The Journal of Laryngology & Otology
January 2001, Vol. **115,** pp. 39–43

Role of a home care team in paediatric day-case tonsillectomy

C. Shah, M.S., F.R.C.S., R. Shahab, M.B., F.R.C.S., P. Robb, B.Sc., F.R.C.S., D. Roy, M.S., F.R.C.S.

Abstract

The feasibility of paediatric day-case tonsillectomy (PDCT) depends on its safety and acceptance by parents and patients. The purpose of our retrospective study of paediatric day-case tonsillectomy was to review the role of the home care team (HCT) in improving the safety and acceptance of the procedure.

Between January 1997 and June 1999, 352 consecutive children underwent day-case tonsillectomy. The notes and HCT assessment sheets were reviewed for telephone calls made by HCT or by parents, home visit by HCT, types of complication and their outcome.

The primary haemorrhage rate was 0.6 per cent. The effective day-case rate was 97 per cent. The unplanned admission rate was three per cent. The HCT visited about 25 per cent of patients at home. We conclude that paediatric day-case tonsillectomy is associated with high morbidity and considerable parental anxiety that can be dealt with by timely reassurance, support and advice by a dedicated HCT.

Key words: Tonsillectomy, Complications; Child; Ambulatory Surgical Procedures; Home Care Services

Introduction

Day-case surgery is increasing to improve health care cost and efficiency. The economic benefits of day surgery on its safety and acceptance by patients and parents.[1,2] Day-case tonsillectomy can be cost-effective and safe because severe complications are uncommon[3–6] provided strict patient selection criteria, which should include medical, social and geographical factors,[7,8] are adhered to.

Although tonsillectomy is frequently performed in the USA, Canada and other countries as a day-case procedure.[3,9,10] only a minority of patients undergo this operation on a day-stay basis in the United Kingdom.[11]

Tonsillectomy alone or in conjunction with other procedures such as adenoidectomy and grommet insertion, is one of the commonest surgical procedures performed on children. It is a safe operation, with no death following tonsillectomy reported in the most recent national confidential enquiry into perioperative death (NCEPOD) report. The tonsillectomy rate for children under 12 was 2.3/1000 and in adults is 0.8/1000 in the UK in 1996. This represented a total of 58 919 patients having tonsillectomy alone with a further 31 049 having a tonsillectomy together with adenoidectomy.[12] Performing tonsillectomy on a day-stay basis would, therefore, significantly contribute to the expected efficiency benefits attributed to day surgery.

The most serious complication is primary haemorrhage. In a large series it has been shown that primary haemorrhage is less than one per cent[6,9,10] and nearly all cases occur within the first four to eight hours post-operatively while the patient is under observation in a day-care unit.[1,4,5,13] However, it has also been demonstrated that there is considerable morbidity and parental anxiety following tonsillectomy.[14,15] The well-known post-operative morbidity and parental anxiety are the main obstacles against accepting tonsillectomy as a day-case procedure. Complications are responsible for the high re-admission rate after intended day-stay tonsillectomy in England and Wales.[11] In our retrospective study we have reviewed the role of HCT in reducing unplanned admissions and improving the safety and acceptance of the procedure.

Materials and methods

A retrospective study of 352 consecutive paediatric patients who underwent day-case tonsillectomy (with, or without, adenoidectomy or myringotomy and insertion of grommet) between 1st January 1997 to 30th June 1999 at Queen Mary Hospital for Children (Epsom and St Helier NHS Trust) was carried out. The clinical notes and home care team (HCT) assessment sheets were reviewed.

From the Department of Otolaryngology, Epsom and St Helier NHS Trust, Epsom, UK.
Accepted for publication: 4 August 2000.

Exclusion criteria for day-case surgery were as follows:

TABLE I
EXCLUSION CRITERIA FOR DAY-CASE SURGERY

Tonsillitis or respiratory tract infection in the last 4 weeks.
Age below 3 years
Sleep apnoea syndrome
Haemoglobin below 10 gm%
Concern about bleeding tendency
ASA III/IV
No telephone at home
Single parent with more than one child at home
Distance to hospital more than 10 miles or time to reach the hospital would exceed 30 minutes

All patients who did not meet the above criteria were excluded at the time when the children were listed for tonsillectomy by the surgeon.

All children were admitted on the morning of surgery and were seen by the ENT doctor and anaesthetist. No pre-medication was given. Consultants, associate specialists and staff grade surgeons performed tonsillectomy (with, or without, adenoidectomy and grommets) on a morning operating list at The Queen Mary Hospital for Sick Children (Epsom and St Helier NHS Trust). General anaesthesia was induced intravenously or by gaseous induction, followed by endotracheal intubation or the use of laryngeal masks airway. Induction was with propofol, maintenance with sevoflurane/nitrous oxide/oxygen. All patients were given codeine phosphate (intra-muscular) and diclofenac sodium (per rectum) as analgesia unless there was any contra-indication. Ondansetron (intra-venous) was given routinely to all patients.

The adenoid was removed by curettage, and haemostasis achieved by applying pressure and the additional use of electrocoagulation if necessary. The tonsillectomy was carried out either by means of blunt dissection or diathermy and haemostasis achieved by diathermy and/or suture ligature.

All patients were observed for four to six hours post-operatively. Thereafter the surgeon and anaesthetist assessed them. If the child was well with no evidence of bleeding, and had eaten and drunk well and was in no obvious discomfort, the child was discharged with appropriate regular oral painkillers (paracetamol and ibuprofen, codeine if asthmatic) and antibiotic, usually amoxycillin or erythromycin.

Prior to discharge, the patient and parent were introduced to a member of the HCT. Advice was given regarding the expected post-operative course and written instructions as well as a contact telephone number in case there were any problems or concerns. The HCT could be reached via the contact telephone number during normal working hours and could be paged at other times. Therefore a 24-hour cover was always available. A routine telephone call was made by the HCT the morning after surgery. Further telephone calls or a home visit was only arranged if there was any need, or on request by the parents.

The notes and HCT assessment sheets were reviewed for:

(1) telephone calls made by HCT and parents and their relation to the post-operative day;
(2) HCT visits to the patient's house and their relation to the post-operative day;
(3) post-operative referrals to general practitioner, accident and emergency department or ear, nose and throat department;
(4) types of complications.

Results

Between the 1st January 1997 and the 30th June 1999, 467 paediatric patients were listed for tonsillectomy (with, or without, adenoidectomy or myringotomy and grommet), 352 children (76 per cent) were suitable as day cases, and 115 children (24 per cent) did not meet the criteria for day-case tonsillectomy. Three hundred and fifty-two children underwent day-case tonsillectomy with, or without, other procedure.

There were 162 males and 190 females (M: F: 1:1.2). The age range was three to 15 years. The median age was five years. Tonsillectomy was carried out on 225 patients, adenotonsillectomy in 54 patients and adenotonsillectomy with myringotomy and insertion of grommets in 73 patients. Eighty-three per cent of patients were given ibuprofen, and 17 per cent were given codeine phosphate as analgesia because of a contra-indication to non-steroidal anti-inflammatory drugs. All patients were given paracetamol and amoxycillin, or erythromycin, if allergic to penicillin.

There were 11 unplanned post-operative overnight admissions (three per cent). There were two children with reactionary haemorrhage. (One of them was suffering with von Willebrand's disease). There were two patients with airway problems after extubation, two patients with protracted emesis, four

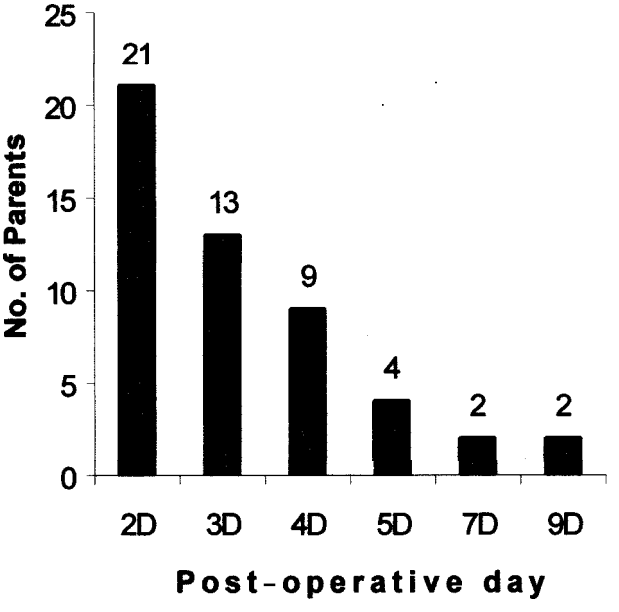

FIG. 1
Call made by parents.

https://doi.org/10.1258/0022215011906975 Published online by Cambridge University Press

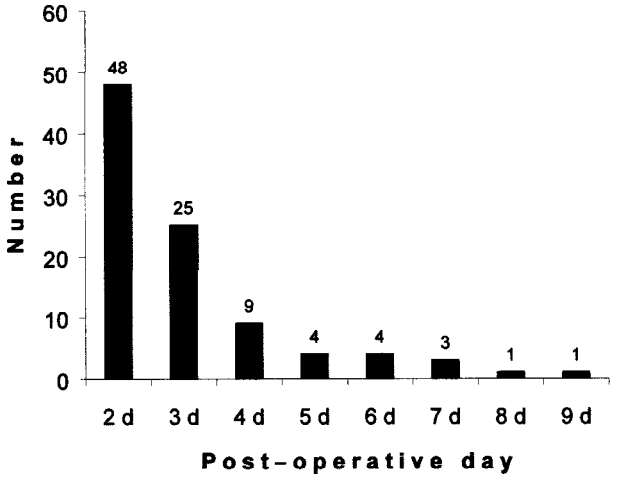

FIG. 2
Home visits by HCT

patients with insufficient oral intake and one patient who had intra-operative blood loss requiring overnight admission.

Number of HCT telephone calls

A routine telephone call to all patients was carried out on the first post-operative day. A total of 219 extra telephone calls were made to 115 parents (33 per cent of all parents). HCT made two telephone calls to 48 parents, three calls to 46 parents, four calls to eight parents and more than five calls to 13 parents for advice, reassurance or to arrange a home visit.

Number of parental telephone calls

Fifty-one parents (14.5 per cent) contacted the HCT on 62 occasions because of concern, anxiety or post-operative problems and asking for advice and help. The greatest number of telephone calls was on the first post-operative day with a steady decline over the subsequent days (Figure 1).

HCT visits

Eighty patients (23 per cent) requested a home visit or it was deemed necessary by the HCT. Seven patients received two and four patients required three visits. The total number of home visits was 95. The relation of the home visits to the post-operative days is shown in Figure 2.

Most of the home visits were carried out on the first post-operative day with a steady decline over the subsequent days.

Re-admission between third to 14th days

There were 11 (three per cent) admissions between the second and 14th post-operative days. Five patients were admitted for adequate hydration, as they had not received sufficient oral intake due to pain. Six patients were admitted with secondary bleeding. One of the patients who had three re-admissions for secondary haemorrhage was subsequently found to have von Willebrand's disease.

HCT-referrals

A total of 20 patients were referred by the HCT for further assessment or treatment. After visiting children at home, HCT referred 14 children to the Ear, Nose and Throat department, three children to the Accident and Emergency department and a further three children to their general practitioner for further advice and management.

Patient satisfaction

A follow-up appointment was given to all patients two weeks after the operation. Out of the 352 patients, 340 were examined in the follow-up clinic. Three hundred and twenty-nine (96.8 per cent) expressed their satisfaction with the concept of day-case tonsillectomy supported by a HCT team. Eleven patients were dissatisfied mainly because they felt that the pain control after tonsillectomy was inadequate.

Discussion

The trend towards the day-stay procedure is growing, not only as a result of improving medical care but also because of the increasing importance of economic considerations.

Tonsillectomy alone, or in conjunction with other procedures such as adenoidectomy and grommet insertion is one of the commonest surgical procedures performed on children. Performing tonsillectomy on a day-stay basis would therefore significantly contribute to the expected efficiency benefits attributed to day-case surgery.

Tonsillectomy has been performed successfully as a day-case procedure in the USA and Canada for many years,[3,9] and its safety is well documented.[10,13] Despite this, the performance of tonsillectomy in an ambulatory setting is controversial and largely carried out on an in-patient basis in the UK. The last audit by the Royal College of Surgeons of England of ENT day surgery in England and Wales demonstrated that only 4.8 per cent of all tonsillectomies were carried out as day cases.[11] The main reasons for not performing tonsillectomy as day cases are concerns about safety and the considerable post-operative morbidity resulting in many unplanned overnight admissions.[11,16,17] Doubts about the acceptance of the procedure as a day case by patients and parents has been commonly cited.[15,18,19] However Soreidi *et al.* have demonstrated in an analysis of questionnaires, that 92 per cent would accept day-case tonsillectomy provided there were proper selection criteria and the patients were adequately informed.[20]

In our study the reactionary haemorrhage rate of 0.57 per cent (two out of 352) was very low and within the range of published results from the USA[3,9,10,13,21] and the UK.[5,6] Because of the danger of reactionary haemorrhage, a post-operative observation period of six to eight hours is recommended.

https://doi.org/10.1258/0022215011906975 Published online by Cambridge University Press

Gabalski *et al.*[13] however have shown in their series of 534 tonsillectomies that there were no complications in the fifth and sixth post-operative hours and concluded a four hours' observation period would suffice. The reactionary haemorrhage (two patients) in our study occurred within three hours of the operation.

Our unplanned overnight admission rate was three per cent (11 out of 352). This figure is in contrast to the 14 per cent unplanned overnight admission rate reported by the Royal College in its audit.[11]

Despite the low complication rate the following issues should be addressed:

(1) even if the reactionary haemorrhage rate is low it has to be taken seriously, since it may put the patient's life at risk;
(2) there is considerable morbidity following tonsillectomy;[14,17,19]
(3) there is considerable parental anxiety;[2,15]
(4) it may be difficult to assess whether patients are capable of detecting complications.

Nausea with associated prolonged emesis and insufficient oral intake, a painful throat, dysphonia, otalgia and generally feeling unwell are all common problems that generate parental anxiety and rejection of the idea of having the tonsillectomy on their children performed on a day-stay basis. Tonsillectomy may also lead to serious post-operative complications such as dehydration or secondary haemorrhage.

It is therefore our opinion that a dedicated home care team (HCT) may play an important role in post-operative management and decrease the number of unplanned re-admissions. The HCT consists of experienced community nurses trained in examining the ear, nose and throat, and informed about the normal post-operative course and likely complications. They are capable of detecting common complications such as dehydration, infection, bleeding or medical problems unrelated to surgery.

The home care team play an important role in:

(1) alleviating normal parental fears and anxieties as they know that there is always somebody available who is expert and can give specific advice and thereby help them to cope with difficult situations;
(2) detection of early post-operative complications and initiation of necessary steps to counteract these.

In case of complications that are not easily overcome by simply giving advice or home visit, the HCT can direct the patient to the appropriate person for further assessment and/or treatment, i.e. general practitioner, casualty officer or ear, nose and throat officer.

A total of 219 extra telephone calls had to be made to 115 parents (nearly one third of patients) by the HCT, and 51 patients made 62 calls to the HCT. There were 95 home visits to 80 children (about 25 per cent) requested by either the parent or deemed necessary by the HCT. This demonstrated that there is an ongoing high post-operative morbidity and parental anxiety after tonsillectomy. It also demonstrates that the parents respond to the HCT positively.

Surprisingly no home care visits or parental telephone calls took place during the day of operation. This fact strongly favours day-stay tonsillectomy because for the majority of patients, the post-operative problems seemed to start with the first post-operative day; whereas the day of operation was relatively trouble-free.

Despite the high morbidity, only 11 patients (three per cent) required readmission. Six patients were admitted for secondary bleeding and five patients were admitted because of dehydration or inadequate oral intake. One of the patients who had primary haemorrhage, and had three readmissions for secondary haemorrhage was subsequently found to have von Willebrand's disease.

This indicates that most post-operative problems are not severe and can be overcome by giving advice and re-inforcing the post-operative instructions, particularly stressing the importance of regular analgesics for pain control and adequate oral intake to the patients. It may also reflect the successful intervention of the HCT in preventing the development of more serious complications.

That the HCT concept works quite well is also demonstrated by the fact that only 20 patients (six per cent) needed more qualified assessment by either the GP (three cases), the A & E department (three cases) or an otolaryngologist (14 cases). In contrast to our findings Benson-Mitchell *et al.*[19] observed that within the first two weeks after discharge about 50 per cent of all patients consulted their GP and 23.2 per cent of the adult patients visited their local A and E department regardless of whether the tonsillectomy had been performed on an in-patient or day-case basis. They stated that both adult and paediatric tonsillectomies lead to considerable demand for general practice and casualty service regardless whether the day-stay or in-patient route is chosen. The HCT plays an important role in relieving the general practitioner and Accident and Emergency department from the burden of care after tonsillectomy.

The analysis of the HCT assessment sheets showed that the majority of telephone calls and home visits on the first two post-operative days were due to parental anxiety regarding the post-tonsillectomy odynophagia and were related to insufficient oral intake. These problems could nearly always be overcome by reassurance, reinforcement of post-operative instructions and stressing of the importance of regular analgesic medication. Certainly, the early intervention of the HCT prevented both many GP and A & E consultations and also the development of more serious complications that would require in-patient treatment.

At the follow-up appointment, 97 per cent of the parents expressed their satisfaction with the concept of day-case tonsillectomy backed up by a home care team.

Conclusion

The results of our study show that paediatric day-case tonsillectomy can be managed safely with the support of a HCT. They also confirm that there is considerable parental anxiety and significant morbidity associated with tonsillectomy. A dedicated HCT plays an important role in alleviating parental anxiety and acceptance of the procedure and also in reducing post-operative complications. Our results indicate that the parents respond positively to this concept.

Acknowledgements

We would like to thank Mrs B. M. Laskiewicz and Mr. Johnson for permission to report on their patients. We would also like to acknowledge the assistance of members of the home care team – Ms Ryley, Mrs McMahon and Ms Westmaas, for allowing us to use their notes and helping us in analysing their data. We also thank Mrs Carmel Brown, clinical audit department of Queen Mary's Hospital for Children for providing relevant data and Ms Rosemary West for giving permission to use relevant data and providing financial data.

References

1 Tewary AK. Day-case tonsillectomy: a review of the literature. *J Laryngol Otol* 1993;**107**:703–5
2 Tewary AK, Barr GS, Bickerton RC. Parental preferences of duration of hospital stay following tonsillectomy. *J Laryngol Otol* 1993;**107**:709–10
3 Guida RA, Matucci KF. Tonsillectomy and adenoidectomy: An inpatient or outpatient procedure. *Laryngoscope* 1990;**100**:491–3
4 Yardley MPJ. Tonsillectomy, adenoidectomy and adenotonsillectomy: Are they safe day case procedures. *J Laryngol Otol* 1992;**106**:299–300
5 Moralee SJ, Murray JAM. Would day-case adult tonsillectomy be safe. *J Laryngol Otol* 1995;**109**:1166–7
6 Hellier WPL, Knight J, Hem J, Waddell T. Day case paediatric tonsillectomy: a review of three years experience in a dedicated day case unit. *Clin Otolaryngol* 1999;**24**:208–12.
7 Drake-Lee A, Harris S. Editorial. Day case tonsillectomy: what is the risk and where is the economic benefit? *Clin Otolaryngol* 1999;**24**:247–51
8 Drake-Lee A, Weiner G. Suitability of children for ENT day case procedures. *Clin Otolaryngol* 1997;**22**:215–8
9 Chowdhury K, Tewfik TL, Schloss MD. Post tonsillectomy and adenoidectomy hemorrhage. *J Otolaryngol* 1988;**17**:46–9
10 Handler SD, Miller L, Richmond KH, Baranak CC. Post-tonsillectomy hemorrhage: Incidence, prevention and management. *Laryngoscope* 1986;**86**:1243–7
11 Brown PM, Fouler S, Ryan R, Rivron R. ENT day surgery in England and Wales – an audit by the Royal College of Surgeon (Eng.) Comparative Audit Service. *J Laryngol Otol* 1998;**112**:161–5
12 McKerrow WS. Tonsillectomy and adenoidectomy. In: *Statements of Clinical Effectiveness*, London: British Association of Otolaryngologist Head and Neck Surgeons, 1998
13 Gabalski EC, Matucci KF, Setzen M, Moleski P. Ambulatory tonsillectomy and adenoidectomy. *Laryngoscope* 1996;**106**:77–80
14 Lee WC, Sharp JF. Complication of paediatric tonsillectomy post-discharges. *J Laryngol Otol* 1996;**110**:136–40
15 Pringle MB, Cosford F, Beasley P, Brightwell AP. Day-case tonsillectomy – is it appropriate? *Clin Otolaryngol* 1996;**21**:504–11
16 Tom LWC, DeDio PM, Cohen DE, Wetmore RF, Handler SD, Potsic WP. Is outpatient tonsillectomy appropriate for young children? *Laryngoscope* 1992;**102**:277–80
17 Rakover Y, Almog R, Rosen O. The risk of postoperative haemorrhage in tonsillectomy as an outpatient procedure in children. *Int J Pediatr Otorhinolaryngol* 1997;**41**:29–36
18 Benson-Mitchell R, Kenyon GS, Quinn SJ. Day-stay tonsillectomy: is hospital stay reduced at the expense of increased community care. *Ann R Coll Surg Engl* 1996;**78**:440–3
19 Benson-Mitchell R, Maw AR. Assessment of sequelae at home following adenotonsillectomy. A basis for day case management? *Clin Otolaryngol* 1993;**18**:282–4
20 Soreidi AK, Olofsson J. Tonsillectomy – day surgery or hospitalization? *Ear Nose Throat* 1996;**75**:373–6
21 Mutz I, Simon H. Blutungs-Komplikationen nach Tonsillektomien and Adenotomie. *Wien Kim Wochenschr* 1993;**105**:520–2

Address for correspondence:
Mr. C. Shah, F.R.C.S., (Ed.), M.S., D.L.O.(Eng.),
23, Beverington Close,
Eastbourne, BN21 2SB, UK.

Fax: 01 323 739491
E-mail: ctshah99@yahoo.com

Mr C. Shah takes responsibility for the integrity of the content of the paper.
Competing interests: None declared