Original Research Article

Adenoidectomy - Using microdebrider or conventional - A comparative study

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Abstract

Background: Adenoidectomy is among the most common operations performed in children worldwide. Conventional adenoidectomy is commonly performed by blind digital palpation of the adenoid mass in the nasopharynx and then removal using adenoid curettes with hemostasis by way of postnasal packing. Complete removal is difficult to determine. Now a days removal of adenoids is done under vision using endoscope and microdebrider and is preferred modality of treatment. **Objective:** Comparative study of conventional method adenoidectomy and endoscopic assisted microdebrider adenoidectomy. **Method:** Prospective case study. 50 patients underwent adenoidectomy via endoscopic assisted microdebrider or conventional method from 2018-2020. The patient were followed up to 4 months of post-operative period. The patient were evaluated in following terms: nasal obstruction, snoring, nasal discharge, ear discharge, decreased hearing. **Results:** 50 patients were followed up and the study was significant. **Discussion:** In the evaluation of the various types of surgical treatment for adenoid hypertrophy, literature shows similar results to our study, finding similar results between endoscopic assisted microdebrider and conventional method of adenoidectomy in the improvement of the nasal obstruction, snoring, mouth breathing, nasal discharge, ear discharge and decreased hearing. **Conclusion:** The chances of post-operative complications like bleeding, incomplete removal of adenoids is less in microdebrider assisted adenoidectomy but it takes a longer operative time.

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INTRODUCTION

Adenoidectomy is among the most common operations performed in children worldwide. In 1999 in the United Kingdom, a total of 60,000 patients underwent tonsillectomy with or without adenoidectomy, and another 9,000 underwent adenoidectomy alone. In addition to this surgical work load, physician consultations for the associated symptoms of nasal obstruction, snoring and sleep-disordered breathing account for a significant part of the total visits to otolaryngology and allergic specialists. These symptoms can impair a child's quality of life and may have unfavorable developmental effects that predispose the child to sleep-related breathing abnormalities later on. Airway obstruction related to adeno-tonsillar-hypertrophy can be associated with long-term consequences such as failure to thrive and sleep disturbance leading to inability to concentrate, day time somnolence, and low results of psychometric tests[1]. Adenoidectomy in children is a difficult operation to perform well. Conventional adenoidectomy is commonly performed by blind digital palpation of the adenoid mass in the nasopharynx and then removal using adenoid curettes with hemostasis by way of postnasal packing. Complete removal is difficult to determine[2]. Now a days removal of adenoids is done

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under vision using endoscope and microdebrider and is preferred modality of treatment.

AIMS AND OBJECTIVES

1. To study the advantages of endoscopic assisted powered adenoidectomy in comparison with conventional curettage adenoidectomy.
2. To compare the blood loss in both the procedures.
3. To compare the recurrence rate in both the procedures.
4. To compare post operative symptoms associated with both the procedures.

METHODOLOGY

The study was conducted on 50 patients who attended the out-patient department of Otorhinolaryngology in The Government Medical College Kota and attached group of hospital, Kota from June 2018 to October 2020.

SAMPLE SIZE: 50

FOLLOW UP PERIOD: 4 months

SELECTION CRITERIA

• Patients with adenoid hypertrophy in the age group between 5-13 years.

• Adenoid enlargement causing obstructive sleep apnoea.

• Adenoid enlargement causing otitis media with effusion.

• Patients with nasal obstruction, snoring and 4 (or) more episodes of recurrent upper respiratory tract infection.

• Patients with adenoid enlargement causing recurrent rhinosinusitis.

• Adenoid hypertrophy causing adenoid facies, hyponasal speech, growth and orofacial disturbances, and cardiopulmonary complications

All the cases of adenoid hypertrophy were diagnosed clinically and confirmed by X-ray examination. After getting the informed consent duly signed, these patients were subjected to detailed systemic and ENT examinations.

PRE-OPERATIVE ASSESSMENT

X-RAY (soft tissue neck lateral view)

ROTINE BLOOD INVESTIGATIONS

OBSERVATION AND RESULTS

Table 1: Total No of Cases

Group	Number of Patients	Mean Age group
1	25	10.04
2	25	9.2

Table 2: Sex Ratio

Sex	Group		Total
	1	2	
Male Child	13(52%)	10(40%)	23(46%)
Female Child	12(48%)	15(60%)	27(54%)

Female preponderance of 54%

Table 3: Adenoid Grade

Adenoid Grade	Group		Total
	1	2	
1	4(16%)	0(0%)	4(8%)
2	10(40%)	6(24%)	16(32%)
3	9(36%)	14(56%)	23(46%)
4	2(8%)	5(20%)	7(14%)

Table 4: Nasal Obstruction Index

Nasal obstruction index	Group		Total
	1	2	
1	4(16%)	1(5%)	5(10%)
1.5	5(20%)	1(4%)	6(12%)
2	9(36%)	6(24%)	15(30%)
2.5	5(20%)	7(28%)	12(24%)
3	1(4%)	10(40%)	11(22%)
3.5	1(4%)	0(0%)	1(2%)

30% of patients have nasal obstruction index of 2. 24% of patients have nasal obstruction index greater than 3

Table 5: Degree of Obstruction seen in X-rays

Obstruction seen in X-rays	Group		Total
	1	2	
Low	9 (36%)	2 (8%)	11 (22%)
Intermediate	14 (56%)	13 (52%)	27 (54%)
High	2 (8%)	10 (40%)	12 (24%)

54% of the patients have intermediate degree of obstruction in x rays

Table 6: Shows signs and symptoms of the patients in both groups

	Gr.I(n=25)	N(%)	Gr.II(n=25)	N (%)
N/O	25	100	25	100
Snor.	24	96	25	100
N/D	10	40	12	48
Th.pn	15	60	10	40
E/D	4	16	3	12
D/H	16	64	12	48

Table 7: Time taken for surgery

	Group	No. of patients	Mean time (min)
Time taken for surgery	1	25	12.68
	2	25	5.28

Table 8: Blood Loss during Surgery

Blood Loss (ml)	Group		Total
	1	2	
20	2(8%)	0(0%)	2(4%)
25	6(24%)	3(12%)	9(18%)
30	12(48%)	14(56%)	26(52%)
35	5(20%)	8(32%)	13 (26%)

Table 9: Mean Blood Loss

	Group	No. of patients	Mean Blood loss (ml)
Blood loss	1	25	29
	2	25	31

Table 10: Complication

Complication	Group		Total
	1	2	
Primary haemorrhage	1 4%	3 12%	4 8%

Table 11: Hospital stay

Hospital stay (days)	Gr.I	Gr.II
1	20	8
2	5	17

Table 12: Comparison of patients with no post-operative symptoms

Time of assessment	Gr.I (n =25) patients without post operative symptoms	N %	Gr. II (n=25) patients without post operative symptoms	N%
1 week	5	20	0	
3 week	13	52	7	28
2 months	20	80	15	60
4 months	23	92	17	68

Table 13: Persistence of symptoms on follow – up

	Group 1				Group 2			
Symp	1st W	3rd W	2 M	4th M	1 W	3rd W	2nd M	4th M
N/O	20	12	5	2	25	18	10	6
Snor	5	3	2	0	15	11	6	2
N/D	6	3	1	0	8	5	2	0
E/D	2	1	0	0	2	1	1	1

Table 14: Recurrence

Recurrence	Group 1	Group 2
	0	3(12%)

DISCUSSION AND RESULTS

In our study 50 cases were operated by either conventional method or endoscopic assisted technique. The cases were grouped into Group I for endoscopic assisted adenoidectomy and Group II for conventional surgery. In our study, a female preponderance was seen with 54% of females and 46% of males, which compares well with the study Flanary VA.[8] (2003) in which the females are 51.6% and males are 43.3%. In our study, the commonest symptoms are nasal obstruction, snoring, decreased hearing, followed by nasal discharge. In the study by Georgalas C[1] et.al the patients had mouth breating, snoring, rhinorrhea and cough. In the study by Huang HM, *et al.*,[4](1998) patients commonest complaints were nasal obstruction, mouth breathing and snoring during sleep. This study's presenting symptoms correlate with the previous studies as it show similar findings. Mitchell VB, *et al..*[5](1997) in his study indicates an average of 1.4 days of hospital stay for patients following adenotonillectomy. In our study, the average hospital stay was 1.7 days for conventional adenoidectomy and 1.2 days for endoscopic assisted adenoidectomy, correlating with previous reports. In our study one patient had recurrence of ear discharge and 5 patients had recurrence of nasal obstruction and discharge after 4 months of conventional adenoidectomy, it may not be significant. In endoscopic assisted adenoidectomy there are only 2 cases of recurrence of nasal obstruction while no case of recurrence for ear discharge which correlates with the study by Cannon CR *et al.*[3](1999) which states that complete adenoidectomy involves decrease in the bacterial reservoir, which affects the children with otitis media, nasopharyngitis, and possibly sinusitis as well. In our study about 52% of patients became symptom free by the end of 3 weeks who underwent endoscopic assisted adenoidectomy as compared to conventional method where only 28% became symptom free. By the end of 4 months 68% of patients became free of symptoms in conventional surgery, but 92% of patients who underwent endoscopic assisted adenoidectomy became symptom free which correlates with the study by Becker SP[7] *et al.* (1992) in which 92% cases were free of otitis media after endoscopic adenoidectomy. The use of only endoscopic equipments allows the adenoid to be removed piece by piece. However, in patients with a very large adenoid, endoscopic removal requires more time than conventional surgery, which prolongs the need for anaesthesia and increase its risk, as studied by Huang HM[6] *et al..*(1998) The combination of conventional and endoscopic approaches in these patients will shorten the operative time to remove the adenoid Shin JJ.[6] (2003) studied 3 cases in which operative time for the adenoidectomy portion of the procedure, including endoscopic equipment set up and photo documentation, was 10 to 15 minutes. In our study also there is only a minimal increase in the operating time taken for endoscopic assisted adenoidectomy. Canon CR *et al.*[3],(1999) found that after conventional adenoidectomy, there is always residual tissue in the posterior superior choanae of the nose and nasopharynx. Endoscopic assisted technique allows more complete removal of adenoid tissue without a significant increase in the operative time, blood loss or association with any post-operative complications in our study these observations correlates with the previous study. Many methods of endoscopic assisted adenoidectomy have come which includes endoscopic assisted curettage adenoidectomy, endoscopic assisted

power shaver (microdebrider) adenoidectomy, endoscopic assisted suction coagulation (liquefaction) adenoidectomy and endoscopic assisted blakesley adenoidectomy.

SUMMARY AND CONCLUSION

Adenoidectomy is one of the most common procedures performed by otorhinolaryngologists. This study compares the two different techniques for adenoidectomy, one is conventional adenoidectomy and the other is endoscopic assisted adenoidectomy. 50 cases who underwent adenoidectomy were divided into 2 groups, Group I a total of 25 patients who underwent endoscopic assisted adenoidectomy and group II other 25 patients who underwent conventional adenoidectomy. In our study, age of the patients ranged from 5-13 years with a female preponderance. Majority of the patients presented with complaints of nasal obstruction, snoring and nasal discharge. There are no significant intraoperative or post-operative complications. Group I patients had to stay in the hospital for an average of 1.2 days where those of Group II for 1.7days.

As the patients were followed up, 23 patients of Group I had no symptoms indicating a success rate of 92% whereas 17 of patients of Group II had no symptoms implying a success rate of 68%. Recurrence of symptoms was seen in 3 patients of Group II cases (i.e 12%) and no recurrence of symptoms seen in Group I patients. From this we conclude that endoscopic assisted adenoidectomy is minimally invasive and is not associated with excessive bleeding. Patients who underwent endoscopic assisted adenoidectomy have decreased chance of remnants. Endoscopic assisted adenoidectomy is a time consuming procedure with less morbidity. Thus endoscopic assisted adenoidectomy technique is advocated for use as an adjuvant to a more complete adenoidectomy.

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