A Study on Tonsillectomy, Adenoidectomy and Adenotonsillectomy Operation

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Out of total 588 ENT operations, 218 patients underwent tonsillectomy, adenoidectomy and adenotonsillectomy operation in 5 years in between 2009-2013 in Dinajpur Medical College Hospital, Dinajpur were studied in this series. It was 37.1% of total ENT operations done. Of which adenoidectomy was 5.5%, adenotonsillectomy 9.0% and tonsillectomy was 22.6%. Adenoidectomy was done between ages 2.5 to 18 years, highest being in 6-9 years (53.1%). Adenotonsillectomy was performed between the ages 2.5-16 years, highest being in 6-10 years (39.6%). Tonsillectomy was done between 4-46 years, highest being in between 10-19 years age group (43.2%). In all cases, male were predominant. The percentage of male and female was 62.5% and 37.5% in adenoidectomy, 60.4% and 39.6% in adenotonsillectomy and 52.6% and 47.4% in tonsillectomy respectively. Among the complication of operations, primary haemorrhage (1case), reactionary haemorrhage (2 cases), tonsillar fossa infection (2 cases), secondary haemorrhage (1 case), pulmonary infection (2 case), hyperplasia of tonsillar remnant (1 case) were found. Average hospital stay after operation in an uncomplicated case was 24 hours. Average time taken for operation was 35 minutes for tonsillectomy, 42 minutes for adenotonsillectomy and 25 minutes for adenoidectomy. None of patient received preoperative antibiotics, but they received peroperative parenteral and postoperative oral antibiotics Cephradine as prophylactic purposes. There was no anesthetic complication nor any death from adenoidectomy, adenotonsillectomy or tonsillectomy operations studied in this series.

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Introduction

Tonsillectomy, adenoidectomy and adenoidectomy are commonly performed ENT operations in our country. The exact number of this operation performed annually is not known to us. But in USA over 3,40,000 operations are performed annually.[1] According to JAMA, it compromises 10% of all operation.[2] In 1985, this becomes the 4th most frequently performed procedure comprising only 2.5% of all operation.[3] When the population of USA was about 220 million whereas about 200,000 tonsillectomy and adenoidectomy operations were performed combindly or separately all ages annually in UK.[4] Few studies have been carried out to investigate the incidence, average hospital stay and complications of these operations. Only serious complication generally encountered during the early recovery phase following this operation is reactionary haemorrhage though the operation is simple and less complicated. This study was designed to see the incidence of these operations, their age, sex relation, average hospital stay and socioeconomic condition, dwelling condition and dietary habit of the patients.

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Methods

Between the years 2009 to 2013, total 218 tonsillectomy, adenoidectomy and adenotonsillectomy operations were performed in ENT department of Dinajpur Medical College Hospital, Dinajpur, which were included in this series. Preoperative evaluation was done on attending the ENT OPD. After admission, a detailed history was taken and they were re-examined to find out proper indication for the operations which are as follows: (a) History of recurrent tonsillitis, how many attacks, at least 3 attacks in a year for last 2 years (b) H/O attack of peritonsillar abscess. (c) Enlarged tonsils or adenoid causing respiratory or swallowing difficulty. (d) Persistence of CSOM, recurrent ASOM. (e) Enlarged tonsils without ulceration demands histopathological examination for suspicion of malignancy. (f) Rarely for access to excision of elongated styloid process. (g) Recurrent rhinosinustis or secretory otitis media, where and tonsillar infection were suspected to be the predisposing causes.

After noting the indication criteria, particular care was taken to exclude cases with acute infection of adenoid or tonsils, recurrent respiratory tract infection and history of bleeding tendency in a patient or family. Then the patients were prepared for operation under general anesthesia.

The operations were performed by surgeons of varying experiences from house surgeons to professor. Tonsillectomy was performed by dissection method, adenoidectomy by curettage method under-cuffed endotracheal tube general anesthesia with pharyngeal pack. To obtain haemostasis at operation, packing with gauze pieces with or without ligature of the bleeding vessels was done in all cases of tonsillectomy. In adenoidectomy, only packing was done to obtain haemostasis. In no case, electrocautery nor diathermy was used.

During the post operative period, pulse rate was recorded every 15 mins for 1st 3 hrs and then 30 minutely for next 2 hrs then hourly for next 4 hrs, then 4 hourly till discharge from hospital. Swallowing reflex noted carefully (normally at 2-3 min interval one swallowing reflex) Blood pressure, temperature, respiratory rate were recorded and tonsillar fossae examined at least 4 times and patients were discharged after 24 hrs of operation if found uneventful. The patients were then followed up on 3rd, 7th and 30th POD or if necessary, when any problem arose. The rate of follow up is 100% on 3rd and 7th POD, 90% on 30th POD. Those who failed to attend subsequent follow up, were considered as complication free.

Patients were closely observed and findings were recorded as follows in first 24 hrs: (a) pulse rate, tonsillar fossae, nasal cavities, ears, mouth cavity, temperature, and blood pressure, respiratory rate, swallowing frequency, and heart and lungs examinations. (b) on 3rd and 7th POD, tonsillar fossae examination for slough color, pain, clot, other ENT findings and pulse, respiration rate, lungs and heart examination on 3rd month and (c) on 30th POD, any complaints of patients of the patients, e.g. pain in throat, change of voice, hyperplasia of tonsillar remnant, post operating scaring of fossa or nasopharynx and nasal regurgitation and change of voice.

Whenever tonsillar infection or secondary haemorrhage were detected, the patients were re-admitted and kept under close observations for necessary management. Tonsillitis for hyperplasia of remnant of tonsil cases were also re-admitted excision under general anesthesia again follow-up like tonsillectomy.

Results

In present series, different type of ENT operations under study with their percentage is shown in Table-I. Here altogether

tonsillectomy, adenoidectomy and adenotonsillectomy are 37.1% of total ENT operations of which only tonsillectomy constitute 22.6%. Out of total 32 adenoidectomy, highest incidence is found in age group between 6-12 years and it is 53.1% and male is 20 (62.5%) and female is 12 (37.5%) where male is more than female.

Table I: Incidence of ENT operations under Study

Operations	Total number	Percentage
All ENT operation in study period	588	100%
Tonsillectomy, adenoidectomy and adenotonsillectomy (all together)	218	37.1%
Tonsillectomy	133	22.6%
Adenoidectomy	32	5.5%
Adenotonsillectomy	53	9.0%

Table II: Age incidence in adenoidectomy (n =32)

Age (Years)	Total number	Percentage
Below 3	2	6.2%
3-5	10	31.2%
6-12	17	53.1%
above 13	3	9.4%
Total	32	100.0%

Table III: Age distribution of tonsillectomy (n = 133)

Age (Year)	Total Number	Percentage
Below 10 years	18	13.8%
10-19 years	57	43.2%
20-39 years	51	39.1%
Above 40	5	3.8%
Total	133	100.0%

So table-III shows maximum age incidence in tonsillectomy is in between 10-19 years, i.e. 43.2% where male is 70 (52.6%) and female is 63 (47.4%). So male and female are almost same with slightly male predominance.

Table IV: Age distribution of adenotonsillectomy cases: (n = 53).

Age (Years)	Total number	Percentage
Below 3 years	1	1.8%
3-5 years	20	37.8%
6-9 years	21	39.6%
10-15 years	10	18.9%
Above 15	1	1.8%
Total	53	100.0%

The table shows the highest age incidence in adenoidectomy is in between 6-9 years which is 39.6% and male is 32 (60.4%) and female is 21 (39.6%) where male is more than female.

Table V: Complications of operation under study.

Complications	Age (Yrs)		%
	Male	Female	
Primary haemorrhage	6	-	0.5%
Reactionary haemorrhage	28	20	0.9%
Infection of tonsillar fossa	8	15	0.9%
Secondary haemorrhage	-	20	0.5%
Hyperplasia of tonsillar remnant	-	18	0.5%
Pulmonary infection	16	18	0.9%

Table VI: Operative trauma

Operative trauma: (Total 6)	Number	%
Lip injury	1	
Tongue injury	1	1.8
Pillar injury	2	
Death	Nil	

Only one case, it took 2 hours to control primary haemorrhage. In this case, bleeding time was 5 mins which is slightly higher than average but within upper normal limit. The case was managed by re-ligatures, catgut stitches in same sitting of anesthesia.

For reactionary haemorrhage, only two cases were returned to operation theatre for control of haemorrhage by re-ligature under endotracheal general anesthesia in between 2

to 6 hours of postoperative period. Both of them, one unit of blood transfusion was needed. There were excessive fibrosis in both tonsillar fossae in both cases due to repeated tonsillar infection. Both cases were adult, one male and one female.

Two cases were noted for infection in tonsillar fossae following tonsillectomy. This was due to failure of antibiotic, ill health of patient and excessive trauma on tonsillar fossae during operation. These cases were managed by change of antibiotic from oral cotrimoxazole to cephalosporin. Both the patients had their changed color of slough in tonsillar fossae with rise of temperature in 1st POD and severe pain in throat. The patients' throat swabs were sent for culture and sensitivity test prior to change of antibiotic, which also revealed growth of Staphylococcus aureus in both the cases and sensitive to cephalosporin and cloxacillin. The patients were kept in hospital for 5 – 7 days.

One secondary haemorrhage was found in 5th POD. The patient was adult female and managed by re-hospitalization, change of antibiotic, antiseptic mouthwash and one unit of blood transfusion. Culture of throat swab was revealed no growth.

One case of hypertrophy of tonsillar remnant of tonsil with repeated acute infection was found after 1 year of tonsillectomy possibly due to incomplete dissection, which was managed by excision of the tonsillar remnant at the lower pole of right side of tonsillar fossa under endotracheal general anesthesia.

Two cases of pulmonary infection were detected on 3rd and 4th POD which was managed by keeping them in hospital for 5-6 days more and giving higher oral cephalosporin. One case was male and other was female. Both of them were adult.

Minor operative trauma was noted in lip (1 case), tongue (1case), pillars (2 cases). These were due to trainee surgeons.

Average time taken for operation was 35 minutes for tonsillectomy, 42 minutes for adenotonsillectomy and 25 minutes for adenoidectomy. No ligature was given in 23 cases and most of them were children. Average 2 ligatures were given in majority of cases which were 1-0 braided silk. Sometimes catgut was also used.

Discussion

In the present study, there was no reactionary or secondary haemorrhage in adenoidectomy. But in case of tonsillectomy and adenotonsillectomy, reactionary haemorrhage occurred in only 0.9% which was less than the findings of Kumar Pronoy (1%).[5]In this series, secondary haemorrhage was recorded in only one case (0.5%). It was also less than the findings of Kumar Pronoy(2%)[5].Handler et al (2.48%).[6]It also nearly the findings of Richmond KH et al who studied 784 tonsillectomy and adenotonsillectomy patients and found reactionary haemorrhage 1% and secondary haemorrhage in 2%children.[7]It was also nearly the findings of Chowdhury K et al who studied 6842 patients and found total number of post operative haemorrhage was 2.5%.[8]

Only two cases (0.9%) patients were returned to operation theatre for control of reactionary haemorrhage by re-ligature under general anesthesia. It is almost similar to ten years retrospective study that showed only 7 of 750 patients (0.93%) required a second general anaesthesia to control haemorrage.[9]

In this series, only 2 cases of tonsillar fossa infection were found (0.9%). The infection was the result of least movement of the pharyngeal wall and tongue musculature due

to pain to the throat following excessive trauma to the fossae during operation. This act is similar to the view of Depscer.[10]

In the present series, minor operative trauma was found in upper lip (1 case), tongue injury (1 case), tonsillar pillar injury (2 cases). All the injuries can be explained by the fact that about 25% of the operations were done by surgeons of less than 2years experience and use of same sets of instruments having wear and tear on them.

From history of the patients, socio-economic condition, dwelling condition with ventilation dietary source was studied. The patients belonged mostly to middle class (52%), poor class (45%), and rarely from affluent class (3%). In this study series, the poor and middle class people are more due to minimum operative cost in Govt. hospital. Affluent people usually do their operation in private clinic or in other big cities where higher operative facilities are available. Most of the patients lived in overcrowded houses. Light ventilation was adequate in 47% cases. Food intake was not balanced in majority of the cases. They had to live on average unbalance diet consisting mainly of rice supplemented by vegetables, pulses and occasionally fish and meat.

Peroperative and postoperative complications in this present series very less than previous published papers. This was possibly due to proper case selection, pre and postoperative management. The patients of this country are very much conservative about operative treatment and very few undergo surgery although they are advised. So operated patients and their attendants are much more careful about their pre and post operative cares.

Conclusion

We had some limitations. As it is a new medical college, here all the adequate instruments, adequate surgeons are not available. So, complicated operations are not usually performed here. In next, we have the aim to operate more complicated operation and in near future post graduate course will be continue in this medical college and then more surgeons, more facilities will be available and we will be able to do operate all type of operation.

References

1. Carithers JS, Gebhart DE, William JA. Postoperative risk of pediatrics adenotonsillectomy, Laryngoscope 1987; 97:422-428.
2. Tonsillectomy morbidity (Editorial)JAMA 1965;194:824
3. West Midlands regional health Authority. Hospital Activity Analysis Figures, 1965,1985.
4. Mawson SR. Disease of the tonsils and adenoids. In groves BJ.editor. The pharynx and larynx. Scott-Brown's disease of ear,nose and throat,5th edition .London:Butterwoth:1979;141.
5. Kumar pronoy, An audit of the complications of paediatric tonsillectomy, Adenoidectomy and Adenotonsillectomy in IPGMR(former)and DMCH, Dhaka (a study of 100 cases) Dissertation Dhaka Bangladesh college of physicians and surgeons.1997.
6. Handler 3D, Millar L, Richmond KH, Baranaw U. Post-tonsillectomy haemorrhage: incidence, prevention and management. Laryngoscope 1986; 96:1243-1247.
7. Rechmond KH, Wetmore RF, Baranak C. post operative complications following tonsillectomy and adenoidectomy who is at risk. Int J Pediatr Otorhinolarynlogy 1987;13(2):117-124

8. Chowdhury K. Tewfik TI, Schloss M. Post tonsillectomy and adenoidectomy haemorrage, J Otolaryngology,1988;17(1):46-49.
9. Schroeder WA Jr. Post-tonsillectomy haemorrhage: A ten years retrospective study MO Med 1995;92(9):592-595
10. Depscer JH. Post-tonsillectomy analgesia: the use of benzocaine logenges. J Laryngol Otol 1988: 102:813-814.