

# The science in day-case tonsillectomy

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An increasing number of tonsillectomies are being performed as day cases in North America and Canada. This paper meta-analyses all such reports. The collective wisdom from these confirms that it is possible to select a group of patients suitable for day-case tonsillectomy in whom it can be performed safely.

Key words: Day-case surgery, tonsillectomy, adenoidectomy

## 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<sup>1</sup> with an average inpatient stay of 3.1 days. Financial savings are possible if this period can be reduced<sup>2</sup>. However the safety of early discharge in these patients continues to be a source of concern.

## Literature review

All published reports where adenotonsillectomies were performed as day cases were reviewed (Table 1). Reports providing insufficient details about the procedure and complications were excluded.

### *Patient selection*

Day-case surgery was considered inappropriate for those with associated medical conditions such as major heart disease, airway disorders, bleeding diatheses and mental retardation. Patients with obstructive sleep apnoea were considered unsuitable by all except Helmus et al.<sup>5</sup> and Colclasure and Graham<sup>3</sup>. In addition Shott et al.<sup>11</sup> felt children < 3 yr 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

It is possible to select patients with a lower risk of complications. The group considered unsuitable as day cases were operated as inpatients and suffered more complications than those done as day cases. It is therefore possible to screen out a high-risk group. Shott et al.<sup>11</sup> found that 26% of the children did not fulfil their criteria for day surgery.

### *Primary haemorrhage*

Between 0.14% and 1.16% patients bled within the first 24 h of operation (cumulative rate 0.5%). Most of these primary haemorrhages were diagnosed before discharge. Three out of 8889 patients had to return to the hospital in the first 24 h 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 2).

Most reactionary 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 h after operation. Only three children (0.33%) returned to hospital with bleeding within 24 h of operation. These three would have benefited from a longer period of observation. Patients were observed for 2–8 h following operation; Helmus et al.<sup>5</sup> averaging 4–6 h and Segal et al.<sup>9</sup> 3 h following adenoidectomy and 3.5 h following adenotonsillectomy.

After the first few postoperative hours, the first post-

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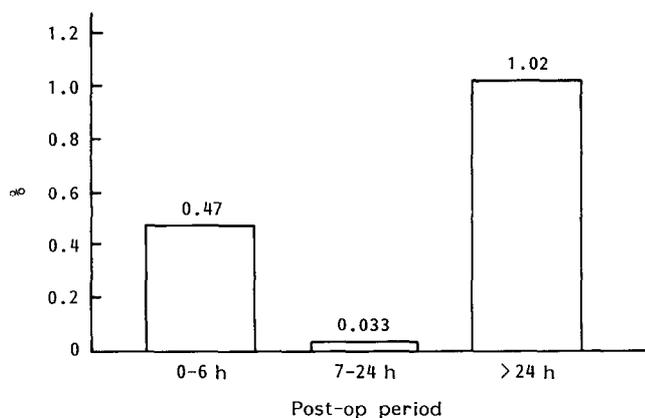
**Table 1.** Summary of day-case complications

No.	Report & duration of study	No.	Primary Haemorrhage		Secondary Haemorrhage	Nausea/vomiting
			< 6 hr	> 6 hr		
1.	Colclasure & Graham <sup>3</sup> (1990) over 8 yrs	3340	6	1	29	10
2.	Maniglia et al. <sup>4</sup> (1988) over 12 yrs	1428	2	0	2	Not reported
3.	Helmus et al. <sup>5</sup> (1989) over 2 yrs	1088	9	2	Not reported	108
4.	Riding et al. <sup>6</sup> (1990) over 5 yrs	820	7		8*	20**
5.	Reiner et al. <sup>7</sup> (1989) over 3 yrs	608	7	0	9	7
6.	Haberman et al. <sup>8</sup> (1989) over 4 yrs	500	3		32	3
7.	Segal et al. <sup>9</sup> (1983) over 3 yrs	430	5	0	6	Not reported
8.	Wagner et al. <sup>10</sup> (1990) over 10 yrs	383	3	0	Not reported	12
9.	Shott et al. <sup>11</sup> (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 h.

**Table 2.** Day case vs. inpatients (tonsillectomy/adenotonsillectomy) complications

Report	Operation	Primary haemorrhage	Secondary haemorrhage	Nausea/vomiting/dehydration
4	Day case	1/140	$P = 1$ (NS)	
	Inpatient	2/208		
5	Day case	7/548	$\chi^2 = 5.12$ $P = 0.023$ (Sig.)	9/548 $\chi^2 = 6.92$ $P = 0.008$ (Sig.)
	Inpatient	13/372		17/372 $\chi^2 = 11.84$ $P = 0.000$ (Sig.)
9	Day case	0/292		3/292 $P = 0.208$ (NS)
	Inpatient	0/192		4/129 (NS)
Cumulative	Day case	8/980	$\chi^2 = 5.17$ $P = 0.022$ (Sig.)	9/840 $\chi^2 = 8.90$ $P = 0.002$ (Sig.)
	Inpatient	15/709		10/840 $\chi^2 = 15.12$ $P = 0.000$ (Sig.)

**Figure 1.** Incidence of haemorrhage ( $n = 8889$ ).

op day is one of the least troublesome periods in adenotonsillectomy convalescence (Figure 1).

#### Secondary haemorrhage

Between the 2nd and 13th post-op day 0.14–6.4% patients bled. Again, the selected patients who had day-case operations had a significantly lower incidence (see Table 2).

#### Nausea vomiting and dehydration

Ten per cent of Helmus et al.'s<sup>5</sup> patients had two or more episodes of vomiting. The criteria for reporting these episodes vary, but up to 3.1% needed treatment (Wagner 1991<sup>10</sup>). Day cases had significantly fewer episodes requiring treatment (see Table 2).

#### Adenoidectomy vs. tonsillectomy

Riding et al. found no significant difference in the rate of complications while Reiner et al.<sup>7</sup> and Colclasure and

**Table 3.** Tonsillectomy vs. adenoidectomy (day case + inpatients)

Report	Operation	Primary haemorrhage	Secondary haemorrhage	Nausea/vomiting/dehydration
1	Tonsillectomy	7/2011 $P = 0.046$ (Sig.)	9/2011 $P = 0.059$ (Sig.)	29/2011 $\chi^2 = 19.32$
	Adenoidectomy	0/1329	1/1329	0/1329 $P = 0.000$ (Sig.)
4	Tonsillectomy	3/348 $\chi^2 = 0.56$	3/348 $\chi^2 = 0.45$	
	Adenoidectomy	13/941 $P = 0.454$ (NS)	5/941 $P = 0.502$ (NS)	
5	Tonsillectomy	20/920 $\chi^2 = 1.86$	26/920 $P = 0.158$ (NS)	26/920 $P = 0.158$ (NS)
		$P = 0.172$ (NS)		
	Adenoidectomy	0/84	0/84	0/84
Cumulative	Tonsillectomy	30/3279 $\chi^2 = 2.38$	38/3279 $\chi^2 = 14.55$ (NS)	55/2931 $\chi^2 = 26.85$
	Adenoidectomy	13/2354 $P = 0.122$ (Sig.)	6/2354 $P = 0.000$ (Sig.)	0/1413 $P = 0.000$ (Sig.)

**Table 4.** Adults vs. 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	$\chi^2 80.54$ $P = 0.000$

Graham had no complications following adenoidectomy alone. The cumulative experience shows that adenoidectomy is followed by fewer complications than tonsillectomy or adenotonsillectomy (Table 3).

#### Adults vs. children

Children had significantly fewer complications than adults (Table 4). Reiner et al. looked at the complications in difference age groups and found that these increased with age.

#### Discussion

Most episodes of reactionary haemorrhage occur early in the postoperative course and are noticeable before discharge. Maniglia et al.<sup>4</sup> reported 1428 tonsillectomies, Reiner et al.<sup>7</sup> 608, Segal et al.<sup>9</sup> 892, Wagner et al.<sup>10</sup> 383 and Shott et al.<sup>11</sup> 292 without any reactionary haemorrhage following discharge as day cases. Early recovery from the anaesthetic and adequate analgesia is essential if patients are to be discharged early. In this practice, induction of anaesthesia with propofol and diclofenac sodium given as a suppository, intraoperatively, has been found to be effective.

Good organization is the key to successful day-case surgery. Very short periods between preoperative assessment and surgery, a day unit run by experienced and efficient staff, assessment before and after operation by a senior anaesthetist and the operating surgeon, and provision of easily accessible back-up are all fundamental to a satisfactory outcome. Day-case surgery is cost saving and has obvious advantages for children and parents. If the low incidence of return to hospital is considered

acceptable then tonsillectomy done as a day-case procedure on selected patients, with vigilant nursing and careful assessment before discharge, does not pose undue risk.

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