

Paediatric Day Case Tonsillectomy - Audit of a New Programme

O. Grant, P. Harper

Department of Anaesthesia, Children's Health Ireland at Temple Street, Dublin.

Abstract

Aims

The primary objective of this audit was to assess 30-day unplanned admission or readmission rates following day case tonsillectomy. Secondary objectives included assessing demographic characteristics of patients and surgical and anaesthetic techniques employed.

Methods

Retrospective chart review was performed.

Results

34 tonsillectomies or adenotonsillectomies were performed for children aged between 5 and 17 years. A total of six patients (17.6%) were either admitted from the day ward or readmitted within 30 days. This was not statistically significantly greater than the maximum acceptable rate of 15% as recommended by ENT UK and the Royal College of Surgeons (95% confidence intervals 4.8% - 30.5%, $p = 0.33$). Of these admissions, one (2.9%) was due to nausea and inadequate oral intake, one (2.9%) was due to clinical concerns regarding sleep apnoea and four readmissions (11.8%) were due to bleeding. Anaesthesia techniques used varied considerably.

Conclusion

Further multidisciplinary co-operation and standardisation of care may help to improve this programme and reduce unplanned admission and readmission rates.

Introduction

Appropriate implementation of day case surgery pathways is an attractive option to maximise resource utilisation without compromising patient safety. The Health Service Executive (HSE) has recommended that 75% of elective surgeries may be safely carried out as day cases and has recommended that this could include tonsillectomies.¹ Other countries have successfully implemented paediatric day case tonsillectomy programmes; for example, the UK Royal College of Surgeons have now recommended that day case tonsillectomy should be the expectation.² Children's Health Ireland at Temple Street began implementing a day case tonsillectomy programme in July 2018. To the best of our knowledge, this is the first formal paediatric day case tonsillectomy programme in Ireland. Strict selection criteria are in place; for example, children must be over 5 years and over 15kg, must live within 30 minutes of the hospital and must not have obstructive sleep apnoea or other significant medical comorbidities (see . for full criteria). Anaesthetic and surgical techniques used are at the discretion of the respective clinicians and discharge analgesia is prescribed by the surgical team.

UK guidance suggests that the unplanned readmission rate for tonsillectomy should be less than 15% at 30 days.² The primary objective of this audit was to assess unplanned 30-day admission or readmission rates for our project.

Secondary objectives included assessing demographic characteristics of patients and surgical and anaesthetic techniques employed.

- Age \geq 5 years
- Weight > 15kg
- No previous quinsy or tonsil surgery
- Otherwise fit, healthy child
- No obstructive sleep apnoea
- No active cardiac, respiratory, neurological, metabolic or endocrine comorbidities (Children with cardiac history may be considered if have letter from Cardiology to state that they have been discharged from Cardiology clinic and no active issues; children with asthma may be considered if they have been stable for at least six months)
- No syndromic disorders
- Must live within 30 minutes of the hospital
- If family have more than one child, must have second adult at home in case of emergency
- Access to mobile/landline telephone in case of emergency
- Ability to access transport or call ambulance if required

Table 1: Criteria for Day Case Tonsillectomy.

Methods

Retrospective chart review was performed to collect data on all day case tonsillectomy procedures from July 2018 to April 2019. All patient data were anonymised before analysis, and any patient identifiable information was kept in a secure hospital location throughout the project. Information collected included age, surgical procedure performed, anaesthesia techniques used and drugs administered, whether patients were discharged as planned and readmissions within 30 days.

Two-proportion z test was used to determine if our readmission rate significantly exceeded the maximum acceptable rate.

Ethical approval was granted by the local Clinical Audit Review Group.

Results

In total, 34 tonsillectomies or adenotonsillectomies were performed as day-case procedures between July 2018 and April 2019. Patient age ranged from 5 to 17 years. 85.3% (n=29) used coblator dissection, while 14.7% (n=5) used cold steel with or without bipolar diathermy. Anaesthetic management varied considerably but the vast majority received volatile agents for maintenance (n=32, 94.1%) while the remaining 5.9% (two patients) received total intravenous anaesthesia. Almost all children received intravenous morphine (97.1% of cases, n=33), while an additional simple analgesic (paracetamol and/or a non-steroidal anti-inflammatory drug [NSAID]) was given intraoperatively to 91.2% of patients (n=31). 97.1% of patients (n=33) received at least one antiemetic, with 50% of patients (n=17) receiving two antiemetics.

Just over half of patients received intravenous fluids (55.9%, n=19); average volume administered was 8ml/kg. All discharge prescriptions available for review (n=21) included paracetamol and an NSAID. Two prescriptions (9.5%) included codeine. Both of these children were over 12 years old.

A total of six patients (17.6%) were either admitted from the day ward or readmitted within 30 days of their procedure. This was not statistically significantly greater than the maximum acceptable rate of 15% (95% confidence intervals 4.8% - 30.5%, $p = 0.33$).

Three patients (8.8%) were admitted on the day of their procedure. Of these, one patient (2.9%) was admitted due to clinical concerns regarding sleep apnoea, one (2.9%) due to inadequate oral intake and pain and one patient (2.9%) was discharged but re-presented with bleeding that evening. A further three patients (8.8%) were readmitted for bleeding within 30 days; all of these were after the third post-operative day. In total, four patients (11.8%) were admitted due to bleeding. Only one patient (2.9%) required a return to theatre for control of bleeding.

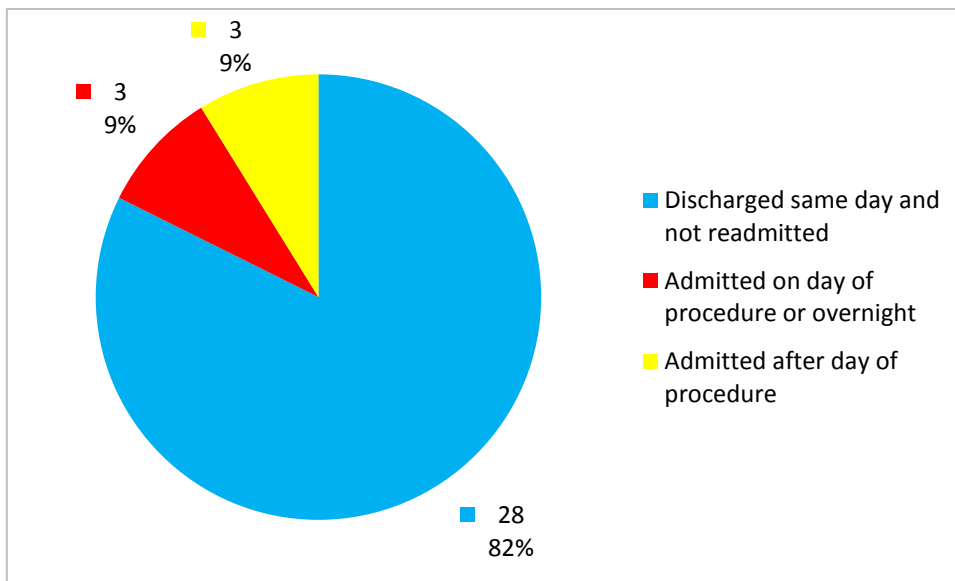


Figure 1: Admission/Readmission Rates following Day Case Tonsillectomy.

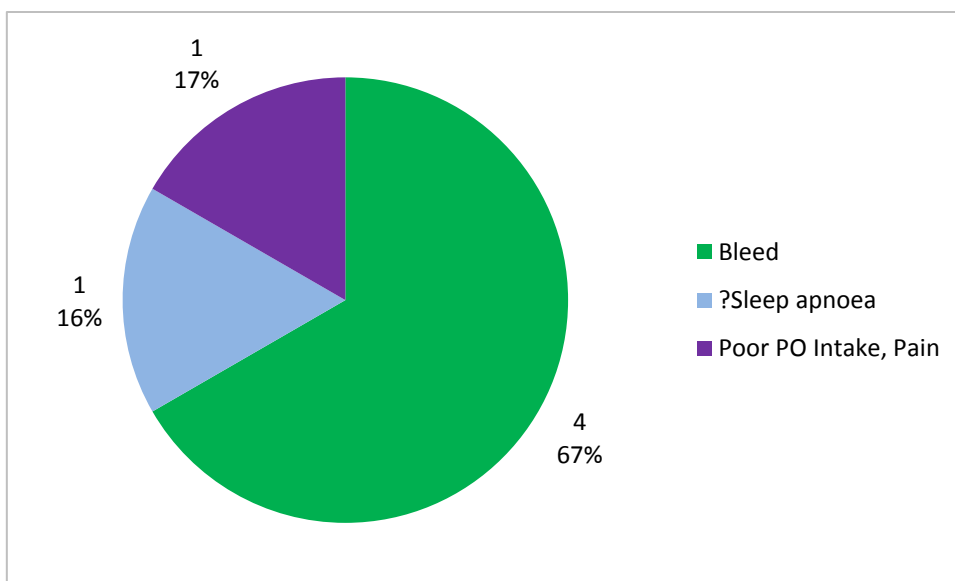


Figure 2: Causes of Admission/Readmission.

Discussion

The overall unplanned admission/readmission rates appear quite high (17.6% in total, compared with a target of <15% in the UK).² However, patient numbers are as yet quite small, and this difference did not reach statistical significance. The number of unplanned admissions due specifically to bleeding also appears quite high in this study; small patient numbers again limit the interpretation of this result. In addition, there is a very low threshold to admit patients with any sign of bleeding, and it is perhaps noteworthy that only one patient required operative intervention.

Regarding unplanned admissions within 24 hours of the procedure, it is possible that improved pre-operative screening for sleep apnoea and improved analgesia protocols could increase the number of procedures successfully performed as day cases.

In addition, this audit highlighted the practice of codeine prescription post-operatively, which merits discussion. The U.S. Food and Drug Administration regards codeine as contraindicated for all children following tonsillectomy,³ whereas the European Medicines Agency states that codeine should not be used in children following tonsillectomy for sleep apnoea.⁴ Current practice in our institution is to prescribe codeine following tonsillectomy only if the children are over twelve years old and have no history of sleep apnoea.

Finally, a limitation of our study is that retrospective chart review is subject to the quality of the available documentation. However, our primary outcome (readmission rates) would not have been affected.

Further multidisciplinary co-operation and standardisation of care may help to improve this programme and reduce unplanned admission and readmission rates.

Declaration of Conflicts of Interest:

No conflicts of interest declared.

Corresponding Author:

Dr Orna Grant

Department of Anaesthesia,

Children's Health Ireland at Temple Street,

Dublin 1.

Email: ornagrants@gmail.com

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