions between ENT specialists and anesthesiologists in a multimodal approach will promote postoperative comfort for these children.

References

1. Grace X Tan, David E Tunkel. Control of pain after tonsillectomy in children JAMA Otolaryngol Head Neck Surg. 2017; 143: 937-942.
2. Dorkham MC, Chalkiadis GA, von Ungern Sternberg BS, et al. Effective postoperative pain management in children after ambulatory surgery, with a focus on tonsillectomy: barriers and possible solutions. Paediatr Anaesth. 2014; 24: 239-248.
3. Fredrik Alm, Stefan Lundeberg, Elisabeth Ericsson. Postoperative pain, pain management, and recovery at home after pediatric tonsil surgery. European Archives of Oto-Rhino-Laryngology. 2021; 278: 451-461.
4. Laura ACN Lima, Annik Otis, Sharmila Balram, et al. Parents perspective on recovery at home following adenotonsillectomy: a prospective single-center qualitative analysis. Can Anesth. 2023; 70: 1202-1215.
5. Gerbershagen HJ, Aduckathil S, van Wijck AJ, et al. Pain intensity on the first day after surgery: a prospective cohort study comparing 179 surgical procedures. Anesthesiology. 2013; 118: 934-944.
6. Ericsson E, Brattwall M, Lundeberg S. Swedish guidelines for the treatment of pain in tonsil surgery in pediatric patients up to 18 years. International J Pediatric Otorhinolaryngology. 2015; 79: 443-450.
7. Rømsing J, Hertel S, Harder A, et al. Examination of acetaminophen for outpatient management of postoperative pain in children. Pediatric Anesthesia. 1998; 8: 235-239.
8. Christophe Aveline. Analgesia after tonsillectomy. The Anesthesia Resuscitation Practitioner. 2015; 19: 63-77.
9. Maund E, McDaid C, Rice S, et al. Paracetamol and selective and non-selective non-steroidal anti-inflammatory drugs for the reduction in morphine-related side effects after major surgery: a systematic review. British Journal of Anaesthesia. 2011; 106: 292-297.
10. Sutters KA, Miaskowski C, Holdridge Zeuner D, et al. A randomized clinical trial of the efficacy of scheduled dosing of acetaminophen and hydrocodone for the management of postoperative pain in children after tonsillectomy. Clin J Pain. 2010; 26: 95-103.
11. Hamers JP, Abu Saad HH. Childrens pain at home following (adeno) tonsillectomy. Eur J Pain. 2002; 6: 213-219.
12. Baugh RF, Archer SM, Mitchell RB, et al. Clinical practice guideline: tonsillectomy in children. Otolaryngol Head Neck Surg. 2011; 144: 1-30.
13. Karling M, Stenlund H, Hagglof B. Child behavior after anaesthesia: associated risk factors. Acta Paediatr. 2007; 96: 740-747.
14. Hession Laband, Eileen Melvin Patrice, Shermont Herminia, et al. Reducing Readmissions Post-tonsillectomy: A Quality Improvement Study on Intravenous Hydration. J Health Quality. 2018; 40: 217-227.