

Complications of paediatric tonsillectomy post-discharge

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Abstract

A post-operative survey of 291 children was conducted to assess morbidity found at home in the first five days post-tonsillectomy. Analgesic requirement (92.4 per cent), signs of distress (90.4 per cent), otalgia (69.1 per cent), halitosis (66.7 per cent) were common. Physical or behavioural changes (36.8 per cent) and secondary haemorrhage (8.9 per cent) were also prominent features. Nausea was reported in 59 children (20.3 per cent) and delayed return to a normal diet which in turn predisposed to secondary haemorrhage. Return to normal diet was independent of pain. General Practitioners were consulted by 60.6 per cent and more than half were prescribed drugs. The presence of an organized clot in the tonsillar fossa (3.45 per cent) post-operatively did not delay discharge from hospital and none of these patients re-presented with secondary haemorrhage. Based on their child's experience in this study, only one third of the parents approved of day-case tonsillectomy in principle, a finding which has implications for the instigation of day-case tonsillectomy procedures.

Key words: Tonsillectomy; Post-operative complications; Patient discharge

Introduction

Most primary complications of tonsillectomy appear in the first eight hours post-operatively and significant reactionary haemorrhage usually occur within four hours of surgery (Yardley, 1992; Kendrick and Gibbin, 1993). These data have been used to advocate day-case tonsillectomy on the basis that little post-operative morbidity is encountered after this time. Other surgical specialties have published their post-discharge complications (Donovan *et al.*, 1987). However, post-discharge morbidity data after tonsillectomy is restricted. The aim of this survey was to identify and quantify the specific morbidity of paediatric tonsillectomy within the five day post-discharge period.

Methods

Children admitted to Walsall Manor Hospital for tonsillectomy, with, or without, other surgical procedures, were prospectively included in the study. Patients who had primary haemorrhage were excluded. Dissection tonsillectomies were performed by all grades of surgeons and bleeding was controlled exclusively with ligatures. All children were admitted one day before operation and were discharged the day after tonsillectomy if there were no contraindications. The age and sex of the patients, timing of surgery, additional surgical procedures performed, presence of blood clots in the tonsillar fossae first post-operative day and antibiotic prescribed from hospital were recorded. All children

had oropharyngeal examination prior to discharge. Antibiotic therapy was instigated empirically if organized blood clot was noted in the tonsillar fossa. No attempt was made to remove the clot.

At discharge a questionnaire (Appendix) was issued prospectively to the parents of the operated child. This charted the post-operative course daily for the five days immediately after discharge. The parents were asked to note their child's daily analgesic consumption, types of analgesic used; degree of nausea, anti-emetic intake; daily level of distress of their child; daily complaint of otalgia; day of commencement of a regular diet; presence or absence of halitosis; nature and timing of any secondary haemorrhage and whether medical advice was sought regarding this symptom; any behavioural changes; and whether they consulted their family doctors and what, if any, medications were prescribed.

The parents were asked to consider their home circumstances and the condition of their child immediately after the operation and whether they would have preferred their child to have been discharged home on the day of operation.

The completed questionnaires were returned in the stamped addressed envelope provided.

Statistical methods

Chi-squared test with Yates correction were used for statistical comparisons.

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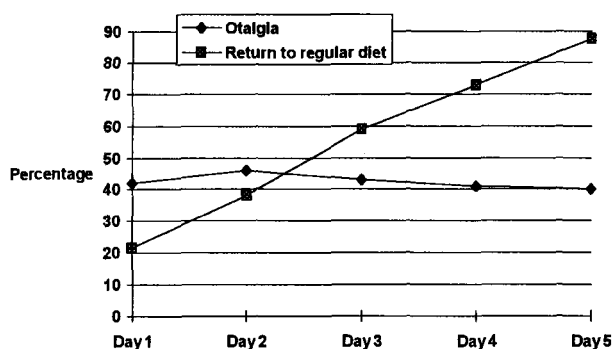


FIG. 1

Incidence of otalgia and cumulative return of patients to a regular diet in the post-discharge period.

Results

Two hundred and ninety-four questionnaires were returned from 419 patients included in this study and 291 (99 per cent) were suitable for analysis. The mean patient age was 6.8 years (range three to 14 years). Male patients numbered 158 (54.3 per cent). Tonsillectomies alone were performed on 34 patients (11.7 per cent), 246 (84.5 per cent) also had adenoidectomy, 104 (35.7 per cent) also had myringotomy or grommet insertion and eight (2.8 per cent) had other procedures such as nasal cautery. Eleven patients (3.8 per cent) were discharged two days post-operation due to protracted emesis, reluctance to eat or fever.

Organized blood clot was noted in the tonsillar fossa in six patients (3.45 per cent). One child had bilateral tonsillar clots at discharge. None of these six patients had a significant secondary haemorrhage although one produced blood-stained saliva within 24 hours at home which did not require medical treatment. Five of these children returned to their regular diet within three days. One took more than five days to do so.

During the first five days at home, 26 patients (8.9 per cent) experienced bleeding (frank blood – four patients, blood-stained saliva – 22 patients). Of these 26 patients, two bled significantly and returned to the hospital for advice or treatment. Only 12 (46.2 per cent) of the patients with reported bleeding consulted their family doctors (three were treated with antibiotics, four were given paracetamol and the rest were given reassurance). One of the patients treated with an antibiotic attended the accident and emergency department and was discharged from there as the bleeding stopped spontaneously. One of the 14

TABLE I

FREQUENCY OF OTALGIA IN RELATION TO TYPES OF OPERATION

| | Earache | |
|-----------------------------|---------|----|
| | Yes | No |
| T only | 19 | 15 |
| T & myringotomy/grommet | 3 | 0 |
| T & A & myringotomy/grommet | 73 | 28 |
| T & A | 99 | 46 |

Chi square = 3.15; *p* = 0.21.

No significant difference between the proportion of otalgia between all operations.

Abbreviations: T = Tonsillectomy; A = Adenoidectomy.

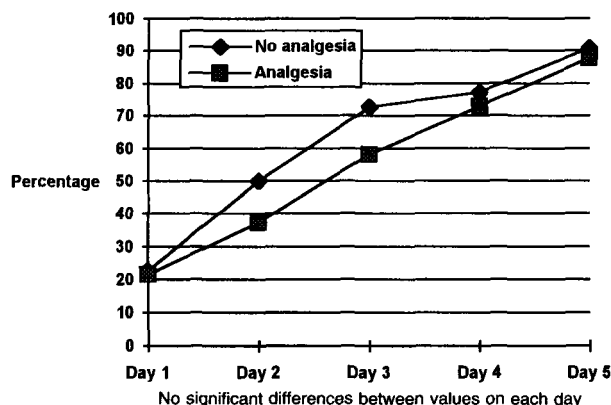


FIG. 2

The cumulative return of patients to a regular diet in relation to analgesic consumption.

patients who did not consult the family doctor had a subsequent bleed and was admitted for observation and made an uneventful recovery with conservative management.

Paracetamol-based oral analgesics were used by 224 patients (77.2 per cent), 44 (19.6 per cent) also took other unspecified analgesics and 22 patients (7.6 per cent) did not require analgesia. The average daily analgesic requirement reduced steadily over the study period. Pain in the form of otalgia was absent in 90 children (30.9 per cent), but it was a persistent symptom over the whole five days in the affected patients (Figure 1). Additional procedures such as adenoidectomy, myringotomy or grommet insertion did not significantly increase the incidence of otalgia in these tonsillectomy patients (Table I). The presence of post-operative pain did not influence return to normal diet (Figure 2).

Patient distress reported on a subjective scale was observed in 263 patients (90.4 per cent) and reduced progressively over five days (Figure 3).

Nausea, recorded on a standard visual analogue scale, was reported by 59 children (20.3 per cent) principally in the first two days. During the first three

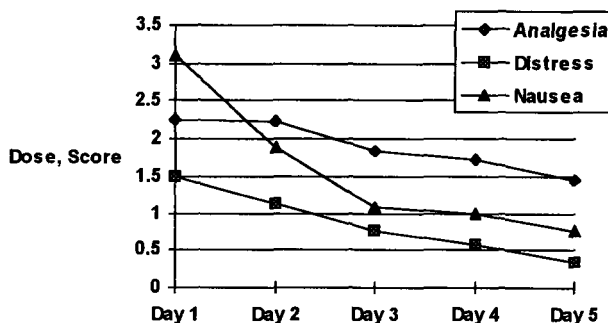


FIG. 3

Mean daily analgesic dose, mean daily patient distress score, mean daily nausea score, post-discharge following (adeno)-tonsillectomy.

Nausea scored by a visual analogue scale from 0 to 10: 0 = No nausea; 10 = Severe nausea

Distress score:

- 0 – Usual self
- 1 – Mild distress (occasional cry, attempted to play)
- 2 – Moderate distress (fussy, not wanting to play)
- 3 – Severe distress (constantly crying, difficult to comfort child)

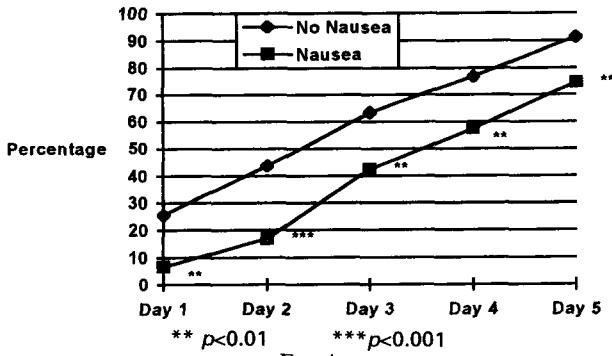


FIG. 4

The cumulative return of patients to a regular diet in relation to nausea.

days post-discharge, 172 patients (59.3 per cent) returned to a regular diet. However 36 patients (12.4 per cent) still had not resumed their regular diet five days post-discharge (Figure 1). Nausea significantly delayed return to a normal diet (Figure 4).

One hundred and forty-seven patients (63.6 per cent) who were not nauseated returned to a regular diet within three days compared to 25 patients (42.4 per cent) who suffered from nausea. Nine (34.6 per cent) of the 26 patients reporting secondary haemorrhage did not return to regular diet during the study period, compared to 17 (6.7 per cent) of the 255 patients who had no haemorrhage (Figure 5).

Cough developed in 18 patients (6.2 per cent) and 10 (55 per cent) consulted their family doctor, five received antibiotics, one an anti-fungal drug and one paracetamol.

Halitosis was reported in 192 out of 288 patients (66.7 per cent). Other events, both physical and behavioural, reported by the parents in 106 children (36.8 per cent) are shown (Table II).

Of the 174 patients (60.6 per cent) who consulted their family doctors, 93 (53.4 per cent) were treated with antibiotics (38.7 per cent), analgesics (37.6 per cent) or other drugs such as antihistamines, ear or eye drops and simple linctus.

Of the 291 parents consulted in the study 284 expressed an opinion regarding day-case (adeno)-tonsillectomy, based subjectively on their child's

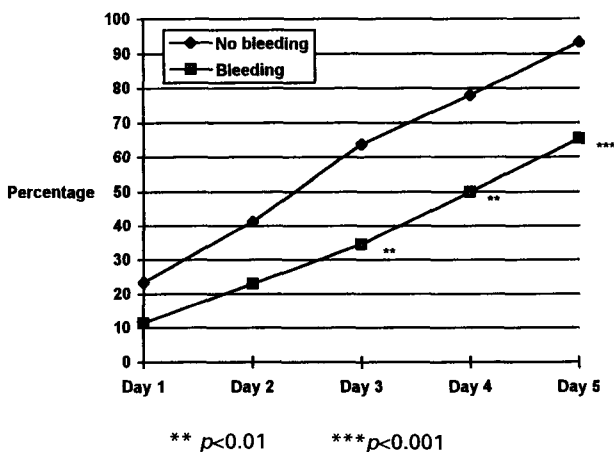


FIG. 5

The cumulative return of patients to a regular diet in relation to secondary haemorrhage.

TABLE II

NUMBER OF OTHER PHYSICAL AND BEHAVIOURAL CHANGES REPORTED BY 106 PATIENTS (PERCENTAGE OF PATIENTS AFFECTED)

| | |
|--|------------|
| Nightmare | 38 (35.8%) |
| Fear of hospital | 27 (25.5%) |
| Became quiet | 18 (17.0%) |
| Clingy | 7 |
| Restless or disturbed nights | 5 |
| Speech alteration (unclear, slurred, different) | 5 |
| Neck ache or stiff | 4 |
| Voice change (higher tone) | 3 |
| Cried a lot | 3 |
| Aggressive | 3 |
| Sleepy | 3 |
| Fear of doctors | 2 |
| Bedwetting | 2 |
| Woke up crying | 2 |
| Other negative changes (e.g. emotional, irritable) | 23 (21.7%) |
| Positive changes (one stopped bedwetting) | 5 |

inpatient experience – a large majority, 197 (69.4 per cent), were not in favour of the day-case option, only 87 parents (30.6 per cent) would have preferred a day-case procedure. This figure was independent of the timing of the operating list (Table III).

Discussion

The 0.34 per cent admission rate for post-operative secondary haemorrhage noted in this survey is similar to previously reported studies – 0.14 per cent and 0.9 per cent (Maniglia *et al.*, 1989; Colclasure and Graham, 1990). However the overall incidence of secondary haemorrhage (8.9 per cent) is greater than the 1.7 per cent, 6.4 per cent and 1.5 per cent rates quoted in other studies (Shott *et al.*, 1987; Haberman *et al.*, 1990; Reiner *et al.*, 1990). This difference is not due to operative method as the incidence of haemorrhage has been shown to be independent of intra-operative haemostasis technique (Choy and Su, 1992; Watson *et al.*, 1993). The higher reported incidence of secondary haemorrhage in this paper probably reflects enhanced data collection. Previous studies have tended to rely upon inpatient admission data alone as an indicator of bleeding. A post-operative telephone study of tonsillectomy patients that found a bleeding rate of nine per cent supports this hypothesis (O'Connor *et al.*, 1990). Although tonsillectomy is known to be associated with some post-operative bleeding, these data suggest a significant degree of morbidity may have been overlooked in most previous studies. It can be argued that with increasing financial constraints on hospitals the presence of blood stained saliva or frank blood in these patients is not significant if the patient did not require admission. However, the symptom can nevertheless still be

TABLE III

RETROSPECTIVE OPINION OF PARENTS FOR, OR AGAINST DAY-CASE TONSILLECTOMY

| | Morning list | Afternoon list | Total |
|-----------|--------------|----------------|-------|
| In favour | 31 | 56 | 87 |
| Against | 62 | 135 | 197 |
| Total | 93 | 191 | 284 |

Chi-squared test with Yates correction = 0.30, $p = 0.58$ (No significant difference between morning or afternoon group).

worrying for both patient and parents, especially if the relative frequency of such events is not appreciated.

It can be argued that morbidity might be likely to increase if, as was the case in this study, all grades of surgeons and anaesthetists are involved. However this operation is frequently performed by trainees (Benson-Mitchell and Maw, 1993) and the findings of the study are therefore likely to reflect accurately those of general ENT practice. This study has shown that the presence of organized clot is unrelated to secondary haemorrhage and should not delay discharge. Similarly, antibiotics appear to have no role in the management of such patients.

Inadequate food consumption after tonsillectomy in adults is significantly associated with an increased incidence of secondary haemorrhage (Cook, 1992). Post-operative nausea will inhibit food intake and in this study, it was nausea, rather than pain, which delayed the commencement of regular diet. Furthermore, this study showed that in children, secondary haemorrhage post-tonsillectomy was associated with a delayed return to regular diet.

Tonsillectomy is a painful procedure and analgesic intake is frequently required. It is clinically prudent to discharge all post-tonsillectomy patients with a safe analgesic. Referred otalgia is commonly associated with adenotonsillectomy, parents should be informed of the high incidence of this referred pain which can be ameliorated with appropriate analgesics.

Half of the patients consulting their family doctors with a cough were treated with antibiotics, though it is unclear if there was evidence of infection. However, non-productive coughing or clearing of the throat should be expected after pharyngeal surgery and antibiotic treatment is not normally indicated. In total, 38.7 per cent of patients who consulted their family doctor were treated with antibiotics. Unless there is clear evidence of a specific infection, antibiotics should not be prescribed as a matter of routine.

Other physical and psychological disturbances such as fears, bedwetting and sleep disturbances are indicative of the psychological effects of surgery in general, and similar disturbances have been reported in up to 55 per cent of children studied (James, 1960). Voice or speech changes and neck problems are probably directly attributable to this type of surgery.

Having established accurately the specific morbidity associated with tonsillectomy, there is a need to demonstrate whether day-case stay, possibly with altered post-operative analgesic support, can be shown to result in an improvement in this morbidity.

While it must be acknowledged that questionnaires about day-case stay conducted on parents of patients undergoing in-patient stay are, by their very nature, subjective and may have an inherent bias, similar questionnaires about in-patient stay for day-case attenders are conversely likely to be subject to an equal, but opposite, bias. In this study, based upon their experience of the post-operative period,

69 per cent of the parents would not have wished for day-case tonsillectomy for their child. These findings are comparable with the day-case preference rates reported by Benson-Mitchell and Maw (1993), and Tewary *et al.* (1993). The day-case preference rate in the latter study varied between 11 per cent pre-operatively and 16 per cent one day post-operatively, although by two days 46 per cent would have preferred day-case treatment. Mindful of the potential for bias alluded to above, these findings suggest that potentially there is a substantial majority of parents who are opposed to day-case tonsillectomy and this study highlights the need for a similar parallel study in day-case tonsillectomy patients.

While the uptake of day-case adenotonsillectomy in the USA, Canada, Finland and Israel has been cited when advocating the universal adoption of the procedure within the UK and recent papers have highlighted the relative safety of day-case surgery (Colclasure and Graham, 1990; Riding *et al.*, 1991; Tewary *et al.*, 1993) and stressed the use of intra-operative analgesia and exclusion of long lasting premedicants (Leighton *et al.*, 1993) to facilitate a rapid throughput tonsillectomy service. It is nevertheless very important to acknowledge the innate preference of the majority of parents involved in this operation when advocating day-case surgery for all. There may indeed be a sub-group of parents/patients whose home circumstances favour early discharge but it would seem undesirable to enforce such a blanket policy on all patients without ensuring that: facilities exist for high quality community support and parents/carers are fully counselled and made well aware of the expected post-operative morbidity associated with this procedure which this paper has demonstrated to be greater than generally recognized.

Conclusions

Tonsillectomy is associated with a substantial degree of post-operative morbidity. The full extent of which may not have been fully appreciated. Nausea, independent of pain, delays return to a normal diet which in turn predisposes to secondary haemorrhage. In this study, based upon their child's experience in the immediate post-operative period, a large majority of parents were found to prefer overnight stay after tonsillectomy – a finding which has implications for the instigation of day-case tonsillectomy. Parental and patient anxiety and other post-discharge morbidity should be carefully considered. The need for adequate parental counselling and provision of high quality community support should be fully addressed before the universal introduction of this type of day-case surgery.

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Appendix.

Abbreviated form of the questionnaire used for surveying post-tonsillectomy morbidity in children.

Name:

Age:

Sex:

1) What other procedures were performed with tonsillectomy?

| | |
|---------------------|--------|
| Adenoidectomy | YES/NO |
| Myringotomy/grommet | YES/NO |
| Others | |

2) How many times did the patient take painkiller?

Name of painkiller

Day 1 to Day 5 Number of times painkiller was taken (None/Once/Twice/3 Times/4 Times/>4 Times)

3) Did the patient feel sick (nausea or vomiting)? (Indicate the degree of nausea on the Scale)

Day 1 to Day 5
Nausea Scale 0 (None) 10 (Very Severe)

4) Please indicate if earache and bad breath is present or absent.

Day 1 to Day 5 YES/NO (Earache)
 YES/NO (Bad breath)

5) On what day after surgery did the patient return to eating a regular diet?

Day 1/2/3/4/5/5+

6) Did the patient see his/her family doctor after operation? YES/NO

Was medicine prescribed? YES/NO
Name of medicine

7) Did the patient cough or produce blood from the mouth after going home?

- YES/NO
 a. Blood-stained saliva/Frank blood
 b. **Which** date:.....
 c. Did you take your child back to the hospital because of the bleeding? YES/NO

8) How well or irritable was your child?

Day 1 to Day 5 Usual self/Occasional cry, try to play/Fussy, not interested in play/Constantly crying, difficult to comfort child.

9) Did you find any change in the behaviour of your child after the operation? YES/NO

Fear of hospital/Nightmare/Bedwetting
 Other changes of behaviour:

10) Considering your home circumstances and the condition of your child immediately after the operation, do you think you could look after him/her safely and adequately at home if he were sent home on the same day of the operation? YES/NO