

Effect of tonsillectomy on recurrent sore throats in adults: patients' perspectives

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Abstract

The aim of this study was to quantify the effect of tonsillectomy on the incidence of sore throats and its co-morbidity in adult patients. One hundred and nineteen adult patients were sent a standard questionnaire regarding their symptoms in the 12 months preceding and following their tonsillectomy. Outcome measures included the incidence of sore throats, total number of days with sore throat, amount of time taken off work or school, and number of visits to the general practitioner (GP). In addition, patients were asked to indicate the duration of their symptoms and whether or not they found the tonsillectomy effective in curing their sore throats.

Sixty-six patients (55.5 per cent) returned completed questionnaires. The age of the patients ranged from 16 to 39 years. The mean duration of symptoms was 8.3 years. On average, patients had 8.1 different sore throat episodes, 42 sore throat days, 21.4 days of sore throat related absence from work or school, and 5.9 visits to the GP in the 12 months before their operation. For the 12 months after surgery, these reduced to 0.9 episodes, four days, 2.2 days and 0.6 visits, respectively. This reduction was very significant ($p < 0.001$, Wilcoxon signed rank test).

After their surgery, more than half the patients achieved complete resolution of all the measured parameters mentioned above. Most of the remaining patients achieved at least 50 per cent resolution. Only three patients (4.8 per cent) achieved less than 50 per cent resolution. Ninety-five per cent of the patients found the operation effective in curing their sore throats and were glad they had had surgery.

In conclusion, retrospective questionnaire data must be interpreted with some caution, but this study suggests that tonsillectomy is effective in reducing the incidence, duration and co-morbidity of recurrent sore throats in adults; this must be balanced against the post-operative problems in a minority of patients.

Key words: Tonsillectomy; Sore Throats; Effectiveness; Percentage Resolution

Introduction

Tonsillectomy is one of the most frequently performed surgical procedures in children and young adults. In the year 2001/2002, 48 676 operations were carried out in England alone, for which 21 136 of the patients were 15 years of age and above.¹ The most common indication for tonsillectomy in adults is recurrent throat infections.² Several studies have quantified the benefit of the operation in children^{3,4} and a high satisfaction rates have been shown in adults,⁵ but, to date, no studies have quantified the benefits of tonsillectomy in adults.

Marshall *et al.* indicated that only 25 per cent of tonsillectomies carried out for recurrent throat infections were evidence based. However, their evidence was based only on the general practitioners' (GPs')

electronic record.⁶ In reality, ear, nose and throat surgeons list patients for tonsillectomy on the basis of the history provided by the patient in the clinic.

The aim of this study was to determine, from the patient's perspective, the actual benefit, if any, of the tonsillectomy operation, by assessing the direct effect of the surgery on the number of sore throat episodes, the duration of sore throats, the amount of time taken off work or school, and the number of visits to the GP.

Patients and methods

The Southmead Hospital information system was searched to identify all the 162 adult patients (aged 16 years and above) who underwent tonsillectomy

between November 1999 and October 2000. Their case notes were reviewed to identify cases in which the indication for tonsillectomy was recurrent sore throat. A total of 119 patients (73.5 per cent) were identified. Post-operative problems were identified from the case notes as well as the ward logbook. The authors developed a questionnaire (see Appendix) to quantify the effect of tonsillectomy on recurrent sore throats because there was no previously validated questionnaire to this effect. Patients were sent a questionnaire with an explanatory letter and a stamped, addressed envelope by our clinical audit department, independent of the surgical team, to encourage patients to respond freely.

Patients were requested to compare the symptoms during the 12 months before their operation with those in the 12 months following surgery, regarding the number of sore throat episodes, total number of days involved, amount of time taken off work or school, and number of visits to their GP. They were also asked to indicate how long they had suffered from sore throats, if they found the operation effective, and whether or not they would recommend the operation to someone else with similar problems, based on their own experience. Spaces for free comments were provided after most of the questions and at the end of the questionnaire.

Statistical analysis was performed using the SPSS statistical software package (version 10). The data showed evidence of non-normality, so a non-parametric test (Wilcoxon signed rank test) was used to compare various sore throat parameters before and after surgery.

Results

One hundred and nineteen questionnaires were sent to patients and 66 completed questionnaires were returned (55.5 per cent). At the time of this study analysis, the hospital information system indicated

TABLE I
DURATION OF SYMPTOMS BEFORE TONSILLECTOMY

Duration (years)	Patients	
	<i>n</i>	%
2	7	11.1
3	9	14.3
4	5	7.9
5	11	17.9
6	5	7.9
7	3	4.8
8	1	1.6
9	0	0
10	6	9.5
>10	16	25.4
Total	63	100

that 38 patients (31.9 per cent) had changed their address or had an unknown address. This group of patients represented 71.7 per cent of non-responders and was mostly under 20 years of age and presumably unsettled. Three of the returned questionnaires were excluded from analysis because of incomplete or non-specific responses (e.g. 'lots of sore throats'), leaving 63 questionnaires for the final analysis.

Patients' ages ranged from 16 to 39 years, with a mean of 22 years. There were 17 men (27 per cent) and 46 women (73 per cent). Table I shows the duration of symptoms before surgery in the studied patients. The mean duration of symptoms was 8.3 years, with a range of two to 30 years. Table II shows the various sore throat parameters in the 12 months preceding and the 12 months following tonsillectomy. There was a very significant reduction in all parameters in the 12 months following surgery, including the number of sore throat episodes, the total number of days involved, sore throat related

TABLE II
SORE THROATS IN THE 12 MONTHS BEFORE AND AFTER TONSILLECTOMY

Sore throat parameter	Before op	After op	<i>p</i> *
<i>Sore throat episodes (n)</i>			
Range	0–30	0–7	
Mean	8.1	0.9	<0.001
Median	7	0	
Reduced to zero (%)	N/A	57.1	
<i>Total sore throat days (n)</i>			
Range	0–140	0–48	
Mean	42	4	
Median	30	0	<0.001
Reduced to zero (%)	N/A	54	
<i>Sore throat related absence from work or school (days)</i>			
Range	0–70	0–28	
Mean	21.4	2.2	
Median	16	0	<0.001
Reduced to zero (%)	N/A	65.1	
<i>Sore throat related GP visits (n)</i>			
Range	0–30	0–6	
Mean	5.9	0.6	
Median	5	0	<0.001
Reduced to zero (%)	N/A	69.8	

*2-tailed Wilcoxon Signed Rank Test. Op = tonsillectomy; N/A = not applicable

absence from work or school, and the number of visits to the GP (Wilcoxon signed rank test).

There was a wide range of variability of the studied parameters among the patients. We therefore calculated the differences between the parameters before and after tonsillectomy in percentage terms for each patient, as we believed that this gave a better representation of the effect of tonsillectomy in the individual patient. The percentage improvement is shown in Table III. The majority of the patients had a more than 75 per cent resolution of all parameters following tonsillectomy. Only three patients (4.8 per cent) achieved less than 50 per cent resolution. One of these three patients actually had more time off work due to sore throats in the year after their tonsillectomy.

The high resolution rate was reflected in the fact that 60 patients (95.2 per cent) were glad they had had the operation. The same number of patients (60, 95.2 per cent) found the operation very effective or effective in curing their sore throats. Only 52 patients (82.5 per cent) would recommend the operation to a friend with a similar problem. All three patients (4.8 per cent) with less than 50 per cent resolution did not find it effective and would not recommend it. Another seven patients (11.1 per cent) who found the operation effective or very effective nevertheless would also not recommend it. This was due to different post-operative problems (as reflected in these patients' comments), the commonest of which was pain. One patient (1.6 per cent) 'did not know' whether to recommend it or not.

The different post-operative problems identified from the case notes and the ward logbook are shown in Table IV. The normal length of post-operative stay in our unit was one night. Eight patients (6.7 per cent) stayed for two nights and were therefore included in the summary of patients with post-operative problems. However, a post-operative stay of two nights is considered normal in some parts of the UK.⁷ A total of 15 (out of 119) patients (12.6 per cent) had problems at different times during the post-operative period. Pyrexia of

37.6°C or greater, with or without poor oral intake, with or without poor pain control, resulted in eight patients (6.7 per cent) staying for an extra night each after surgery and caused two patients (1.7 per cent) to be readmitted for an extra two nights each. No patient had reactionary haemorrhage. Secondary haemorrhage occurred in five patients (4.2 per cent) (including one delayed discharge) between the second and seventh post-operative day. Seven (46.7 per cent) out of the 15 patients with recorded post-operative problems responded. It appeared that patients with relatively more serious complications responded more. Four out of the five patients with secondary haemorrhage responded. Not surprisingly, these patients were less likely to recommend the surgery to others, even though they found it effective in curing their sore throats. On the other hand, patients with relatively minor post-operative problems necessitating only one extra night's stay were less likely to respond. Only one out of the seven patients in this category responded.

The majority of patients made free comments in the designated spaces at the end of questions. Some of the comments were on points already covered. Many of the patients (18, 28.6 per cent) commented specifically about experiencing severe post-operative pain, more than they had anticipated. Despite this, most of them felt the operation had been worth it. In addition, 11 patients (17 per cent) specifically commented that they wished they had had the operation sooner to save themselves years of suffering from sore throats.

Discussion

Tonsillectomy is a very common operation. However, very few studies have investigated the benefit of this procedure in adults. A 1991 study by Thompson found a high patient satisfaction rate, 88.8 per cent, after a minimum period of six months, with a general improvement in symptoms following tonsillectomy.⁸ Another study reported an even higher satisfaction rate, 98.8 per cent, one year following tonsillectomy.⁵ The trend in our

TABLE III
PERCENTAGE IMPROVEMENT IN SORE THROAT PARAMETERS AFTER TONSILLECTOMY

Improvement (%)	Patient sore throat episodes		Patient sore throat days		Patient absent days*		Patient GP visits	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
None before and after	1	1.6	1	1.6	7	11.1	2	3.2
100% (complete) resolution	36	57.1	34	54	41	65.1	44	69.8
75–99% resolution	18	28.6	17	27	7	11.1	9	14.3
50–74% resolution	6	9.5	8	12.7	5	7.9	6	9.5
25–49% resolution	0	0	1	1.6	0	0	1	1.6
1–24% resolution	0	0	0	0	0	0	0	0
0% (nil) resolution	2	3.2	2	3.2	2	3.2	1	1.6
Worse after	0	0	0	0	1	1.6	0	0
Total	63	100	63	100	63	100	63	100

*Absent from work or school. GP = general practitioner

TABLE IV
SUMMARY OF PATIENTS WITH POST-OPERATIVE PROBLEMS

Patient no.	Post-op problems	Management	Response?	Effective?	Glad to have op?	Would recommend op?
1	ENSB pyrexia*	Conservative	No	–	–	–
2	ENSB pyrexia	Conservative	Yes	E	Yes	Yes
3	ENSB pyrexia & poor oral intake	Conservative	No	–	–	–
4	ENSB poor oral intake & poor pain control	Conservative	No	–	–	–
5	ENSB pyrexia	Conservative	No	–	–	–
6	ENSB poor oral intake & poor pain control	Conservative	No	–	–	–
7	ENSB pyrexia & poor oral intake	Conservative	No	–	–	–
8	ENSB poor pain control & pyrexia; also 1-night readmission POD 7 for bleeding	Conservative (both events)	Yes	E	No	No
9	3-night readmission POD 2 for bleeding	Surgical	Yes	E	Yes	Yes
10	1-night readmission POD 6 for bleeding	Conservative	No	–	–	–
11	Ward attendance POD 6 for bleeding	Conservative	Yes	E	Yes	No
12	2-night readmission POD 6 for pain	Conservative	No	–	–	–
13	4-night readmission POD 7 for bleeding	Blood transfusion	Yes	E	No	No
14	2-night readmission POD 7 for pain, vomiting, pyrexia	Conservative	Yes	VE	Yes	Yes
15	Metallic taste (took 1 year to resolve)	Spontaneous resolution	Yes	VE	Yes	Yes

Patient data is shown in chronological order. *Pyrexia = greater than 37.5°C. Post-op = post-operative; op = tonsillectomy; ENSB = extra night's stay because of; E = effective; VE = very effective; POD = post-operative day; – = no response

study is similar, with a satisfaction rate of 95.2 per cent, 12 to 24 months after surgery. We sought to further quantify the benefits of tonsillectomy in adults; to our knowledge, this has not been addressed previously.

The median number of sore throat episodes experienced by patients in our study was seven (range 0–30). A complete resolution of sore throats and all associated morbidity was experienced by more than 50 per cent of our patients. Another 45 per cent experienced more than 50 per cent resolution. From a patient's perspective, tonsillectomy was effective in reducing the incidence and duration of recurrent sore throats in our study.

In UK practice, patients listed for tonsillectomy have to wait for a variable period before undergoing surgery. Paradise *et al.*^{3,4} demonstrated significant symptomatic improvement in a high proportion of children suffering from recurrent sore throats over a period of one year without surgery. About a quarter of the children who remained in the control (i.e. non-surgical) group (about 15 per cent withdrew to have surgery) had one or no episodes of sore throat over one year.³ This does not appear to be the case in adults. In one study, adult patients who were on the tonsillectomy waiting list for years did not experience any reduction in their symptoms,⁹ and in another study they did not lose their enthusiasm for surgery.⁵ In the latter study, satisfaction rate with the outcome of surgery increased from 98.8 per cent at one year to 100 per cent at three years. On the other hand, only 8 per cent of the non-operated group experienced symptomatic improvement over a period of two years, despite frequent antibiotics.⁵ Although this study did not

have a comparable control group, allowing for the small possibility of spontaneous resolution in adults, there remained a significant degree of improvement that can be attributed to tonsillectomy.

In a comparative audit of tonsillectomy throughout England and Wales,¹⁰ delayed discharge due to complications occurred in 4.5 per cent of patients, readmission in 6.5 per cent, reactionary haemorrhage in 2 per cent and secondary haemorrhage in 5 per cent, with 0.8 per cent returning to the operating theatre. We experienced delayed discharge due to complications in eight patients (6.7 per cent), readmission in six patients (5 per cent), no reactionary haemorrhage, secondary haemorrhage in five patients (4.2 per cent) and one patient (0.8 per cent) needing to return to theatre. One patient wrote a letter complaining about a metallic taste that persisted for about one year before slowly resolving (a case later published).¹¹ Taste disturbance is a known post-tonsillectomy complication that is probably under-reported.^{12,13}

Recurrent sore throats, although not a life-threatening problem, are associated with considerable and prolonged morbidity that is significantly reduced by tonsillectomy in adult patients. Patients therefore should be offered this procedure provided they are made aware of the morbidity associated with the operation itself.

Our respond rate of 55.5 per cent is considered low. One possible reason for patients not responding may be their dissatisfaction with treatment outcome. An overestimation of the degree of benefit would occur if significantly more dissatisfied patients were amongst the non-responders. However, another possible reason may be that a high proportion of

the study group were young adults, many of whom were in higher education and therefore presumably yet to settle. Thirty-eight (31.9 per cent) of the non-responders had an unknown or changed address at the time of analysis of the study, according to the hospital electronic patient record system. In hindsight, we should not have sent questionnaires to these patients. We sent our questionnaires based on the addresses in the patient case notes after a minimum period of 12 months, by which time many patients may have moved on. A similar patient questionnaire survey used in two large UK studies^{7,10} at four and 12 months post-tonsillectomy yielded response rates of 57.5 per cent and 45 per cent, respectively. Studies reporting higher response rates usually combine postal surveys with telephone requests.⁸

As the questionnaire survey was retrospective, patients' recollection of all the events surrounding their sore throats may not have been completely accurate. This study therefore highlights the clear need for prospective, randomized, controlled studies of tonsillectomy in adults. However, we believe the findings of this study merit presentation.

Appendix. Effect of tonsillectomy on recurrent sore throats in adults

Please tick the appropriate boxes and make any comments you consider relevant in the spaces provided.

- How long have you suffered with recurrent throat infections?yearsmonths
- Are you glad you had your tonsils removed?
Yes No Don't know
If 'no', please explain why not:.....
- How many different *episodes* of sore throats did you have in:
 - the 12 months before your operation?episodes
 - the 12 months after your operation?episodes
- How many *days* of sore throat did you have in:
 - the 12 months before your operation?days
 - the 12 months after your operation?days
- How many days did you take off work or school because of *sore throats* in:
 - the 12 months before your operation?days
 - the 12 months after your operation?days
- How many times did you visit your GP due to *sore throats* in:
 - the 12 months before your operation?visits
 - the 12 months after your operation?visits
- How effective was the operation in resolving your recurring sore throat?
Very effective Effective Not effective
 Worse off Don't know

- On the basis of your experience, would you recommend the operation to a friend with a recurring sore throat?
Yes No

Should you wish to make any other comments on this subject, please do so:

.....

Thank you for completing this questionnaire.

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