RESEARCH STUDY

KCMJ 2013; 9(2): 57-60

*Ahmed Humadi (FICMS) [a]

Day Case Tonsillectomy in Children

ARTICLE INFORMATION

ABSTRACT

Authors addresses:

[a] Department of Otolaryngology Head and Neck Surgery, Surgical specializations Hospital, Medical City Complex, Baghdad, Iraq

* Corresponding Author
E-mail address: ahmedhumadi@yahool.com

Article history:

Received; May, 21, 2103.
Revised form; June, 14, 2103.
Accepted; June, 21, 2103.

Keywords:

Day case
Tonsillectomy
Children

Background: Day case surgery has become widely accepted as a safe alternative to the inpatient care in up to 70% of the cases at a children's hospital. It has the advantage of minimizing the psychological trauma of hospitalization, decreasing nosocomial infection, less costly and frees up hospital beds.

Objectives: To assess the advantages and disadvantages of this type of surgery.

Methods: this is a prospective study, in which two hundred thirty childhood tonsillectomies were performed as a day-case in the department of otolaryngology at Al Shaheed Gazi hospital, Medical City Complex during the period from October 2009 to September 2010. The patients age range from 3-12 years (Mean 7.2 years).

Results: 46.08% males and 53.91% females were included. A total of two hundred twenty three patients were discharged home six hours after the operation. It's found that the incidence of reactionary hemorrhage was 0.8% and the cases presented within 5 hours after leaving the theater. In 99.2% of cases, there was no evidence of serious reactionary hemorrhage.

Conclusions: day case tonsillectomy in children is likely to be safe if the patients are discharged after 6 hours period of postoperative observation in day-case unit.

Introduction:

Day case surgery has become widely accepted as a safe alternative to the inpatient care in up to 70% of the cases at a children's hospital .It has the advantage of minimizing the psychological trauma of hospitalization, decreasing nosocomial infection, less costly and frees up hospital beds [(1)].

The idea of an early discharge from the hospital is not new. Not so long ago a morning Guillotine tonsillectomy was often followed by discharge home at the same afternoon [(2)]. Short stay in hospital is beneficial both to the child, his/her family and the department allowing more efficient use of available beds and resources. With increasing demands on surgeons to reduce the length of the stay in hospital, there is an increase pressure to perform day patient tonsillectomy. Adenotonsillectomies are performed increasingly as day cases in North America and Canada. With good preparation tonsillectomies can be safely performed in this method [(3)].

Tonsillectomies have been performed on same day basis in Walsgrave Hospital in Coventry and analysis of the result shows that it is possible to perform tonsillectomies safely on a same day basis [(3)]. Several evaluations of day case tonsillectomy in the United States suggest that it is safe and an acceptable practice. Day case tonsillectomy in children and adults is considered safe and acceptable in North America using both conventional and laser methods [(4)].

The tonsil develops from the 2nd pharangeal pouch. It is oval mass situated in the triangular tonsillar fossa between the diverging palatoglossal and palatopharangeal folds. The medial surface of the tonsil is free; the lateral surface is covered by fibrous capsule separating it from pharyngeal aponeurosis. The upper pole may extend up into soft palate and the lower pole may extend downwards beside the base of tongue .The tonsil is larger in childhood, when it is more active, and gradually become smaller during puberty [(5-9)].

Bleeding: divided to Operative, Reactionary (within 24 hours after surgery) and Secondary [3rd- 4th post-operative days] [(10)]. The severity of bleeding after tonsillectomy was rated on scale of 0-3; grade zero: reflect no observed blood, grade one: reflect mild bleeding with fresh blood noticed in the saliva, which stopped spontaneously requiring no intervention, grade two: hemorrhage considered moderate bleeding which was controlled either by chemical or electrical cautery, grade three: hemorrhage was severe and significant bleeding requiring return to the operation room for haemostatic control [(10)].

Bleeding may be recognized by excessive swallowing, rising pulse rate, generalized irritability and blood appearing from the corner of the mouth or nostrils. The following immediate measures are to be taken: removal of clot from the tonsillar bed and application of pressure by means of a swab on holder, if the bleeding persists, i.v infusion must be set up and blood taken for grouping and cross matching, and the patient should return to the theater and bleeding controlled under general anesthesia.

Late post-operative bleeding usually occurs from the 3rd to 10th postoperative day. Such bleeding is believed to be due to necrotizing tonsil, a ruminants and unrecognized blood clots or infection.

The perception of the post-operative pain increase with age, throat pain is often accompanied by referred pain with most frequently occurs in ears [10].

Post-operative earache is fairly common after tonsillectomy and usually referred pain from the tonsillar fossa, although, occasionally this will herald the onset of a secondary infection. Infection of the tonsillar fossa, when occur, it can be recognized by increasing rather than decreasing pain around the end of the 1st post-operative week, and earache seems to be particularly common. The fossa look normal, but combination of pyrexia with increase pain leaves little doubt that there is infection. [11]. Care less or complicated operations may cause hypernasal speech, pharyngeal stenosis, lesions to the tongue, teeth, nerves, and trauma to the vessels [12].

This study aims to identify the specific morbidity of day case tonsillectomy in children, particularly the incidence and timing of reactionary hemorrhage and therefore to establish a safe time period for same day discharge.

Methods:

In this study, 230 childhood tonsillectomies were performed as a day case procedure in the department of Otolaryngology at Al-Shaheed Gazi Hospital, Medical City Complex, for the period from October 2009 till September 2010. Additional surgical procedures (Adenoidectomy, Myringotomy with or without insertion of ventilation tube) were performed in 107 patients.

The criteria for selection of suitable patients for day case surgery in our study were the following:

1. Distance from the patient's home to the hospital must not be more than 50km and arrange for suitable transportation.
2. There should be no bleeding tendency.
3. There should be no history of central sleep apnea.
4. There should be no major medical problems (valvular heart diseases, sickle cell anemia, sever asthmatics).
5. Surgery should not be less than one week after an attack of tonsillitis or upper respiratory tract infection.
6. There must be a positive parental attitude toward assuming responsibilities for caring for their child and clear instructions given to the parents to return to the hospital if bleeding occurs.
7. There should be no aspirin containing medications taken for two weeks prior to surgery.

Each patient received thorough preoperative checkup including:

- History: emphasis given to any recent infection or bleeding tendency.
- Physical examination: including general and E.N.T. examination.
- Laboratory investigation: complete blood examination, chest x-ray, Prothrombin time (PT) and Partial Thromboplastin Time (PTT).

All patients were operated upon under general anesthesia with indotracheal intubation. Tonsillectomies were performed by extra capsular dissection technique by all grades of surgeons. Meticulous hemostasis was maintained by ligating the bleeding zones or coagulating them by cauterization. Post operative antibiotics and oral analgesics were given to all patients. Otoscopic examination was performed in those patients who developed otalgia to exclude ear infection. Examination of the tonsillar beds was done six hours after the operation to exclude bleeding. The patients were examined again in the 1st and 10th post-operative days. Standard same day – Stay discharge criteria are listed in Table 1.

Table 1: Standard same day – Stay discharge criteria.

Criteria
Swallow, Cough, and gag reflexes present.
No respiratory distress.
Vital sign stable.
Able to ambulate.
Minimal nausea, Vomiting, Dizziness, and Pain.
Alert and oriented as to person and date.

Results:

A total of 230 childhood tonsillectomies were performed as day case procedures. The patients' age ranged from 3 to 12 years. One hundred twenty four patients (53.9%) were female and 106 patients (46.1%) were male.

Seven children (3.0%) experienced grade 1 hemorrhage 2-6 hours post-operatively. grade 3 hemorrhage occurred in 2 patients (0.8%) at 3-5 hours post-operatively. There was no bleeding occurs between the 6th postoperative hours and the morning of the 1st post-operative day. Two cases (0.8%) of secondary hemorrhage occurred in the 3rd and 6th post-operative days respectively. There was no bleeding from adenoidectomy bed postoperatively.

Elevation in temperature greater than 39°C orally occurred in three patients (1.3%) within the 1st six hours after surgery. The fever developed 5 hours after surgery in two patients and six hours after surgery in one patient. These cases treated by cold sponge, paracetamol syrup, intravenous hydration and their discharge delayed to the morning of the 1st postoperative day.

Nausea and vomiting occurred in 10% of patients (once or twice). Protracted emesis noted within the 1st six hours postoperatively in 2 children. This requiring intravenous hydration, antiemetic drug and several hours delay in discharge.

All patients develop variable degree of throat pain. Pain in the throat was observed in 90% of the patients at the first post operative day follow up; pain in all patients (100%) was relived by oral medication. Ability to drink was good in 60%, fair in 35%, and poor only in 5% of the patients.

Bleeding from mouth was not observed in any patient (0%), while 10% of the patients experienced headache and 31% had otalgia.

Discussion:

Hemorrhage is the most serious complication of tonsillectomy and is responsible for the majority of post tonsillectomy fatalities [14]. Children are kept in hospital to detect the presence of reactionary hemorrhage and are sent home before any secondary hemorrhage is likely to be present. Canter and Rogers, found in their study on 250 child undergoing tonsillectomy, aged between 2 and 15 years, that if reactionary hemorrhage is to develop, it will do so within the 1st twelve hours and only infrequently after this period [2]. Capper and Randall, found in a study on 1969 child under 10 years of age, who underwent

tonsillectomy that only five (0.29%) were returned to theatre and the bleeding occur most frequently within 12 hours of operation [15]. Chowdhury et.al, carried out a retrospective review on 6842 tonsillectomies and adenoidectomies performed over 7 years period at the Montreal Children Hospital. The incidence of reactionary hemorrhage was 1% with 78% of these bleeds within 12 hours of surgery. Only 1/3 of these hemorrhage required second anesthesia to control the bleeding [16].

In the study from Ohio by Carithers et.al, they recommend an 8 of 10 hours post operatively stay to minimize the risk of postoperative complications [17]. Over one year period 1000 tonsillectomies and/or adenoidectomy were studied by Guida and Mattuci and they found that the incidence of reactionary hemorrhage is 1.1% and the greatest percentage of the complications (bleeding, fever and vomiting) occurs within the 1st 6 postoperative hours [18]. In Europe, the day-case tonsillectomy rate in children is slowly increasing; One hundred children aged 3-16 years had day-case tonsillectomy (n=38) or adenotonsillectomy (n=62). Peri-operative and post-operative complications were recorded. Parents were phoned the next day and 1-4 months after the operation. Parents' opinions of day-case surgery and consultations with healthcare professionals during the 2-week recovery period were recorded. Ninety children went home the day of the operation. Vomiting was the most frequent complication. No primary hemorrhages occurred. Called the next day, 100% of parents felt that their children were better served spending their first night at home as compared with staying in hospital. 5% of patients visited a physician and 13% called for advice. Children were taken back to hospital only due to secondary hemorrhage. In conclusion, most parents considered day-case tonsillectomy to be suitable for their family. Consultation rates were low. Careful patient selection and adequate pre-operative information are prerequisites for day-case tonsillectomy [19].

In this study, the incidence of serious reactionary hemorrhage was 0.8%. Two patients bled in the 1st five post-operative hours and require return to theatre to control the bleeding. The 0.8% incidence of secondary hemorrhage noted in the study is similar to previous reported studies as illustrated in table 2. These cases were readmitted to the hospital and treated conservatively, the bleeding stop without surgical intervention.

Cases of high grade pyrexia and protracted emesis occurred in the 1st six operative days. All the patients develop variable degree of throat pain. Tonsillectomy results in significant degree of post-operative pain due to disruption of mucosa, glossopharyngeal and vagal fibers and from spasm of pharyngeal muscles. Post tonsillectomy pain is generally troublesome for 24 - 72 hours after operation. The average daily analgesic requirement was reduced steadily over the study period.

Adenotonsillectomy is generally safe surgery, but surgeons should be cognizant of potential complications and be prepared to manage them. Nasopharyngeal valving may be altered by velopharyngeal incompetence or nasopharyngeal stenosis. Sore throat, otalgia, fever, dehydration, and uvular edema are more common postoperative complaints. Less common complications include atlantoaxial subluxation, mandible condyle fracture, infection, eustachian tube injury, and psychological trauma [20].

Pain, nausea, vomiting, drowsiness and anxiety about the operation and post-operative course were all reasons given for not wanting to go home on the day of surgery [21]. The justification for the increased use of day surgery is that it increases efficiency by reducing costs per case while maintaining the quality of care.

Table 2: Incidence of Reactionary and Secondary Hemorrhage in Children.

Authors	Year	Reactionary hemorrhage	Secondary hemorrhage
Carmody	1982	0.9%	0.7%
Capper & Randal	1984	0.29%	—
Herdman& Bates	1986	0.37%	—
Chowdhury, Tewfik & Schloss	1988	1%	1.2%
Yardly	1992	0.3%	—
Kanerva, Tarkkila & Pitkarauta	2003	0%	—
The present study	2009	0.8%	0.8%

Conclusions:

Results of the present study showed no difference in the incidence of reactionary hemorrhage between the inpatient and outpatient procedure. Indicating that tonsillectomy can be done safely on an outpatient basis if the patient is discharged after six hours period of postoperative observation.

Recommendations:

In order to ensure patient safety with minimum post-operative morbidity when performing day case procedure, certain guidelines are necessary:

1. Careful patient selection and attention to prior medical history will avoid unnecessary post-operative complications.
2. Evaluation of the family social situation and preoperative parental counseling will ensure patients' post-operative safety.
3. Meticulous intraoperative hemostasis is essential.

Recovery room observation for a minimum of six hours postoperatively by skilled and specially trained personal will facilitate uneventful discharge and prevent discharge of patients noted to have postoperative difficulties.

References:

1. Connor GO. Day care tonsillectomy study. Canadian J Anesthesia 1990;
2. Canter RJ, Rojers J. Tonsillectomy. Home after 24 hours?: Journal of laryngology and otology 1985; 99
3. Tewary AK. Day case Tonsillectomy. Journal of Laryngeal and Otology 1995.
4. Raine NMN, Whitte HB, Marks NJ, Ryan RN, et.al. KTP. Laser tonsillectomy: A potential day - case procedure? Journal of Laryngol and Otology 1995; 532.
5. Snell R. Clinical embryology for medical students, 2nd edition. Boston, Little Brown, 1975.
6. Langman J. Medical embryology, 4th edition. London, Williams and Wilkons 1981.
7. Beasley P. Anatomy of pharynx and oesophagus. Alan G Kerr. Scott-Brown's otolaryngology, 5th ed. 1, GB,Butter worth, 1987.

8. Maran AGD, Logan Turner's Disease's of the Nose, Throat and Ear. 10th ed., London, Burler& Tanner, 1988.
9. Groves J, Gray RF, Downton D, Blau A. Synopsis of Otolaryngology, 4th ed., GB, John Wright and Sons, 1985.
10. Niels R. Complications of tonsillectomy and adenoidectomy; Otolaryngologicclincs of North America 1987.
11. Cowan DL, Hibbert J. Scott-Brown's Otolaryngology. 6th ed., GB Bath, 1997.
12. Guida RA, Mattucci KF. Tonsill and Adenoid surgery as an Out Patients Procedure, is it safe? Arch Otolaryngol Head and Neck surgery 1989.
13. Bailey and Love's: short practice of surgery. Hong Kong, Chapman and Hall, 1991.
14. Carmody D. Post Tonsillectomy hemorrhage. Journal of laryngol and Otology 1982.
15. Capper JWR, Randal C. Post operative hemorrhage in tonsillectomy and adenoidectomy in children. Journal of laryngol and Otology 1994.
16. Cowan D, Hibbert John. Tonsil and Adenoids: adams D and Cinamound M. Scott Brown's Otolaryngology 6TG wd., GB, Bath 1997.
17. Christain Helmus. Same Day Stay Adenotonsillectomy. Laryngoscope 1990.
18. Guida RA, Mattucci KF. Tonsillectomy and Adenotonsillectomy, an inpatient or outpatient procedure? Laryngoscope 1990.
19. Kanerva M, Tarkkila P, Pitkaruta A. Day Case Tonsillectomy in children: Parental attitude and consultation rate. Department of Otolaryngology, University of Helsinki, july 2003.
20. David A, Randall MD, Michael E. Hoffer MD. (Complications of Tonsillectomy and Adenoidectomy) San Diego, California ,Departments of Otolaryngology and Clinical Investigation, Naval Medical Center ,Reprint requests: LCDR D. A. Randall, MC, USN, c/o Clinical Investigation Department, Naval Medical Center, San Diego, CA 92134-5000
21. Pringle MB, Cosford E, Beasley P, Brightwell AP. Day-case tonsillectomy-is it appropriate? Clinical Otolaryngology & Allied Sciences 1996; 21(6): 504-511.