

## CURETTAGE VERSUS ENDOSCOPIC-ASSISTED ADENOIDECTOMY?

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### ABSTRACT

**Background:** Adenoidectomy is among one of the commonest operation performed all over the world. Most commonly used procedure is conventional curette adenoidectomy. Numerous methods had been developed such as monopolar and bipolar diathermy, laser, microdebrider, radiofrequency, coblation and endoscopic-assisted technique. **Material & Methods:** Thirty-two patients between the age of 4-18 years and requiring adenoidectomy for variable symptoms were enrolled in the study. All study participants underwent a preoperative assessment which includes clinical examination for nasal patency, ear examination, fiber-optic nasal endoscopy and radiography of post-nasal space. All the patients were randomized into two groups, each of sixteen. Group A undergone curettage technique and Group B undergone endoscopic assisted adenoidectomy. **Results:** The operative time in Conventional and Endoscopic adenoidectomy was 22.25 minutes and 40.75 minutes respectively. The post-operative remnants notfound in Group B whereas 4 patients (25%) of Group A had residual adenoid tissues. In Group A 3 patients (18.75%) had trauma whereas in Group B trauma shown in 4 patients (25%) , out of then 3 patients had minor septal mucosal injuries while 1 patient had a major injury and required anterior nasal packing. Velopharyngeal dysfunction reported in 2 patients (12.5%) of Group A and 3 patients (18.75%) of Group B. **Conclusion:** Endoscopic assisted adenoidectomy was safe and effective procedure for adenoidectomy. There was complete of resection and faster recovery time. On the other hand, it takes more time and had more incidence of trauma.

**Keywords:** Adenoidectomy, conventional curette adenoidectomy, Endoscopic assisted adenoidectomy.

### INTRODUCTION

Adenoidectomy is among one of the commonest operation performed all over the world (1). The adenoids are nasopharyngeal lymphoid tissues constituting the Waldeyer's ring, firstly explained in 1868 by Meyer (2). The hypertrophy in these lymphoid tissues result in chronic nasal obstruction, recurrent otitis media, recurrent sinusitis, apnoeic episodes, rhinorrhea, snoring, mouth breathing while sleeping, feeding difficulties, craniofacial

deformities, and hyponasal voice (3). In long-standing cases, they may lead to long-term upper airway obstruction which includes learning difficulties, failure to thrive, behavioral changes, pulmonary hypertension and even cardiac hypertrophy in severe cases (4). Adenoidectomy is either operated alone or combined operative procedures with tonsillectomy and myringotomy and it has been subject for many clinical research studies,

to enhance quality, improve outcome and to reduce postoperative complications (5). The operative procedure of choice for adenoidectomy should attain a safe removal criteria, which includes less operative time, minimum blood loss, less postoperative morbidity, no or minimum recurrence (6). Most commonly used conventional curette adenoidectomy (CCA) was first explain in 1885 (7). There are many drawbacks of this procedure which includes more bleeding, inadequate success, Eustachian tube or nasopharyngeal stenosis (8). Hence, there was need to development of newer technologies and operative procedures to improve the post-operative outcome. Numerous methods had been developed such as monopolar and bipolar diathermy, laser, microdebrider, radiofrequency, coblation and endoscopic assisted technique. All the above procedures were discovered for aiming to decrease the operative time, blood loss and morbidity. Post adenoidectomy morbidity consists of postoperative pain, postoperative infection, primary or reactionary haemorrhage and secondary or delayed haemorrhage (9). Reduction in these parameters concludes the better operative procedure of choice. Endoscopic assisted adenoidectomy (EAA) had been popularized in recent decade and it is proposed to enabled the complete adenoidectomy under direct visualization (3). The aim of the present study was to compare the advantages and disadvantages of the Endoscopic assisted adenoidectomy with the conventional cold curettage technique in the operation of adenoidectomy.

## MATERIALS & METHODS

The present study was carried out in Mahatma Gandhi medical college and hospital, Jaipur. To obtain the study objectives, we designed a prospective randomized trial. Thirty-two patients between the age of 4-18 years and requiring adenoidectomy for variable symptoms were enrolled in the study. All study participants underwent a preoperative assessment which includes clinical examination for nasal patency, ear examination, fiber-optic nasendoscopy and radiography of post-nasal space. The size measurement of adenoids was assessed using Clemens McMurray scale (4). All the

patients were randomized into two groups, each of sixteen. Group A under gonocurettage technique and Group B undergone endoscopic assisted adenoidectomy. In the endoscopic technique, we used endoscope of 4mm diameter trans-nasally and a microdebrider at the speed of 4000 rpm. When it was not possible because of anatomical site limitation, the endoscope was used through one side and microdebrider through the other side. Visualization was improved by frequent suction in gland irrigation. No posterior packing and no cautery is used during the procedure. The study variables were total operative time, primary hemorrhage, and operative traumas and complete of removal of adenoids. Outcome variables include post-nasal space assessment, any remnant, and infection by using fiber-optic nasendoscope one week after the procedure along with symptoms of sleep obstruction pattern. The data were analyzed using MS Excel 2010, Epi Info v7 and SPSS v22.

## RESULTS

In present study, a total of thirty-two subjects were included and divided into two groups of sixteen individuals each. The mean age of patients was 8.75 years in Group A and 10.5 years in Group B. Among all of the 32 patients sleep disturbance is found most commonly in 18 patients (56.2%) which is followed by nasal obstruction, present in 7 patients (21.9%) which is followed by ontological symptoms, present in 5 patients (15.6%) and lastly 2 patients (6.3%) presented with discharge. History or presence of epistaxis was not recorded in any of the patients in both groups. (table 1)

**Table 1: Distribution of symptoms.**

Symptoms	Patients	Percentage
Nasal obstruction	7	21.9%
Sleep disturbance	18	56.2%
Otological symptoms	5	15.6%
Discharge	2	6.3%
Epistaxis	0	0

In the present study the operative time in Conventional adenoidectomy and Endoscopic – assisted adenoidectomy was 22.25 minutes and 40.75 minutes respectively. The post-operative fiber-optic nasendoscopy done for look at the residual adenoid tissues displayed that resection was very nearly complete in Group B whereas 4 patients (25%) of Group A had residual adenoid tissues. The fiber-optic nasendoscope also assessed the associated trauma during procedure, in Group A 3 patients (18.75%) had trauma ,all are minor and associated with the uvula and posterior pharyngeal wall whereas in Group B trauma shown in 4patients (25%), out of then 3 patients had minor septal mucosal injuries while 1 patient had major injury and required anterior

nasal packing . Velopharyngeal dysfunction resulting in hypernasal speech without nasal regurgitation reported in 2 patients (12.5%) of Group A and 3 patients (18.75%) of Group B, all were temporary resolved spontaneously within a period of one week.

Infection occurred in 1 patient (8.3%) of each Groups. Retained swab complicated 1 patient (8.3%) was seen in Group A but none in Group B. Symptoms resolved in all the cases of Group B whereas two cases in Group A (12.5%) continued to had symptoms. The overall complication rate reported in Group A was 55% whereas in Group B it was 45%. (Table 2)

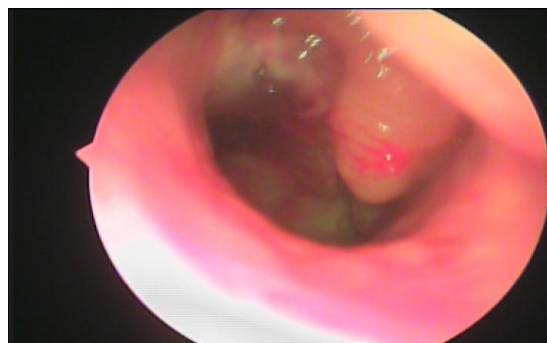
**Table 2: Tabular comparison of the two methods.**

parameter	Conventional adenoidectomy	Endoscopic –assisted denoidectomy	P value
<b>Operating time</b>	22.25 minutes	40.75 minutes	<b>&lt;.001</b>
<b>Remnant</b>	25%	None	<b>&lt;.05</b>
<b>Associated trauma</b>	18.75%	25%	<b>&gt;.05</b>
<b>Velopharyngeal dysfunction</b>	12.5%	18.75%	<b>&gt;.05</b>
<b>Infection</b>	8.3%	8.3%	<b>&gt;.05</b>
<b>Retained swab</b>	8.3%	None	<b>&gt;.05</b>

**Fig 1 post-operative view following conventional adenoidectomy**



**Fig 2 post-operative view following Endoscopic – assisted adenoidectomy**



## DISCUSSION

The present study was an attempt to compare conventional curette adenoidectomy with endoscopic adenoidectomy. The groups were matched before study. The indications of adenoidectomy were variable but the main indication was sleep apnea in both groups, accounting for 19 cases (59.4 %). Following the accurate steps of adenoidectomy, it was taken only 5-10 minutes, but the true estimate of operating time includes, preparations, setting of instrument and packing and lastly securing hemostasis. The prolongation of operating time about 20 minutes in the endoscopic assisted method is because of more setting time, endoscopic visualization and step by step removal of adenoid tissue. This study reported a gradual decrease in operating time from first to last case as experience improved.

Our findings are in contrast to study conducted by Stanislaw et al on 90 patients and power-assisted adenoidectomy and adenoid curette adenoidectomy and found similar results as present study (10). Another study conducted by Feng Y. et al on 34 patients to compare the outcomes of powered-assisted adenoidectomy with adenoid curette adenoidectomy reported powered adenoidectomy had shorter surgical time, and less blood loss than curette adenoidectomy (11). A similar study conducted by Rakeh Datta on 60 patients aimed to evaluate endoscopic powered adenoidectomy as an alternative to curette adenoidectomy and reported that endoscopic technique was safe and effective with less collateral damage and less blood loss but it takes more time (12).

It had been reported that the extent of resection performing conventional curette method was incomplete which leads to recurrence. The present study also enrolled one case that had operation upon three years back using conventional curette adenoidectomy and now presented again with recurrence with Grad III adenoid. This patient in present study was operated by endoscopic adenoidectomy with a good outcome. Similarly, 4 patients in present study were underwent

conventional adenoidectomy and had remnants and out of them two were symptomatic during postoperative follow up. The criterion used for adenoid tissue which cause nasal obstruction was the tissue consisting more than 40% area of the nasopharynx (13). A study conducted by Koltai PJ et al shows similar result as present study and reported that during endoscopic adenoidectomy, the nasopharynx was seen clearly and remnants of the adenoid tissue were removed under direct vision. It concluded that endoscopic technique was more accurate (14).

In present study associated trauma was a repeated finding during adenoidectomy. In Group A there was trauma reported to Eustachian tube orifice which leads to scarring and even dysfunction. In Group B there were more cases of septal and mucosal injuries which were reported in 4 patients and only one patient required anterior nasal packing. Hence, both techniques had their own demerits. The post-operative pain was not evaluated because the most of patients also had additional tonsillectomy and it is difficult to analyze whether the pain was due to adenoidectomy or tonsillectomy. Also, the blood loss amount was not estimated because of the same above stated reasons and technical issues.

In the present study although the endoscopic – assisted adenoidectomy was safe, effective and particularly less complication rate with complete removal but it had some demerits, had prolonged operating time, more incidence of mucosal injuries, anatomical constraints and need experience and availability of equipments.

The merit of endoscopic method includes its role in patients with cleft palate and other craniofacial anomalies because it decreases risk of velopharyngeal dysfunction. In present study there were 5 adult patients and all underwent endoscopic adenoidectomy because adenoid tissue in adults have histological differences from that seen in children, it is being reactive rather than inflammatory and adenoidectomy by endoscopic method is safe and reliable (15).

## CONCLUSION

We concluded from the present study that Endoscopic assisted adenoidectomy was safe, effective and accurate than curette adenoidectomy. It had complete removal of remnants but also had several demerits including it need specialized equipment and experience and more operating time. The endoscopic assisted adenoidectomy was useful method for the choanal adenoids which extending into the nasal cavity and for recurrent cases and also for the cases of craniofacial anomalies and sub-mucosal cleft palate requiring partial resection.

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