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Original article

# Impact of the mode of hospitalisation on the postoperative complication rate after dissection tonsillectomy in children



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## ABSTRACT

**Objectives:** To compare postoperative complication rates after dissection tonsillectomy in patients operated by outpatient surgery and patients operated by inpatient surgery.

**Population and methods:** A prospective, single-centre, observational study was conducted over a period of 1 year. Dissection tonsillectomy was performed in 103 patients (mean age: 4 years) between September 2011 and September 2012. The following parameters were studied: bleeding or inflammatory complication rate, readmissions, unscheduled visits, factors contraindicating outpatient surgery, reasons for failure of outpatient surgery and influence of Postoperative Nausea and Vomiting scores.

**Results:** Two patient groups were composed: 54 patients were managed by outpatient surgery (Group O) and 49 patients were managed by inpatient surgery (Group I). The two main factors contraindicating outpatient surgery were age less than 3 years (40%) and preoperative suspicion of sleep apnoea-hypopnoea syndrome (26%). Seven patients of Group O had to stay in hospital (outpatient failure rate of 13%). Postoperative complications were observed in 13% of patients of Group O versus 12.2% of patients of Group I with no statistically significant difference between the two groups. One patient in each group had to be readmitted; no statistically significant difference was observed between the two groups ( $P=0.41$ ). PONV scores were very high (2) in all cases.

**Conclusion:** Outpatient tonsillectomy in well-selected patients is not associated with a higher postoperative complication rate than inpatient tonsillectomy. With systematic appropriate prophylaxis, Postoperative Nausea and Vomiting scores had no influence on the postoperative course.

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## 1. Introduction

Dissection tonsillectomy is one of the operations most frequently performed in children in France, both in the public sector and the private sector with about 50,000 tonsillectomies, either alone or in combination with adenoidectomy, in 2008, i.e. 17% of all ENT procedures [1–3].

Inpatient surgery rates have been declining over recent years in favour of outpatient management, consisting of day-only admission and discharge of the patient on the day of surgery and outpatient dissection tonsillectomy has become increasingly popular in France in both the private and public sectors, although these figures had remained stable for several years (Source: PMSI MCO 2006–2007–2008). In contrast, outpatient dissection tonsillectomy was already the predominant mode of tonsillectomy in several

other countries at the first half of 2008 (64% in Holland, 67% in Canada, 89% in the USA, 93% in Belgium) [2].

However, outpatient surgery represents a major economic advantage in the current context of budget constraints and needs to be encouraged. International studies show that outpatient surgery requires fewer resources than inpatient surgery in terms of direct hospital costs. Furthermore, in France, a national health insurance study showed that the direct costs remained lower for five procedures, even after including the costs incurred before and after hospitalisation [3].

At the end of 2011, the Haute Autorité de la santé (HAS) (French National Authority for Health) and the Agence nationale d'appui à la performance des établissements de santé et médico-sociaux (ANAP) (National Agency to support the performance of health-care and medical and social welfare establishments) therefore initiated a three-year joint action programme designed to help France make up for lost time in the field of outpatient surgery in the form of guidelines entitled "Good organisational and professional outpatient surgery practice" (with economic evaluation) [1–3].

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The conditions currently required to perform outpatient dissection tonsillectomy in children in France were defined during a consensus conference organised by several learned societies in 2005. These conditions were published in the form of clinical practice guidelines for tonsillectomy in children under the aegis of the Société française d'oto-rhino-laryngologie et de chirurgie de la face et du cou (SFORL) and the Société française d'anesthésie et de réanimation (SFAR) in 2009 [1–3].

Consequently, since 1st September 2011, the Amiens University Hospital (France) otorhinolaryngology department surgical and anaesthetic team has developed a length of hospital stay reduction policy by modifying its practices in order to develop outpatient surgery. As part of this policy, we have organised the outpatient management of dissection tonsillectomy and this prospective study reports the preliminary results of this approach.

## 2. Study population and method

This was a single-centre prospective observational study conducted in Amiens University Hospital between 1st September 2011 and 1st September 2012 after validation by the hospital's ethics committee.

This study was designed to:

- compare the number and type of complications observed after outpatient or inpatient dissection tonsillectomy, as well as the number of readmissions and unscheduled visits;
- analyse factors constituting a contraindication to outpatient surgery, the reasons for failure of outpatient management and the influence of Apfel's Postoperative Nausea and Vomiting (PONV) score on management.

The inclusion criterion in this study was bilateral dissection tonsillectomy by outpatient surgery or inpatient surgery in subjects under the age of 18 years. Exclusion criteria were age greater than 18 years, unilateral tonsillectomy and emergency tonsillectomy.

Indications for tonsillectomy (in accordance with the French guidelines for tonsillectomy in children [1]) were as follows: tonsillar hypertrophy responsible for sleep-disordered breathing, tonsillar hypertrophy with oropharyngeal obstruction, recurrent acute tonsillitis (3 episodes of infection per year for 3 years or 5 episodes per year for 2 years), chronic tonsillitis, recurrent peritonsillar abscess and suppurative complication of acute tonsillitis other than peritonsillar abscess (parapharyngeal abscess, retropharyngeal abscess).

The mode of surgical management of the patients was defined by the absence of contraindication to outpatient management (Fig. 1).

At the preoperative anaesthetic visit, the anaesthetist gave his/her approval (recorded in the medical charts) to performing dissection tonsillectomy in the outpatient care unit on the basis of the patient's history and anaesthetic conditions.

The anaesthetic protocol and surgical technique were similar in the two groups of patients. The anaesthetic protocol comprised induction with sevoflurane, sufentanil and propofol followed by maintenance with an halogenated anaesthetic, such as sevoflurane. An injection of 4 mg of dexamethasone and 15 mg.kg<sup>-1</sup> of paracetamol was systematically administered at the beginning of the operation.

The operation was performed by an experienced intern or senior ENT surgeon and consisted of dissection tonsillectomy with haemostasis ensured by compression and, if necessary, elective unipolar electrical coagulation.

Immediately postoperatively, the patient was transferred to the recovery room, where he/she received a weight-adjusted dose of nalbuphine by injection in the presence of documented pain. A weight-adjusted dose of ondansetron was administered by intravenous injection in the case of nausea, in which case the patient was kept under surveillance for an average of 1 hour with cardiac and blood pressure monitoring, pulse oximetry and regular self-rating of pain (visual analogue scale or numerical scale) or observer-rating of pain (faces pain scale). Discharge from the recovery room was dependent on a satisfactory level of consciousness, control of nausea and pain, normal vital parameters and absence of bleeding.

On return to the ward, analgesia was continued with weight-adjusted intravenous paracetamol, rapidly replaced by weight-adjusted paracetamol syrup until complete pain control.

If intraoral and oropharyngeal examination revealed severe oedema of the uvula and soft palate, treatment with oral methylprednisolone at a dose of 1 mg.kg<sup>-1</sup> was instituted for 2 days.

Four to 8 hours after the operation, the anaesthetic and surgical team performed the following assessment in each patient: intraoral and oropharyngeal examination, verification of the child's level of consciousness, verification of resumption of oral feeding, verification of pain control and verification of vital parameters (temperature, blood pressure). If the patient presented a good level of consciousness with stable vital parameters, satisfactory pain control, satisfactory oral feeding and when no signs of bleeding were observed on intraoral/oropharyngeal examination, children in the outpatient group were allowed to return home after at least 6 hours post-anaesthesia and in compliance with the discharge conditions related to day-only admission and children in the inpatient surgery group were allowed to return home the following morning.

Before discharge, the surgical and nursing team provided the parents and the child with clear, appropriate, oral and written information about the postoperative course (feeding, possible complications and management in the event of complications).

Parents of children managed by outpatient surgery were systematically contacted by telephone on the day after the operation and a postoperative D1 telephone report form was filled in by a registered nurse or the charge nurse in order to ensure good continuity of home management.

Two visits were scheduled at postoperative days D10 and D21–D30 for follow-up examinations to confirm satisfactory healing of the tonsillar region and to detect any complications.

Statistical analysis initially consisted of descriptive analysis:

- qualitative variables were expressed as frequency or a percentage to the nearest 1 percent;
- quantitative variables were expressed as the mean and standard deviation, median and range.

### Factors contraindicating outpatient surgery

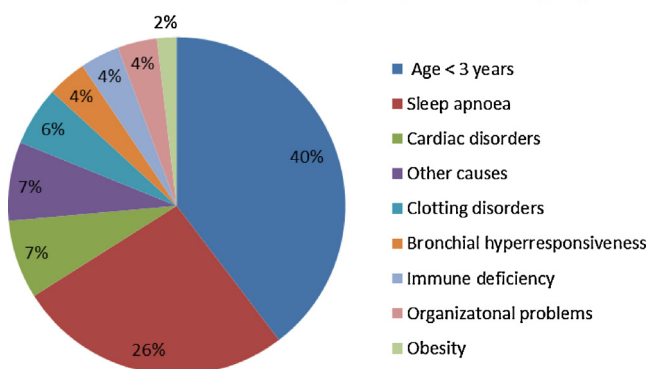


Fig. 1. Contraindications to outpatient tonsillectomy.

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