Bangladesh J Otorhinolaryngol 2022; 28(2): 128-134
DOI: https://doi.org/10.3329/bjo.v28i2.64295

Original Article

Coblation Assisted Adenoidectomy vs. Conventional Curettage Adenoidectomy: A Comparative Study

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Abstract:

Background: *Adenoid is a patch of tissue that is situated high up in the throat and just behind the nose in the nasopharynx. Adenoid along with the tonsils, is a part of the lymphatic system that clears away infection and keeps body fluids in balance.Whenever, adenoid become enlarged, seriously infected or causes certain complications, adenoidectomy becomes essential. It can be performed with many ways includingcoblation assisted adenoidectomy and conventional curettage adenoidectomy.*

Aim of the study: *The aim ofthis study was to assessthe advantages of coblation assisted adenoidectomy over conventional curettage adenoidectomy.*

Methods: *This comparative observational study was conducted in the Department of ENT, Bangladesh Medical College Hospital and Popular Medical College Hospital, Bangladesh during the period from July 2019 to June 2022. A total of 100 admitted patients for adenoidectomy were included as the study. All the participants were divided in two groups. In Conventional group, there were 50 participants selected for conventional curettage adenoidectomy.On the other hand, in coblation group, other 50 participants selected for coblation assisted adenoidectomy. For comparison of both the method all necessary data along with demographic and clinical status were collected in a predesigned questioner. All*

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data were processed and analyzed and disseminated by using MS Office and SPSS version 23 programs as per need.

Results: *In this study, as the superiority of coblation assisted adenoidectomy over conventional curettage adenoidectomy we found significantly lower 'intra operative blood loss in ml (7.58±3.28 ml)', 'post-operative bleeding (0%)', presence of residual lymphoid tissue (8%)', 'days with analgesics (10.42±3.60 days), 'post operative adenoid grading (0.0±0.0)', 'rate of recurrence (20%)' and 'needed days for recovery (4.68±2.17 days)' among coblation group patients than that among conventional group patients.*

Conclusion: *Coblation assisted adenoidectomy ensures more easier and specific treatment for the patient. As per the findings of this study we can conclude that, considering the attractive features like lower intra operative and post-operative blood loss, presence of residual lymphoid tissue, days with analgesics, post operative adenoid grading, rate of recurrence and needed days for recovery coblation assisted adenoidectomy may be considered as the method of choice for such treatment.*

Keywords: *Coblation assisted adenoidectomy, Conventional, Curettage adenoidectomy.*

Introduction:

Whenever, adenoid become enlarged, seriously infected or causes unhealthy situation adenoidectomy can be performed with many ways, including coblation assisted adenoidectomy and conventional curettage adenoidectomy.Basically, adenoids, are nasopharyngeal lymphoid tissues forming a part of the Waldeyer's ring, were first described by Meyer in 1868[1]. Hypertrophy of adenoids may lead to nasal obstruction with consequent mouth breathing and its sequelae, speech abnormalities, sleep-disordered breathing, craniofacial deformities, feeding difficulties and recurrent upper respiratory tract infections like otitis media and sinusitis) [2] Adenoidectomy either alone or combined with tonsillectomy and/or myringotomy with ventilation tube insertion has been a target for adenoids with less blood loss, operative time, postoperative morbidity, and/or recurrence[3].Conventional cold curette adenoidectomy (CCA) was first described in 1885[1] The patient's dissatisfaction from the curettage procedure resulted from inadequate removal, recorded bleeding and eustachian tube and/or nasopharyngeal stenosis, which led to the development of technologies to improve the surgical methods of adenoid removal for reaching the most effective techniques[4] Various methods have been developed day by day, multiple research studies have been conducted to improve its quality and to minimize the side effects as well as complications, being a common procedure in the field of pediatric otolaryngology [5] The ideal adenoidectomy technique should achieve a safe removal of thecurettage adenoidectomy either used alone or in combinations, such as monopolar [6] as well as bipolar diathermy[7] laser[8] radiofrequency, stripping under endoscopic control , microdebrider], and coblation, aiming to reduce intraoperative blood loss, operative time and postoperative morbidity. So, now a days, apart from the conventional curettage technique, there are more adenoidectomies like powered adenoidectomy, radiofrequency ablation, and the electrocautery. The curettage method is still the commonest procedure in the world[9-17].

Objectives:
General Objective:

- To find out the advantages of coblation assisted adenoidectomy over conventional curettage adenoidectomy.

Specific Objective:

- To compare the operative time and intra operative blood loss between the methods.
- To compare the treatment outcomes between the methods.
- To compare the residual adenoid tissue, recovery and recurrences rates between the methods.

Methods:

This comparative observational study was conducted in the Department of ENT, Bangladesh Medical College and Popular Medical College Hospital, Dhaka, Bangladesh during the period from July 2019 to June 2022. A total of 100 admitted children to the Department of ENT of the mentioned hospital for adenoidectomy were included as the study. All the participants were divided in two groups. In conventional group, there were 50 participants selected for conventional curettage adenoidectomy. On the other hand, in coblation group, there were other 50 participants selected for coblation assisted adenoidectomy.

Before data collection, written consents were obtained from all the participants' attendants. As per the inclusion criteria, male and female patients between the age from 4 and 14 years with radiologically confirmed adenoids hypertrophy, were included. On the other hand, as per the exclusion criteria, patients with past history of cleft palate repair, cases with submucous cleft palate and cases with palatal paralysis or down syndrome, with coagulation defects or active rhinitis or active rhinosinusitis were excluded. For all the patients, full ENT examination including oropharyngeal examination, nasal examination andear examination searching for otitis media with effusion and adhesive otitis media andneck examination with assessment of cervical lymph nodes were done. The size of adenoids was assessed and graded properly.Intra-operative time, completeness of removal, amount of bleeding, any injury to nearby structures and early post-operative pain and recovery time were recorded for each patient. For comparison of both the method all necessary data were collected in a predesigned questioner. All data were processed and analyzed and disseminated by using MS Office and SPSS version 23 programs as per need.

Results:

In this study, in conventional group, 64% patient was male and 36% were female. On the other hand, in coblation group, male patients were 56% whereas female were 44%. So, in both the groups, male participants were dominating in number. The mean (±SD) operative time in conventional group was significantly lower (16.00±8.81 minutes) than that of coblatin group (20.78±7.49); P value was 0.004. But the mean (±SD) intra operative blood loss was significantly higher than that of coblation group. As post-operative complications, both post-operative bleeding rate as well as presence of residual lymphoid tissue is found higher in conventional group than that of coblation group. In this study, in comparing the treatment outcomes between conventional and coblation adenoidectomy we found significantly lower 'intraoperative bleeding', 'days with analgesics', and 'post-operative adenoid grading' in coblation group where the p values were <05. We found significant correlation between the groups in comparing grade 1, 2 and 3 residual adenoid

tissues. Recurrenc rate in coblation group was found lower (20%) than that in conventional group (64%). Besides this the nedded operative time was found as significantly lower (4.68±2.17 days) than that in conventional group.

Table I :
Age and sex distribution between the groups (N=100)

Variables	Conventional (n=50)	Coblation (n=50)
Age (Mean ±SD)	7.48±2.51	8.64±2.46
Male	32(64.0%)	28.(56.0%)
Female	18(36.0%)	22(44.0%)

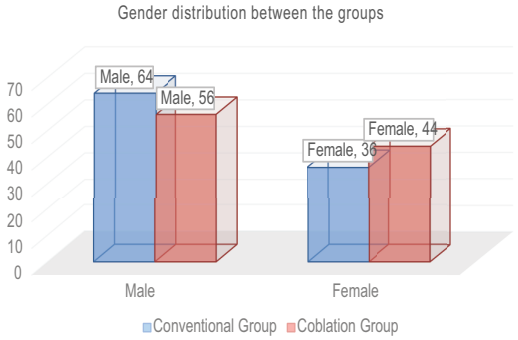

Fig.-1: *Gender Distribution between Groups*

Table II :
Mean operative time and intra operative blood loss (N=100)

Variables	Conventional (n=50)	Coblation (n=50)	P value
Operative time (Minutes)	16.00±8.81	20.78±7.49	0.004
Intra operative blood loss (ml)	32.60±14.89	7.58±3.28	0.001

Table III :
Post-operative complications among participants (N=100)

Variables	Conventional (n=50)	Coblation (n=50)
Post-operative bleeding	4(8.0%)	0(0.0%)
Presence of residual lymphoid tissue	20(40.0%)	4(8.0%)

Table IV :
Comparison of treatment outcomes Mean value between conventional and coblation adenoidectomy

Variable	Conventional Mean ±SD	Coblation Mean ±SD	P value
Intraoperative bleeding	46.06±23.48	5.22±2.88	0.001
I day pain score	9.42±4.41	9.18±3.11	0.754
Days with pain	13.32±3.21	12.88±3.60	0.52
Days with analgesics	12.18±2.49	10.42±3.60	0.005
School absenteeism	6.66±1.85	6.24±1.64	0.232
Post op adenoid grading	5.86±1.39	0.0±0.0	0.001

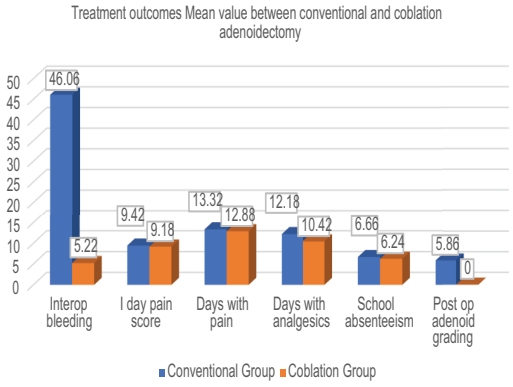

Figure II: *Treatment outcomes Mean value between conventional and coblation adenoidectomy (N=100)*

Table V :
Comparison of residual adenoid tissue between two groups (N=100)

Residual tissue	Conventional (n=50)	Coblation (n=50)	P value
Grade 1	50(100.0%)	10(20.0%)	0.001
Grade 2	0(0.0%)	32(64.0%)	
Grade 3	0(0.0%)	8(16.0%)	

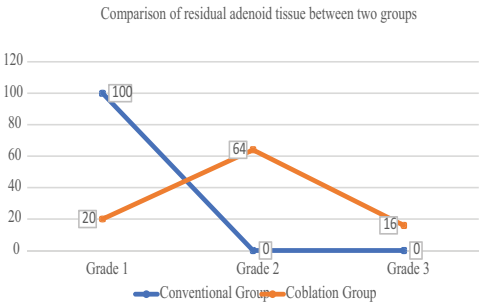

Fig.-3: *Treatment outcomes Mean value between conventional and coblation adenoidectomy*

Table VI :
Recovery and recurrences among participants (N=100)

Variables	Conventional (n=50)	Coblation (n=50)
Recurrence	32 (64.0%)	10 (20.0%)
Recovery (Days)	7.60±4.17	4.68±2.17

Discussion :

In a previous study it was reported that, in up to one-third of patient with clinically significant adenoid hypertrophy, conventional curettage adenoidectomy does not achieve an adequate removal of obstructive adenoid tissue, especially when there is an intranasal extension, or a bulky mass of adenoids superiorly in the nasopharynx and in the peritubal region [8]. In our study, in conventional group, 64% patient were male and 36% were female. On the other hand, in coblation group, male patients were 56% whereas female were 44%. So, in both the groups, male participants were dominating in number. Our results were in agreement with study of Businco et al.[19] as they reported that there was no statistically significant difference among both studied groups as regard age and sex. In our study, the mean (±SD) operative time in conventional group was significantly lower (16.00±8.81 minutes) than that of coblation group (20.78±7.49); P value was 0.004. But the mean (±SD) intra operative blood loss was significantly higher than that of coblation group. The findings of our study were supported by the study of Kim et al.,[19] as they revealed that there was significant difference between the studied groups regarding the mean operation time. There was a significant difference between the proportions of less and more amount of intraoperative bleeding across the studied groups (P < 0.001). Moreover, Veronica, (2018)[21] reported that, the mean operative time in group A was 10.4 ± 3.23 minute and 14.6 ± 2.33minute in group B with a p value of 0.0001. According to Abd El Rahman et al., [22]the mean intraoperative blood loss was 61.5 ml in group A, whereas in group B, it ranged from 5 to 20 ml, with a mean of 8.8ml and that difference in intraoperative blood loss was found to be statistically significant. Among our subjects, as post-operative complications, both post-operative bleeding rate as well as presence of residual lymphoid tissue are found higher in conventional group than that of coblation group.In a study it was reported that, Nasopharyngeal and Eustachian tube stenosis one of the rare complications, but once occur difficult to treat[23] .In our study, the recurrence rate in coblation group was found lower (20%) than that in conventional group (64%). Besides this the needed operative time was found as significantly lower

(4.68±2.17 days) than that in conventional group. Data from the NDT indicate the persistence of adenoid tissue as the main reason for high nasal resistance values in the cold curettage group of patients[24].Timms et al. 2005,[15] coblation adenoidectomy is associated with less postoperative neck pain than curette/cautary adenoidectomy.

Conclusion:

Coblation assisted adenoidectomy ensures easier and specific treatment for the patient. Coblation assisted adenoidectomy is a proof of greater progression of this technology to allow a more complete adenoidectomy. As per the findings of this study we can concluded that, considering the attractive features like lower intra operative and post-operative blood loss, presence of residual lymphoid tissue, days with analgesics, post operative adenoid grading, rate of recurrence and needed days for recovery coblation assisted adenoidectomy may be considered as the method of choice for such treatment. To getting more specific findings we would like to recommend for conducting similar more studies with larger sized samples in several places.

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