



Rigid Endoscopic Nasopharyngeal Exploration at the end of Conventional Curette Adenoidectomy, A simple and an easy way to Improve Adenoidectomy via the Curettage Technique

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Abstract To evaluate the value of using trans-oral rigid endoscopic examination of nasopharynx after conventional curettage adenoidectomy for complete removal and prevention of recurrence. A Prospective study of 50 children with adenoid hypertrophy was done at Misurata Central Hospital. They presented clinically with symptoms of nasal obstruction, mouth breathing and snoring confirmed radiologically with plan x ray nasopharynx lateral view, of both sex ageing from 1.5 years to 15 years, with mean age of 6.9 years and S.D \pm 3.44, carried out in a period of 6 months from January 2015. Patients were divided into two groups. Group A underwent conventional curettage adenoidectomy only, while group B underwent a conventional curettage adenoidectomy and at the end trans-oral endoscopic visualization of nasopharynx done, using 70 degree rigid endoscope to detect and subsequently to remove any residual adenoid tissue transorally by curettage. In group B, at the end of conventional curettage adenoidectomy, endoscopic examination of nasopharynx detected the remnant of adenoid tissue in 13 patients, 8 patients (61.54%) in roof, 2 patients (15.38%) at Eustachian tube opening, 2 patients (15.38%) over posterior wall, and 1 patient (7.70%) posterior wall+ roof indicate that conventional curettage used alone failed to remove the adenoid tissue completely. There was a significant difference in rate of adenoid recurrence between both groups was statistically significant ($P = 0.04$) (6 months postoperatively). At the end of 6 months postoperatively 16 patients (64%) in group A and 23 patients (92%) in group B were symptoms free. Examination of nasopharynx of patients with persistence of symptoms of nasal obstruction, 9 patients (36%) in Group A showed the adenoid recurrence, 7 patients (78%) in roof and 2 patients (22%) in posterior wall. While 2 patients (8%) in group B with persistence of symptoms of nasal obstruction did not reveal any recurrence of adenoid tissue but showed hypertrophied inferior turbinate. Conventional curettage adenoidectomy missed the residual adenoid tissue, Rigid endoscopic examination of nasopharynx is necessary after conventional adenoidectomy for detecting any residual adenoid tissue to remove subsequently thus reducing the recurrence.

Keywords Adenoidectomy, conventional curette, rigid endoscopic examination

Introduction

This traditional curettage adenoidectomy is classical performed by using adenoid curette with digital palpation of nasopharynx for evaluation of residual adenoid tissue [1]. This procedure has drawbacks of injury to nasopharyngeal structure and incomplete removal of adenoid tissue which carries a high risk of recurrence of symptoms unless done by experience surgeon [1,2]. The conventional method is being a relatively blind technique, but since 1992. Many authors have developed and designed and updated an alternative methods, for visualization of operative field during surgery using laryngeal mirror [3, 4] endoscope either trans oral [5] or trans nasal [6] and surgical tools for removal



of adenoid using curette, suction diathermy [7] forceps [8] and trans nasal 9 or trans oral 3 micro-debrider. Pearl and Manoukian [10] removed the choanal adenoids under indirect visualization using a laryngeal mirror. Cannon *et al* [11] has described endoscopic assisted adenoidectomy where endoscope used to remove the tissue in the posterior superior choanae after the traditional trans-oral adenoidectomy. Recently powered shavers with endoscopic visualization have evolved as safe, accurate and complete adenoid removal technique with less operative time and blood loss [12, 13, 14] but micro-debriders are not available in all centers because of the cost factor. However, nasal endoscopes are basic tools available in all centers, so we carried out this prospective comparative study between conventional curettage adenoidectomy and trans-oral endoscopic assisted adenoidectomy, aiming to evaluate the role of endoscopy in assessing the effectiveness of traditional curettage adenoidectomy performed alone; and to evaluate the role of such endoscopy in improving the results of curettage adenoidectomy in terms of recurrence.

Methods and Materials

A prospective study conducted on 50 patients with hypertrophied adenoid admitted in E.N.T. department Misurata Central Hospital from January 2015 to June 2015, age ranging from 1.5 years to 15 years, with preoperative assessment includes taking history, clinical examination, plan X ray nasopharynx lateral view, operated for adenoidectomy under general anesthesia, divided into two groups. Group A underwent conventional curettage adenoidectomy only, using St-Clair Thompson Curette, while group B underwent a conventional curettage adenoidectomy and at the end trans-oral endoscopic visualization of nasopharynx done, using 70degree rigid endoscope, to detect and subsequently to remove the any residual tissue trans orally (endoscopic assisted adenoidectomy). All patients were discharged in the same day on oral antibiotic and local decongestant for a week and both groups had followed up for examination recurrence of symptomatic adenoid at fixed interval at 1st week, 1 month, 3 months and 6 months postoperatively. Evaluation done according to certain variables collected by history and clinical examination. These variables include nasal obstruction, mouth breathing, snoring, nasal discharge, throat pain, decrease of hearing, and assessed subjectively symptomatically (relief from symptoms) and objectively by examination with Endoscope for presence of any residual adenoid tissue and for recurrence.

Statistical Analysis

Statistical analysis done by using SPSS Version 16 (software), unpaired t-test for continuous data and chi square test for categorical data. Statistical significance was accepted for P-values of <0.05. Data were collected and summarize using mean and S D for quantitative variable. Frequency and percentage for qualitative variables. Comparisons of results of both groups performed using an independent sample t- test for quantitative variable and Fisher exact test for qualitative variables. Paired qualitative variables tested using McNemer test with each group separately. P-value less than .05 considered statistically significant.

Result

The present study of 50 patients, 25 cases in each group. The group A of 25 patients with conventional adenoidectomy and group B of 25 patients with endoscopic assisted adenoidectomy. Age ranging from 1.5 years to 15 years. Mean age 6.93 with SD \pm 3.44, median 6 years. The mean age of group A is 7.06 years and for group B is 6.4 years, and the combined mean age 6.93 years. Among the age distribution of patients in both groups, the highest number of patients belong to the age group 6-10 years (24 patients) 48%, following by age group < 5 years (22 patients) 44 % and then age group 11-15 years (4 patients) 8%. Regarding the sex distribution of patients, In both group there were 46% (23) male and 54% (27) female. In group A 12 male (48%) and 13 female (52%), While in group B 11 male (44%) and 14 female (56%). Among the presenting symptoms, Nasal obstruction and mouth breathing were the most common symptoms in both groups of patients affecting 50 patients (100%) followed by snoring 40 patients (80%), throat pain 22 patients (44%) and decreased hearing 9 patients (18%). Clinical diagnosis- Out of 50 cases, 19(38%) had chronic adenoiditis, 22(44%) adenoid with chronic tonsillitis and 9(18%) chronic adenoid with otitis media with effusion. In group A 13 cases (52%) had chronic adenoiditis and 10 case (40%) had chronic adeno-tonsillitis and 2 cases (8%) had adenoid with otitis media with effusion, and In group B, chronic



adenoiditis 6 cases (24%), chronic adeno-tonsillitis 12 cases (48%) and 7 cases (28%) had chronic adenoiditis associated with chronic otitis media with effusion. Types of surgery –In group A, out of 25 cases, 13 patients (52%) underwent adenoidectomy 10 patients (40%) adeno-tonsillectomy and 2 patients (8%) adenoidectomy + myringotomy with insertion of ventilating tube. In group B of 25 cases 6 patients (24%) underwent endoscopic assisted adenoidectomy, 12 patients (48%) had endoscopic adenoidectomy with tonsillectomy by classic dissection method and 7 patients (28%) had endoscopic assisted adenoidectomy with myringotomy + insertion of ventilating tube.

Table 1: Residual adenoid tissue at different site in nasopharynx in Group B

Site of adenoid residual tissue	Group B
Roof	8 (61.54%)
Posterior wall	2 (15.38%)
Eustachian tube opening	2 (15.38%)
Mixed posterior wall and roof	1 (7.7%)

Endoscopic examination of nasopharynx at the end of conventional curettage adenoidectomy revealed remnant of adenoid tissue (in 13 patients) and then subsequently removed, indicating that conventional curettage adenoidectomy alone failed to remove the adenoid tissue completely.

Table 2: No. of patients with improvement of symptoms -postoperatively in both groups over a period of 6 months

Time of assessment	Group A	Group B	Group A VS B
1 st week	0	5 (20%)	P= 0.08
1 st month	7 (28%)	10 (40%)	P= 0.55
3 rd month	11 (44%)	17(68%)	P= 0.15
6 th month	16(64%)	23(92%)	P= 0.04 significant

(Fisher`s exact test)-more significant number of patients without symptoms in group B as compared to group A.

During 1st week following, only 5 patients (20%) in group B had improvement in symptoms whereas no patients were free of symptoms in group A.

1 month follow up 7 patients (28%) in group A and 10 patients (40%) in group B were symptoms free.

By 3 months 11 patients (44%) in group A and 17 patients (68%) in group B were free of symptoms

At the end of 6 months 16 patients 64% in group A and 23 patients (92%) in group B were symptom free (P=0.04) < 0.05 significant.

Table 3: Persistence of symptoms on follow up at the end of 6 months.

No of patients (50)	No. of patients improved	No. of patients not improved
Group A(25)	16 (64%)	9 (36%)
Group B(25)	23 (92%)	2 (8%)

9 patients (36%) in Group A and 2 patients (8%) in Group B had symptom of nasal obstruction.

Table 4: Presence of recurrent adenoid tissue in patients with persistent symptoms of nasal obstruction, on endoscopic examination at the end of 6 months

Groups -	Persistence of symptoms of obstruction	of nasal	Endoscopic examination Presence of recurrence of adenoid tissue	Site of recurrence in nasopharynx	
				Roof	Posterior wall
Group A(25)	9(36%)		9	7(78%)	2(22%)
Group B(25)	2(8%)		0	0	0

McNemar test, the difference in recurrence rate between two groups is statistically significant (P=0.04). Out of 9 patients in group A, revealed recurrence of adenoid in 7 patients (78%) in roof, 2 patients (22%) in posterior wall, While in group B (endoscopic ally assisted adenoidectomy) 2 patients had persistence of nasal obstruction did not show any recurrence of adenoid tissue but showed hypertrophy of inferior turbinate.



Discussion

The present study attempt to compare conventional curette method with endoscopic assisted technique. The both groups matched in age, type of surgery and indications. The indications of surgery were variable but main indication was adeno-tonsillectomy in both groups, accounting for 22(44%) cases. Adenoidectomy is one of the commonest surgical procedure performed alone or along with tonsillectomy in adeno-tonsillar hypertrophy or with ventilation tube insertion for otitis media with effusion [15]. Adenoidectomy can be done by variety of instruments, such as curette, an Aden tome, an adenoid punch, a suction cautery, and recently blakesley forceps and microdebriders [3,16]. Traditional adenoid curette which used to remove hypertrophied adenoid tissue does not remove the adenoid tissue completely [3,14]. There are few complications reported in the literature from the conventional techniques of adenoidectomy. It is a blind procedure with possible damage to Eustachian tube orifice and not provides a complete removal of all adenoid tissue, which may lead to recurrence. .Visualization of operative field while performing adenoidectomy help to avoid the mentioned complications. Pearl and Manoukin (1994) [10] reported adjuvant use of laryngeal mirror to obtain better visualization of adenoid. In 1992, Becker [17] reported endoscopic assisted adenoidectomy by using Blakesley forceps piece by piece 8. Cannon *et al.*, 1999 [11] described Endoscopic assisted adenoidectomy, at the end of a conventional adenoidectomy both the nasal cavities and nasopharynx inspected with 4 mm 0-degree rigid telescope and removed the adenoid remnants. Wan *et al.*, 2005 [1] performed trans-oral curettage adenoidectomy guided with trans nasal endoscope on 13 patients reported marked improvement with no recurrence of obstructive symptoms. This procedure is difficult as introduction of curette into nasopharynx may be accompanied with bleeding that obscure the view while our method is easier as palate is retracted by 2 catheter to open the nasopharynx. In the technique of it cannot retract the palate while the nasal endoscope is passing through the nose as in child nose it is very difficult to accommodate a catheter and an endoscope. Therefore, with the advancement of imaging technology provided by angled endoscopes, these complications can be avoided. In this study, about 17 patients (68%) in Group B who underwent endoscopic assisted adenoidectomy become symptoms free by end of 3 months compared to conventional method where only 11 patients (44%) became free of symptoms. By the end of 6th month, 23 patients (92%) became symptoms free who underwent endoscopic assisted adenoidectomy. while 16 patients (64%) became free of symptoms those operated by conventional surgery is In correlation with the study by Backer *et al.*, 1992 [17] in which 92% cases were free of symptoms after endoscopic adenoidectomy. Cannon *et al.*, 1999 [11] found that after conventional adenoidectomy there is always residual tissue in posterior superior choanae of nose and nasopharynx. Endoscopic assisted technique allows more complete removal of adenoid tissue without postoperative complications, same observations were found in our study correlate with this study. Recently microdebrider are commonly used, trans oral angled microdebrides under trans nasal endoscopic visualization 7 seems to be safe and effective but has disadvantage of expensive equipment 5, and shortcoming of resected tissue is not available for histopathological examination [16], also this technique requires a good training to achieve proficiency. Trans oral technique is easy to perform and under optimum endoscopic visualization, the surgery is less traumatic and the adenoids removed completely. Therefore, the risk of residual or recurrent adenoid disease in the future is extremely low.

Conclusion

Conventional curettage adenoidectomy missed the residual adenoid tissue, rigid endoscopy examination of nasopharynx is necessary after conventional curettage adenoidectomy to detect any residual adenoid tissue to remove subsequently thus decreasing recurrence rate.

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Conflicts of Interest

The authors report no declaration of interest.



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