

## Day-case tonsillectomy: a review of the literature

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### Abstract

Adenotonsillectomies are performed increasingly as day cases in North America and Canada. This paper analyses reports where such tonsillectomies were performed. It is possible to successfully select a group with lower risk of complications. Haemorrhage occurs either early in the post-operative period or later than 24 hours after operation. With good organization tonsillectomies can be safely performed as day cases.

**Key words: Tonsillectomy; Daycase; Literature**

### Introduction

Guidelines published by the Royal College of Surgeons of England for Day-Case Surgery in 1985 conclude that removal of tonsils and adenoids is unlikely to be satisfactorily performed as a day-case procedure due to the risk of reactionary haemorrhage. Removal of tonsils and adenoids is one of the commonest operations, 80 970 having been performed in 1985 in England and Wales with an average in-patient stay of 3.1 days (Hospital In-Patient Enquiry, 1985). Financial savings are possible if this period can be reduced (Audit Commission for National Health Services, 1990).

Such considerations have prompted an increasing proportion of adenotonsillectomies to be performed as day cases in North America and Canada. However, the safety of these early discharges continues to be a source of concern. The reported experiences of complications is reviewed.

### Materials and method

All publications where adenotonsillectomies were performed as day cases in the last ten years are reviewed. Reports providing insufficient details about the procedure and complications were excluded.

Information about the patient population, selection criteria, type and time of occurrence of complications and their relationship to the population and operation were extracted and tabulated. Comparable data were analysed using the chi-squared test and Fisher's exact test.

### Results and analysis

The relevant data are summarized in Table I.

#### Patient selection

Day-case surgery was considered inappropriate for those with medical conditions such as major heart disease,

TABLE I  
SUMMARY OF DAY-CASE COMPLICATIONS

No.	Report and duration of study	Number	Primary haemorrhage		Secondary haemorrhage	Nausea/vomiting
			<6 hrs	>6 hrs		
1	Colaslasure Graham (1990); over 8 yrs	3340	6	1	29	10
2	Maniglia <i>et al.</i> (1988); over 12 yrs	1428	2	0	2	Not reported
3	Helmus <i>et al.</i> (1989); over 2 yrs	1088	9	2	Not reported	108
4	Riding <i>et al.</i> (1990); over 5 yrs	820		7	8*	20**
5	Reiner <i>et al.</i> (1989); over 3 yrs	608	7	0	9	7
6	Haberman <i>et al.</i> (1989); over 4 yrs	500		3	32	3
7	Segal <i>et al.</i> (1983); over 3 yrs	430	5	0	6	Not reported
8	Wagner <i>et al.</i> (1990); over 10 yrs	383	3	0	Not reported	12
9	Shott <i>et al.</i> (1987); over 9 mths	292	0	0	5	3
	Cumulative	8889	42***	3	91	163

\*Includes inpatients. \*\*Adenoidectomies only, includes inpatients. \*\*\*Includes 10 cases of bleeding within 24 hours.

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TABLE II  
DAY-CASE VERSUS INPATIENTS TONSILLECTOMY/ADENOTONSILLECTOMY COMPLICATIONS

Report	Operation	Primary haemorrhage	Secondary haemorrhage	Nausea/vomiting/dehydration
4	Day case Inpatient	1/140 2/208	$p = 1$ (ns)	
5	Day case Inpatient	7/548 13/372	$\chi^2 = 5.12$ $p = 0.023$ (Sig.)	9/548 17/372
			$\chi^2 = 6.92$ $p = 0.008$ (Sig.)	7/548 19/372
9	Day case Inpatient	0/292 0/192		3/292 4/129
				$p = 0.208$ (NS)
Cumulative	Day case Inpatient	8/980 15/709	$\chi^2 = 5.17$ $p = 0.022$ (Sig.)	9/840 17/501
			$\chi^2 = 8.90$ $p = 0.002$ (Sig.)	10/840 23/501
				$\chi^2 = 15.12$ $p = 0.000$ (Sig.)

NS = not significant. Sig. = significant.

airway disorders, bleeding diatheses and mental retardation. Patients with obstructive sleep apnoea were considered unsuitable by all except Helmus *et al.* (1990) and Colaclusure and Graham (1990). In addition Shott *et al.* (1987) felt children under three years were unsuitable.

The minimum social criteria before day case surgery was offered included adequate adult supervision, easy access to the hospital and a telephone.

### Complications

Reports 4, 5 and 9 include comparative data for inpatient and day cases. All three report significantly fewer complications following day-case operations (Table II), thus validating the selection criteria.

#### Primary haemorrhage

Between 0.14 and 1.16 per cent patients bled within the first 24 hours of operation (cumulative rate 0.5 per cent). Most of these primary haemorrhages were diagnosed before discharge. Three out of 8889 patients had to return to the hospital in the first 24 hours because of bleeding. Two were children, one needed an adenoid pack and the other was controlled by local measures to the tonsillar bed. The day cases had significantly less primary haemorrhage than inpatients (Table II).

#### Secondary haemorrhage

Between the second and thirteenth post-operative day 0.14 to 6.4 per cent of patients bled. Again, the selected patients who had day-case operations had a significantly lower incidence (Table II).

#### Nausea, vomiting and dehydration

Ten per cent of Helmus *et al.* (1990) patients had two or

more episodes of vomiting. The criteria for reporting these episodes vary, but up to 3.1 per cent needed treatment (Wagner, 1991). Day cases had significantly fewer episodes requiring treatment (Table II).

#### Adenoidectomy versus tonsillectomy

Riding *et al.* (1991) found no significant difference in the rate of complications while Reiner *et al.* (1990) and Colaclusure and Graham (1990) had no complications following adenoidectomy alone. The cumulative experience shows that adenoidectomy is followed by fewer complications than tonsillectomy or adenotonsillectomy (Table III).

#### Adults versus children

Children had significantly fewer complications than adults (Table IV). Reiner *et al.* (1990) looked at the complications in different age groups and found that these increased with age.

### Discussion

Most reports appeared to be from well-organized and fully staffed day surgery units with good nursing support.

It is possible to select patients with a lower risk of complications. The group considered unsuitable for day-case surgery were operated on as inpatients and went on to have more complications. It is therefore possible to screen out the high risk group. Shott *et al.* (1987) found that 26 per cent of the children did not fulfil their criteria for day surgery.

Nausea and vomiting are the commonest problems following tonsillectomy. Reiner *et al.* (1990) and Shott *et al.* (1987) gave patients their 24 hour fluid requirement intra-

TABLE III  
TONSILLECTOMY VERSUS ADENOIDECTOMY (DAY-CASES PLUS INPATIENTS)

Report	Operation	Primary haemorrhage	Secondary haemorrhage	Nausea/vomiting/dehydration
1	Tons. Ads.	7/2011 0/1329	$p = 0.046$ (Sig.)	9/2011 1/1329
			$p = 0.059$ (Sig.)	29/2011 0/1329
4	Tons. Ads.	3/348 13/941	$\chi^2 = 0.56$ $p = 0.454$ (NS)	3/348 5/941
			$\chi^2 = 0.45$ $p = 0.502$ (NS)	26/920 0/84
5	Tons. Ads.	20/920 0/84	$\chi^2 = 1.86$ $p = 0.172$ (NS)	26/920 0/84
			$p = 0.158$ (NS)	
Cumulative	Tons. Ads.	30/3279 13/2354	$\chi^2 = 2.38$ $p = 0.122$ (Sig.)	38/3279 6/2354
			$\chi^2 = 14.55$ $p = 0.000$ (Sig.)	55/2931 0/1413
				$\chi^2 = 26.85$ $p = 0.000$ (Sig.)

Tons. = tonsillectomy. Ads. = adenoidectomy. NS = not significant. Sig. = significant.

TABLE IV  
ADULTS VERSUS CHILDREN (ALL COMPLICATIONS)

Report no.	Children	Adults	Difference
2	1/290	3/138	(Fisher's) $p = 0.003$
5	46/807	26/193	$\chi^2 = 12.94$ $p = 0.0003$
6	14/288	21/212	$\chi^2 = 4.03$ $p = 0.044$
Cumulative	147/5711	77/926	$\chi^2 = 80.54$ $p = 0.000$

venously. Maniglia *et al.* (1989) gave steroids intraoperatively and routinely gave all their children antibiotics.

Most secondary haemorrhages in these reports were diagnosed before discharge. This may have resulted from earlier diagnosis due to more vigilant nursing and careful assessment before discharge. Most haemorrhages occurred either before discharge or later than 24 hours after operation (Figure 1). Only three children (0.33 per cent) returned to hospital with bleeding within 24 hours of operation. These three would have benefited from a longer period of observation. Patients were observed for two to eight hours following operation; Helmus *et al.* (1990) averaging four to six hours and Segal *et al.* (1983) three hours following adenoidectomy and three and a half hours following adenotonsillectomy.

After the first few post-operative hours, the first post-operative day is one of the least troublesome periods in adenotonsillectomy convalescence (Figure 1).

Day-case surgery is cost saving and has obvious advantages for child and parents. If the low incidence of return to hospital is considered acceptable then tonsillectomy done as a day case on selected patients with vigilant nursing and careful assessment before discharge does not pose undue risk.

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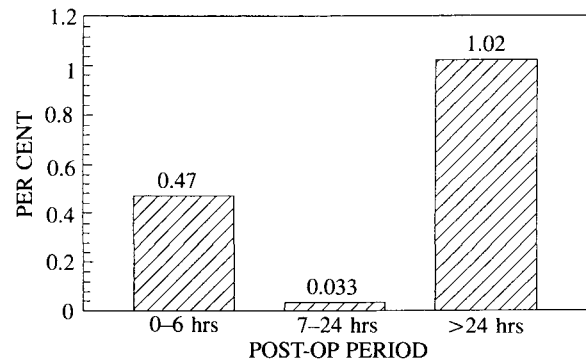


FIG. 1

Incidence of haemorrhage (n = 8889)

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