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May 2012

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Aria Masoom  
*Aga Khan University*

Shabbir Akhtar  
*Aga Khan University*

Hassan Nabeel Humayun  
*Aga Khan University*

Mubasher Ikram  
*Aga Khan University*

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## Recommended Citation

Masoom, A., Akhtar, S., Humayun, H., Ikram, M. (2012). Daycare adeno-tonsillectomy: is it safe in developing countries. *Journal of the Pakistan Medical Association*, 62(5), 458-60.

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## Daycare adeno-tonsillectomy: Is it safe in developing countries?

Aria Masoom, Shabbir Akhtar, Hassan Nabeel Humayun, Mubasher Ikram  
Aga Khan University Hospital, Karachi, Pakistan.

Corresponding Author: Mubasher Ikram. Email: mubasher.ikram@aku.edu

### Abstract

**Objective:** To determine the safety of daycare adeno-tonsillectomy in a tertiary care centre.

**Method:** A retrospective chart review of 207 patients who had undergone tonsillectomy and/or adenoidectomy as daycare procedure in Aga Khan University Hospital, Karachi, between January 2008 to March 2009 was done. Demographic data as well as complications requiring unplanned admissions were recorded. Any emergency room visit in the first 24 hours was also noted. Telephonic calls were then made to collect the first 24-hour, post-operative data in order to know if there were any complications requiring visit to some nearby health facility. All data was analysed using SPSS version 19, while Fisher's exact test was used to compare complications with respect to age groups.

**Results:** Of the total, 132 were males and 75 females. Only one (0.48%) patient developed bleeding soon after surgery which required a revisit to the operating room. Another 13 (6.2%) patients were admitted for reasons like post-operative vomiting, desaturation and raised blood pressure. There were no hospital visits within the first 24 hours after the patient was discharged. Besides, 172 (83%) patients preferred daycare surgical procedures if given an option again.

**Conclusion:** Daycare adeno-tonsillectomy is a safe practice which can help to save resources in developing countries.

**Keywords:** Daycare procedure, Tonsillectomy (JPMA 62: 458; 2012).

### Introduction

Tonsillectomy with or without adenoidectomy is one of the oldest and the most frequently performed surgical procedures by otolaryngologists which started way back in the first century AD.<sup>1</sup>

Daycare adeno-tonsillectomy is a well-established practice in the advanced world as shown by Chaing<sup>2</sup> in a review of 40,000 cases, but it is still a matter of debate in the developing world. As surgical practice continues to shift from inpatient post-surgical admission to outpatient daycare surgery, it is important to evaluate the safety of the approach in various social environments.

Daycare adeno-tonsillectomy cases were started at the Aga Khan University Hospital (AKUH), Karachi, in 1997.<sup>3</sup> To establish the safety of the procedure, we conducted an audit and noted the complications of the procedure, any emergency room (ER) visits and unplanned hospital admissions of patients who were operated upon as an out-patient.

### Patients and Methods

Retrospective chart review of patients who had undergone tonsillectomy or adeno-tonsillectomy, using ICD

Codes 28.1 and 28.6, was done. The cases related to a 15-month period, from January 2008 to March 2009, at the Aga Khan University Hospital, Karachi.

General anaesthesia induction, intravenous paralytics, narcotics along with antiemetic according to the weight was the routine for all patients. Tonsillectomy was performed by monopolar cautery in all cases. Adenoid curette was used for all adenoidectomies.

A total of 238 files were reviewed out of which 207 fulfilled the inclusion criteria. We included only those patients who were planned as daycare procedures, and excluded those having various medical conditions that required planned overnight hospitalisation. At least 1 post-operative visit in the out-patient was necessary, a week after surgery, or earlier if required.

Incomplete records and techniques other than monopolar cautery for tonsillectomy and curette method for adenoidectomy were also excluded.

The study included all age groups and both genders. Any delay in discharge due to complications or admission from daycare along with ER visits in the first 24 hours was searched for.

Indications of the procedures included recurrent

tonsillitis, upper airway obstructive symptoms or sleep apnoea, recurrent peritonsillar abscess and unilateral tonsillar hypertrophy. The indication of the procedure in children below 3 years was mostly obstructive sleep apnoea.

Patients were kept for at least 4 hours in the hospital to observe for any complications and were discharged later if they recovered uneventfully. Any complication requiring admission was noted.

Optimal/uneventful recovery was defined as when patient was vitally stable, alert and oriented, tolerated enough fluids orally so there was no more need for intravenous fluids and adequate pain control.

Telephonic calls were then made to the patients or their parents, to inquire about any complications occurring at home with the first 24 hours of surgery, requiring visit to some nearby health facility. During the follow-up visit, patients or parents were further questioned about their experience about daycare surgery and, if given another chance, will they opt for daycare or inpatient procedure.

SPSS version 19 was used for statistical analysis. Fisher's exact test was used to compare complications with respect to the age groups. A p value of less than 0.05 was taken as significant.

## Results

Of the 207 cases in the review, 150 related to tonsillectomies, while there were 57 adeno-tonsillectomies. In the study populations, 18 patients also underwent bilateral myringotomies and Grommet (ventilation tubes) insertion. In terms of gender, 75 (36%) were females, while 132 (64%) were males.

Patients were divided into 3 age groups: Group I, 3 years or below; Group II, 3-10 years; and Group III, above 10 years. Group I had 6(2.9%) patients; Group II, 103(49.8%); and Group III, 98(47.3%) patients.

The co-morbidities of patients, which could affect the recovery process included asthma (16), and obesity (14). Only 1 patient had reactionary haemorrhage from the tonsillar fossa, soon after the surgery, and was taken back to

**Table-1: Indications of surgery.**

Indications	Frequency (%)
Recurrent tonsillitis	146(70.5%)
Upper airway obstructive symptoms	14(6.8%)
Recurrent tonsillitis and upper airway obstructive symptoms	33(15.9%)
Glue ear	3(1.4%)
Any other	3(1.4%)
Recurrent tonsillitis + glue ear	3(1.4%)
Upper airway obstruction + glue ear	5(2.4%)
Total	207

**Table-2: Age distribution.**

Age	Frequency (%)	Complication rate	P value
3 years and below	6(2.9%)	0	
3.1 years to 10 years	103(49.8%)	14(6.8%)	
Above 10 years	98(47.3%)	33(15.9%)	<0.001
Total		207	

the operating room, and bleeding was stopped under general anaesthesia. In the remaining 206 patients, no post-operative haemorrhage was noted in the recovery phase and there was no hospital visit with the first 24 hours. Other post-operative complications included nausea and vomiting, de-saturation and raised blood pressure.

A total of 13 patients required unplanned admission: 1 due to desaturation, 2 with post-operative contracted vomiting not settling with intravenous anti-emetics, and 2 for raised blood pressure, post-operatively. Eight patients had raised BP per-operatively. They were all in the adult age group and were admitted for overnight monitoring. All of them were discharged the following morning.

All the patients who were discharged after uneventful recovery, were contacted to inquire about the initial 24 hours post-operatively. Eleven patients complained of severe pain, 2 had vomiting and 2 had post-operative fever. None of these patients visited our hospital or any health facility near their homes for these complications. On inquiry about the choice between inpatient versus daycare procedure, 35 (17%) preferred post-operative overnight stay, while 172 (83%) said they would prefer daycare procedure, if required, in the future.

Total unplanned hospital admission rate was 6.2%, while the rate of post-operative haemorrhage was 0.48%.

When we compared the complication rate in different age groups, it was found to be statistically significant (p value <0.001), with the highest percentage in patients above 10 years.

## Discussion

Tonsillectomy with or without adenoidectomy is a well-established daycare procedure in properly selected adults as well as children in the developed world, but unfortunately, despite the lack of resources, most of the patients are admitted in our part of the world.<sup>4</sup>

The benefits of daycare surgery include cost-effectiveness, less pressure on inpatient beds, less psychological trauma for the patients undergoing surgery as well as their families and less infection rate due to short hospital stay.<sup>5</sup>

Conversely, limitations of daycare surgery include managing unplanned admissions post-operatively, and the

consequences of delayed treatment, if required, of any complication.<sup>5</sup>

Post-operative complications of adeno-tonsillectomy are either due to surgery or anaesthesia.<sup>6</sup> Occasional but life-threatening post-operative haemorrhage, post-operative pain, pyrexia, and nausea or vomiting are some of the troublesome complications.<sup>7-9</sup> Post-operative de-saturation and pulmonary complications, especially in patients with upper airway obstructive symptoms, may lead to a prolonged hospital stay.

Keeping all these in mind, one has to be very careful in selecting daycare patients. Earlier, the reluctance to perform adeno-tonsillectomy in children younger than 3 years was because of their small airway and low blood volume reserves.<sup>10</sup> Recent advancement in anaesthesia and surgical techniques proved that the procedure can be done on a daycare basis in younger children.<sup>11</sup> This is also proved from our study because 8 (3.8%) out of 207 patients enrolled were 3 years of age or below .

In a study carried by Shott, the acceptable complication rate was reported in 10%.<sup>12</sup> Complication rates are different in different studies as Ross et al<sup>11</sup> documents post-operative haemorrhage to be 2.9%, Postma and Folsom<sup>13</sup> to as low as 0.4% and Granell,<sup>5</sup> as high as 6.27%. A local study showed no difference between the haemorrhage rate of daycare tonsillectomies and tonsillectomies done as inpatients. No patient had reactionary bleeding in a sample of 400 patients.<sup>5</sup> We had 0.48% post-tonsillectomy bleed, i.e. only one patient bled in the immediate post-operative period out of 207.

Granell<sup>5</sup> reported 8.3% total unplanned hospital admissions, Postma<sup>13</sup> 13.8% and Ross<sup>11</sup> as high as 22%. In the current study, 6.2% of the patients were admitted as in-patient, who were first planned as daycare. We had no ER visits or admissions but 0.8-1% is reported in the literature.<sup>5,9,14,15</sup>

Interestingly, the complication rate came out to be significantly different in different age groups. This is most likely due to higher rate of secondary haemorrhage in older patients. There was no complication in children below 3 years and the highest complication rate (15.9%) was seen in

patients above 10 years. As secondary haemorrhage occurs after 5 days of surgery, it has no bearing on performing surgery as a daycare or inpatient procedure. Our early complication rate (14 out of 207, 6.7%) is within the accepted international norm of less than 10%.<sup>12</sup>

## Conclusion

Daycare adeno-tonsillectomy is a safe procedure in patients of all age groups. A resource-depleted country should encourage daycare facilities.

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