

Anaesthesia for tonsillectomy

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Tonsillectomy represents a relevant part of the paediatric anaesthesia case load; for example, in France two-thirds of all anaesthetics for children 1–4 years of age are given for ear, nose and throat procedures [1]. Despite this clinical importance, surprisingly, very few studies give detailed advice on how to provide anaesthesia to such patients [2].

Preoperative evaluation

The main indications for tonsillectomy are recurrent infections and in particular obstructive sleep apnoea (OSA), which is characterised by restless sleep and snoring with apnoeic pauses [3]. In severe cases, failure to thrive, impaired cognitive scores and even pulmonary hypertension with cor pulmonale may occur. Normal children have a smaller upper airway; nevertheless, they snore less and have less apnoea. In children with OSA, however, the upper airway is no longer resistant to collapse during sleep or pharmacological sedation [4]. It is of great importance to recognise these patients with OSA in advance. They may need special skills to keep the airway open during induction [5], they are more sensitive to sedative drugs, for example opioids [6], and postoperative monitoring is mandatory (Table 1). Despite removal of obstructive lymphoid tissue upper airway obstruction can occur in the first postoperative night; however, the upper airway neuromotor response, preventing the collapse of the airway during sleep, recovers at least partially over time after treatment [4]. A patient's age below 2 years, pre-existing muscle

hypotony, failure to thrive and craniofacial abnormalities should raise additional concerns [7].

Intraoperative management

Most practitioners advocate a balanced anaesthetic technique using hypnosis by propofol or an inhalation agent combined with opioid analgesia. The aim to have patients waking up in a quiet manner is the reason for the use of clonidine as part of the premedication [8]; however, after clonidine alone, the quality of induction seems to be inferior compared with a benzodiazepine premedication. Combining clonidine with a benzodiazepine is probably the optimal choice, but this has not yet been studied. An anti-emetic medication, usually a 5HT₃-antagonist, is administered by most colleagues. Surprisingly, endotracheal intubation is still widely used, despite scientific data supporting obvious advantages of the laryngeal mask airway [9]. Covering the laryngeal inlet by the laryngeal mask and keeping it clean during the procedure reduces the incidence of postoperative airway complications, for example stridor, laryngospasm or desaturation. Nevertheless, many practitioners do not feel comfortable with the laryngeal mask airway, but the only critical time is the moment of mouth gag insertion. Good cooperation between surgeon and anaesthetist is needed, emphasising the following three points. First, during insertion of the mouth gag, the laryngeal mask is disconnected from the circuit, and the surgical colleague is completely free while looking for the optimal position of both mouth gag and laryngeal mask. Second, there is no need to fixate the laryngeal mask with tapes or other material. Third, the circuit is then guided over the drapes (if there are any for this type of surgery), connected to the laryngeal mask, and a good mask seal is proven by gentle manual ventilation (Fig. 1).

Postoperative treatment

Tonsillectomy involves often underestimated moderate to severe postoperative pain. Whereas for peripheral surgery, for example orchidopexy, a local anaesthetic block combined with non-steroidal anti-inflammatory drugs provides reasonable postoperative pain relief and has become a standard of care, the situation is less clear for tonsillectomy. Local anaesthetic infiltration has only a minimal and no clinically relevant effect on postoperative pain [10], and the use of non-steroidal anti-inflammatory drugs has been questioned because of an increased risk of bleeding [11]. For this reason, many

Table 1 Patients who are at special risk for postoperative complications

- Age under 2 years
- Pre-existing muscle hypotony
- Failure to thrive
- Craniofacial abnormalities
- Severe obstruction (periodically SaO₂ below 70%)

Figure 1 The flexible laryngeal mask gives adequate access for tonsillectomy



but not all practitioners are reluctant to use these compounds [12,13], and some of the COX-2-blockers have actually been withdrawn from the market. Therefore, the medication has to rely mainly on paracetamol combined with one or multiple doses of an opioid.

The second factor leading to postoperative discomfort is vomiting. An incidence as high as 60–80% has been reported [14]. Suctioning the stomach free from blood before emergence from anaesthesia may be helpful, but prophylactic anti-emetic medication is usually given. Often the combined administration of a 5HT₃-antagonist and dexamethasone is used. It is advantageous that dexamethasone, similarly to other corticosteroids, has been shown not only to reduce vomiting and to enhance postoperative oral intake [15], but also to reduce postoperative pain [16]. This is not an unexpected finding, in view of the widespread analgesic action of corticosteroids, for example after dental or laparoscopic surgery (Table 2).

In summary, with respect to tonsillectomy, many isolated questions have already been answered; however, finding the recipe for the individual practitioner in terms of optimal perioperative care is still a goal that has to be reached. Currently, a premedication including clonidine, securing the airway with a laryngeal mask airway or an endotracheal tube, and, in particular, attention to pain management including dexamethasone, regular doses of paracetamol as well as one or a few doses of an opioid seem to be a reasonable choice.

Table 2 A possible strategy for reducing postoperative discomfort after tonsillectomy

Clonidine	Reduces agitation
Dexamethasone 0.5 mg/kg (up to 8 mg)	Provides moderate analgesia Reduces vomiting Leads to earlier oral intake Reduces pain
Paracetamol 15–20 mg/kg intravenously followed by regular rectal or oral doses	Postoperatively regular doses are given up to 90–100 mg/kg daily
Opioids (e.g. fentanyl, nalbuphine, codeine)	One or a few doses are usually needed
Metamizol 15 mg/kg	Often used as a rescue analgesic drug beyond the immediate postoperative course

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