

## Post-tonsillectomy morbidity statistics: are they underestimated?

J DOSHI, M DAMADORA, S GREGORY, S ANARI

### Abstract

**Background:** Post-tonsillectomy morbidity statistics are obtained when patients present to hospital with complications. The two common morbidities are pain and haemorrhage. Hospital-recorded morbidity rates may be an underestimation, as some patients are treated by general practitioners and are therefore not included in hospital audits.

**Methods:** Prospective, cohort, questionnaire study to assess: the post-tonsillectomy haemorrhage rate (i.e. actual rate versus hospital recorded rate); and the number of patients with post-operative pain and/or bleeding who were treated with antibiotics by their general practitioner.

**Results:** The response rate was 76 per cent (70/92). The actual rate of secondary haemorrhage was three times that noted in the hospital records (15.7 vs 5.7 per cent, respectively). Fifteen patients (21 per cent) required extra analgesia after discharge. General practitioners prescribed antibiotics for pain alone in six patients (11 per cent).

**Conclusion:** The actual post-tonsillectomy haemorrhage rate is much higher than that recorded in hospital statistics. General practitioners differ in their treatment of post-tonsillectomy patients presenting with pain alone; some prescribe antibiotics in addition to analgesia.

**Key words:** Tonsillectomy; Postoperative Complications; Medical Audit

---

### Introduction

Secondary haemorrhage and pain are the two common morbidities following tonsillectomy. Hospital post-tonsillectomy morbidity statistics are obtained when patients present to the otolaryngology department with a complication, via the casualty department or a general practitioner. However, up to 57 per cent of post-discharge patients with post-tonsillectomy symptoms present solely to a general practitioner.<sup>1</sup> The most common reason is pain,<sup>2,3</sup> for which general practitioners prescribe analgesia with or without antibiotics. Prescription of antibiotics may prevent some cases of secondary haemorrhage. There is a possibility that hospital-recorded morbidity rates are an underestimation, as some patients are treated only by their general practitioners and are therefore not included in hospital audits.

The aim of this study was to assess: the actual post-tonsillectomy haemorrhage rate (versus the hospital-recorded rate); and the number of patients with post-operative pain and/or bleeding who were treated with antibiotics by their general practitioner.

### Materials and methods

We conducted a prospective study of all consecutive tonsillectomies (including adenotonsillectomy) over a four-month period at Darlington Memorial Hospital in 2005. Biopsy tonsillectomies were excluded. Tonsillectomy methods included a variety of dissection techniques performed by surgeons of all grades.

All patients undergoing tonsillectomy were given a questionnaire (Appendix 1) on discharge. They were asked to complete it, based on events in the first 30 post-operative days, and to return it in the stamped, addressed envelope supplied. In the case of children, the parents or legal guardian were asked to complete the questionnaire. If no response was received, the patients were contacted by telephone and asked to complete the questionnaire.

On admission to the ward, all patients received an information letter explaining the study. Consent was obtained to contact them by telephone if no response was received. The project was approved by the hospital audit department.

From the Department of Otolaryngology, Darlington Memorial Hospital, UK.

Presented as a poster at the North of England ENT Society meeting, 10 March 2006, York, and at the 12th British Academy Conference in Otolaryngology and ENT Expo meeting, 5–7 July 2006, Birmingham, UK. Oral Presentation at the Midlands Institute of Otolaryngology meeting 5 January 2007, Sloke-on-Trent, UK.

Accepted for publication: 27 December 2006. First published online 19 March 2007.

**Results and analysis**

During the data collection period, 104 consecutive tonsillectomies were performed. Twelve tonsillectomies were excluded as a unilateral tonsillectomy for cancer investigation. Therefore, 92 patients were eligible for inclusion and were invited to take part in the study. Seventy patients returned a completed questionnaire (76 per cent response rate).

The study group comprised 25 adults (14 women and 11 men) and 45 children less than 16 years old (27 girls and 18 boys), with an age range of two to 69 years (mean, 17.9 years).

There were no episodes of primary haemorrhage. In total, 11 out of 70 patients suffered post-operative bleeding. Of these 11 patients, seven saw their general practitioner and four were admitted to hospital. This gave an actual post-tonsillectomy bleeding rate of 15.7 per cent, versus a hospital-recorded post-tonsillectomy haemorrhage rate of 5.7 per cent. Of the seven patients who saw their general practitioner for bleeding, three received antibiotics. The remainder received painkillers and re-assurance, as the bleeding had stopped by that stage. Fifteen patients (21 per cent) saw their general practitioner for pain; all received extra pain relief and six received antibiotics. A summary of results is shown in Figure 1.

**Discussion**

Post-tonsillectomy haemorrhage can be classified as primary (<24 hours post-operation) and secondary (>24 hours post-operation).<sup>4</sup> The cause of secondary haemorrhage is unknown. Theories of the actual cause of bleeding include loosening of a vessel tie or the loss of the superficial eschar on the tonsillar fossa following the use of diathermy. However, infection of the post-operative tonsillar bed is thought to

play a role.<sup>5,6</sup> Contamination of the post-operative tonsillar bed by organisms present in the tonsils pre-operatively is thought to produce local inflammation that hinders healing by secondary intention. The commonest organisms isolated from removed tonsils are *Haemophilus influenzae*, *Streptococcus viridans* and *Staphylococcus aureus*.<sup>7,8</sup> The use of post-operative antibiotics has been shown to result in a reduction in the percentage of these predominant pathogens in the tonsillar fossae.<sup>7</sup>

The routine use of post-operative antibiotics remains controversial. Some studies have shown a statistically significant decrease in post-operative morbidity if antibiotics are given (measured via pain scores, amount of analgesia required and time to resumption of normal diet).<sup>7,9</sup> Conversely, other studies have shown no significant difference in these variables.<sup>1,10</sup> Furthermore, none of these studies has shown a statistically significant difference in secondary haemorrhage rates if antibiotics are given.<sup>1,7,9,10</sup> Regardless of this conflicting evidence, antibiotics are standard treatment for patients presenting with a post-tonsillectomy secondary haemorrhage.<sup>2</sup>

Various studies have assessed the secondary haemorrhage rate in the community following tonsillectomy. Benson-Mitchell and Maw<sup>11</sup> assessed 100 consecutive children admitted for tonsillectomy and/or adenoidectomy. Of these children, 25 underwent tonsillectomy, 33 adenotonsillectomy and the rest adenoidectomy alone. Sixteen per cent (4/25) of the tonsillectomy group and 18 per cent (6/33) of the adenotonsillectomy group had some form of bleeding at home, as reported when their parents were contacted by telephone two weeks following hospital discharge. Raut<sup>12</sup> found a 16.9 per cent (34/200) secondary haemorrhage rate when patients were contacted at approximately 14 days

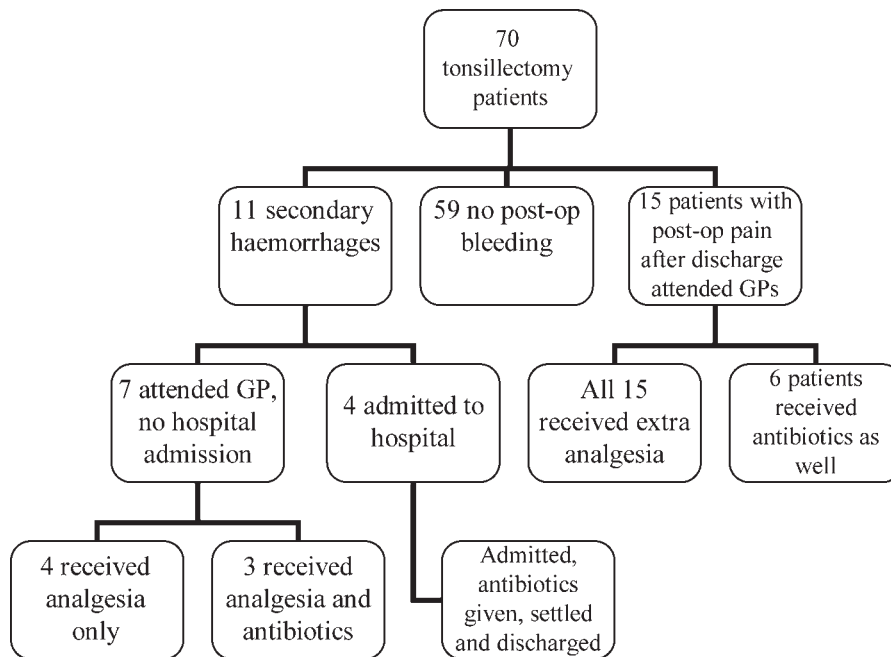


FIG. 1 Pathway for post-tonsillectomy patients with morbidity.

post-discharge; however, significant bleeding was not defined, and patients with a previous quinsy were excluded.

Despite attempts to grade the severity of secondary haemorrhage, there is no common classification for the severity of bleeding. Consequently, it is difficult to compare the true incidence of post-tonsillectomy secondary haemorrhage between different studies.<sup>4</sup> Studies that define a secondary haemorrhage as any amount of bleeding will naturally have a higher haemorrhage rate than those that define it as a patient requiring treatment under general anaesthetic.

We felt that any bleeding experienced by the patient following discharge should be recorded in our questionnaire, because in reality patients can rarely quantify their own blood loss or remember the exact details of the incident. Our actual secondary haemorrhage rate (i.e. any bleeding after 24 hours) of 15.7 per cent was consistent with the previously cited studies.

- **Post-tonsillectomy morbidity statistics are obtained when patients present to the otolaryngology department with a complication**
- **The two common morbidities following tonsillectomy are pain and haemorrhage**
- **Published theories of post-tonsillectomy secondary haemorrhage are reviewed**
- **The actual post-tonsillectomy haemorrhage rate was much higher than that recorded in hospital statistics**
- **General practitioners differ in their treatment of post-tonsillectomy patients presenting with pain alone; some prescribe antibiotics in addition to analgesia**

If patients have any post-operative problems, their first port of call is often the general practitioner. Studies have shown varying consultation rates, from 26 to 57 per cent.<sup>1,2,3,13,14</sup> Pain is the commonest reason for consultation following tonsillectomy,<sup>2,3</sup> as reflected in our study. Previous studies have shown that pain is maximal at about day five and then gradually declines.<sup>15–17</sup> The highest rate of general practitioner consultation was found by O'Reilly *et al.*;<sup>1</sup> 57 per cent (54/95) of post-tonsillectomy patients consulted a general practitioner in the first 10 post-operative days. Analgesia and antibiotics were prescribed for 33 per cent (31/95) and 43 per cent (41/95) of patients, respectively. The three commonest reasons for general practitioners to prescribe antibiotics were 'patients with malaise and pyrexia', 'the appearance of the post-tonsillectomy fossae' and 'increasing odynophagia'.<sup>2</sup>

Kuo *et al.*<sup>3</sup> found that 70 per cent (104/149) of post-tonsillectomy patients who presented to their general practitioners were prescribed antibiotics, regardless of whether there was any actual bleeding. Jones *et al.*<sup>14</sup> found that, of the 35 per cent (73/207)

of children who presented to their general practitioners following tonsillectomy, 73 per cent (53/73) were prescribed antibiotics. In this study, only 2.7 per cent of patients (2/73) presented to the general practitioner with bleeding. In our study, 22 patients visited their general practitioner, a consultation rate of 31 per cent (15 for pain, seven for bleeding). Of those fifteen who consulted their general practitioners for pain alone, six received antibiotics in addition to further analgesia.

## Conclusion

The actual post-tonsillectomy secondary haemorrhage rate was much higher than that recorded in hospital statistics. General practitioners prescribed antibiotics in some cases in which the presenting symptom was pain alone. Approximately 20 per cent of the patients in our study required extra analgesia from their general practitioner post-operatively. Providing post-tonsillectomy patients with an adequate and appropriate dosage of take-home analgesia is beneficial both to the patients' comfort and the general practitioners' resources.

## References

- 1 O'Reilly BJ, Black S, Fernandes J, Panesar J. Is the routine use of antibiotics justified in adult tonsillectomy? *J Laryngol Otol* 2003;**117**:382–285
- 2 Ghufoor K, Frosh A, Sandhu G, Hanif J. Post tonsillectomy patient care in the community. *Int J Clin Prac* 2000; **54**:420–3
- 3 Kuo M, Hegarty D, Johnson A, Stevenson S. Early post-tonsillectomy morbidity following hospital discharge: do patients and GPs know what to expect? *Health Trends* 1995;**27**:98–100
- 4 Windfuhr J, Sheehafer M. Classification of haemorrhage following tonsillectomy. *J Laryngol Otol* 2001;**115**:457–61
- 5 Cowan D, Hibbert J. Acute and chronic infection of the pharynx and tonsils. In: Kerr A, ed. *Scott-Brown's Otolaryngology*, 6th edn. London: Butterworth Heinemann, 1995; 1–24
- 6 Handler S, Miller L, Richmond K, Baranak C. Post-tonsillectomy haemorrhage: incidence, prevention and management. *Laryngoscope* 1986;**96**:1243–7
- 7 Colreavy M, Nanan D, Benamer M, Donnelly M, Blaney A, O'Dwyer T *et al.* Antibiotic prophylaxis post-tonsillectomy: is it of benefit? *Int J Paed Otolaryngol* 1999;**50**:15–22
- 8 Gaffney R, Cafferkey M. Bacteriology of normal and diseased tonsils assessed by fine needle aspiration: *Haemophilus influenzae* and the pathogenesis of recurrent acute tonsillitis. *Clin Otolaryngol* 1998;**23**:181–5
- 9 Telian S, Handler S, Fleisher G, Baranak C, Wetmore R, Potsic W. The effect of antibiotic therapy on recovery after tonsillectomy in children. *Arch Otolaryngol Head Neck Surg* 1986;**112**:610–15
- 10 Lee WC, Duignan MC, Walsh RM, McRae-Moore JR. An audit of prophylactic antibiotic treatment following tonsillectomy in children. *J Laryngol Otol* 1996;**110**:357–9
- 11 Benson-Mitchell R, Maw A. Assessment of sequelae at home following adenotonsillectomy. A basis for day-case management? *Clin Otolaryngol* 1993;**18**:282–4
- 12 Raut V. Bipolar scissors versus cold dissection tonsillectomy: a prospective, randomised, multi-unit study. *Laryngoscope* 2001;**111**:2178–82
- 13 Valtonen H, Qvarnberg Y, Blomgren K. Patient contact with healthcare professionals after elective tonsillectomy. *Acta Otolaryngol* 2004;**124**:1086–9
- 14 Jones T, Temple R, Morar P, Roland N, Rogers J. General practitioner consultations after a paediatric tonsillectomy. *Int J Paed Otolaryngol* 1997;**39**:97–102

- 15 Murthy P, Laing MR. Dissection tonsillectomy: pattern of postoperative pain, medication and resumption of normal activity. *J Laryngol Otol* 1998;**112**:41–4
- 16 Palme CE, Tomasevic P, Pohl DV. Evaluating the effects of oral prednisolone on recovery after tonsillectomy: a prospective, double blind, randomized trial. *Laryngoscope* 2000;**110**:2000–4
- 17 Toma A, Blanshard J, Eyon-Lewis N, Bridger M. Post tonsillectomy pain: the first ten days. *J Laryngol Otol* 1995;**109**:963–4

### Appendix 1. Post-tonsillectomy questionnaire

Please fill out this questionnaire one month after your tonsillectomy operation and send it back in the stamped, addressed envelope provided.

Name:  
Sex:  
Age:  
Operation date:  
Patient label:

Patient label
---------------

*After being discharged from the hospital:*

- 1 Did you have severe throat pain that prevented you from eating and drinking?  
(a) No  
(b) Yes
- 2 Did you have any bleeding from your throat?  
(a) No  
(b) Yes. It happened.....days after the operation.
- 3 Did the bleeding stop on its own?  
(a) No

(b) Yes

4 Did you seek medical advice from your GP for any of the following?

- (a) Pain: Yes No  
(b) Bleeding: Yes No

5 Did the GP give you any of the following?

- (a) Antibiotics  
(i) No  
(ii) Yes. I took.....(antibiotic's name) for.....days  
(b) Pain killers  
(i) No  
(ii) Yes

6 Did you need to be admitted to the hospital for any of the following?

- (a) Pain: Yes No  
(b) Bleeding: Yes No

Thank you

Address for correspondence:  
Mr Jayesh Doshi,  
Apartment 20, Adderstone Court,  
17 Adderstone Crescent, Jesmond,  
Newcastle upon Tyne NE2 2EA, UK.

Fax: 01706 646734  
E-mail: jayeshdoshi@hotmail.com

---

Mr J Doshi takes responsibility for the integrity of the content of the paper.  
Competing interests: None declared

---