Objective And Subjective Outcome Measures in Conventional Curettage Adenoidectomy vs Endoscopic Guided Microdebrider Assisted Adenoidectomy – A Prospective Randomised Single Blind Study

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KEYWORDS

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ABSTRACT

Adenoid hypertrophy is a common disease in the community. Adenoidectomy is the definite way of managing the disease, and it is one of the most common surgeries performed in the day-to-day practice of ENT surgeons. This study evaluated the merits and demerits of the conventional curettage method with the microdebrider-assisted adenoidectomy. This single-blinded randomized controlled trial was undertaken to study the Objective and Subjective outcome measures in conventional curettage adenoidectomy versus endoscopic guided microdebrider-assisted adenoidectomy. All the patients were divided equally into two groups based on simple random sampling numbers generated by computer. All the patients in Group A were subjected to adenoidectomy by conventional curettage method with the help of St. Clair Thomson adenoid curette and the patients in Group B were subjected to adenoidectomy with the help of the endoscopic guided microdebrider assisted adenoidectomy.

All the patients were evaluated and compared between the two groups for the amount of blood loss occurring during the surgery, the operative time between the procedures, the presence of the residual tissues in the nasopharynx after the procedure, the recovery time, development of the intraoperative and the postoperative complications, comparison of the pain score on the first and seventh postoperative day between the two groups and the presence of the residual symptoms in the follow-up period.

Although the microdebrider group is associated with increased bleeding during surgery and increased intraoperative time, it is associated with decreased intraoperative post operative complications, fewer residual tissues and improvement of the symptoms in the post operative period compared with the conventional curettage method. Microdebrider-assisted adenoidectomy has proven its importance by complete tissue clearance at the expense of increased bleeding and operative time.

INTRODUCTION:

Adenoids are the lymphoid tissue present as aggregates in the posterosuperior part of the nasopharynx in the human body [1]. Since the adenoid tissues were on the back of both nasal cavities, they are directly involved in causing respiratory obstruction. At birth, the adenoids are relatively minor in size and over time. Due to the hyperactivity of the immune system, they progressively enlarge during the early part of life, leading to the development of nasal obstruction and associated symptoms [2].

Adenoid hypertrophy is the most common disease of the pediatric age group population. The prevalence of adenoid hypertrophy in children was estimated to be 34.5% [3]. Adenoid hypertrophy can entirely obstruct the nasopharynx, leading to the Eustachian tube obstruction, which causes otitis media with effusion and leads to chronic discharging of the ear. Adenoid hypertrophy interferes with normal skeletal development and leads to craniofacial abnormalities and the development of the adenoid facies [4].

Adenoidectomy is the only mode of the treatment, the conventional curettage, which is most commonly performed, was a blind procedure. During the procedure, the adjacent structures, such as the eustachian tube, could be damaging, which leads to ear problems. There is more possibility of a remnant adenoid tissue which in turn leads to the development of recurrence and injuring the soft palate [5].

Various surgical and non-surgical procedures have been developed to remove adenoids, so far. There was a tremendous technology development in the field of otorhinolaryngology, one such thing is the discovery of the rigid Hopkins endoscope. With the help of endoscopes, ENT surgeons can visualise the inaccessible part of the human body and reduce the complications arising from the blind of the instruments during the surgery. The combination of the endoscopes with the other surgical procedures has recently gained more popularity. One such combination is the development of the endoscopic guided microdebrider-assisted adenoidectomy.

Microdebrider is one of the powered instruments with an excellent profile because of safety [6]. This microdebrider technique provides a perfect view of the nasopharynx and the adenoid tissues with the help of the endoscopes. Also, it influences the duration of the surgery and the amount of blood loss during surgery. It also affects other factors, such as postoperative pain, the time taken for recovery of the patients after the surgery and the completeness of removal of adenoid tissue from the nasopharynx [7].

However, the real advantage of microdebrider-assisted adenoidectomy over other techniques like conventional curettage adenoidectomy is not well documented in the literature and has been less studied so far. So, this study has been planned to evaluate the Objective and Subjective outcome measures between the surgical procedures such as conventional curettage adenoidectomy and the endoscopic guided microdebrider-assisted adenoidectomy.

AIM:
To assess the objective and subjective outcome measures in conventional curettage adenoidectomy versus endoscopic guided microdebrider assisted adenoidectomy.

OBJECTIVES OF THE STUDY:
1. To compare pre- and post-operative clinical outcomes regarding symptom relief in conventional curettage vs endoscopic guided microdebrider-assisted adenoidectomy.
2. To compare the duration of surgery and Intraoperative blood loss during adenoidectomy by both methods.
3. To evaluate the post-operative complication after performing adenoidectomy by conventional curettage versus endoscopic guided microdebrider assisted method.

MATERIALS AND METHODOLOGY:
Study Design
A Single Blinded Randomized Controlled Trial done at Department of ENT, Sri Venkateshwaraa Medical College Hospital and Research Centre, Ariyur, Puducherry for a period of 18 months from October 2022 to March 2024.

Sampling Technique
Simple Random sampling via computer-generated random number generation.

Sample Size
With a 95% confidence Interval, 90 % power of the study with a mean difference of 1.9, the expected sample size was calculated to be 60. The total sample size was divided equally into 30 for each Group A and Group B. The sample size was calculated using Open Epi software version 3.01.

Eligibility Criteria
Inclusion Criteria
1. Patients with adenoid hypertrophy who are all indicated for adenoidectomy
a. Obstructive sleep apnoea
b. Recurrent rhinosinusitis
c. Adenoid facies, hyponasal Speech, and orofacial deformities
2. Patient with adenoid hypertrophy refractory to medical treatment

Exclusion Criteria
1. Patients with Gross Deviated nasal septum, Inferior turbinate hypertrophy, Nasal synechiae.
2. Patients with Unilateral choanal atresia
3. Cleft palate or submucosal cleft palate

4. Coagulation disorder patients
5. Sinonasal polyposis, choanal atresia,
6. Tumours of the nose and nasopharynx

Methodology

The study was planned to assess the Objective and Subjective outcome measures in conventional curettage adenoidectomy versus endoscopic guided microdebrider-assisted adenoidectomy. The study was conducted over 18 months from the approval date of the Scientific Research Committee and the Institute Ethics Committee of the Sri Venkateswaraa Medical College and Research Institute in the Department of ENT of SVMCH&RC for the patients with signs and symptoms of adenoid hypertrophy, as per inclusion criteria, were included in the study. After the informed written consent, the participants were subjected to proper history taking, clinical examination, diagnostic nasal endoscopic examination, and x-ray nasopharynx lateral view.

The case proforma consists of 6 parts. The first part has basic demographic details of the patients like Name, age, sex, education, occupation, socio-economic status (modified BG Prasad Scale), and addresses with contact numbers.

The second part consisted of the history regarding adenoid hypertrophy and its complications, such as Nasal block, Nasal discharge, Post nasal discharge, nasal discharge, Snoring, Mouth breathing, Hyponasal voice, Cough, Epistaxis, Difficulty in breathing, Ear symptoms such as Ear pain/Ear discharge/Tinnitus/Hard of hearing were enquired preoperatively.

The third part consisted of a general physical examination and an ENT examination, and the values were marked in the clinical proforma. The fourth part consisted of the Investigations, such as diagnostic nasal endoscopy and the x-ray to assess the degree of the adenoid hypertrophy based on the Clements grading of the adenoid size as in Table 1.

The fifth part of the case proforma consisted of the various intra-operative parameters to be measured during the procedure, such as operative time, blood loss during the surgery, completeness of the adenoid tissue removal from the nasopharynx of the patient, and the damage by the St. Clair Thomson Adenoid curette and the microdebrider to the adjacent structures was noted.

Grade	Description
Grade 1	Adenoid tissue filling one-third of the vertical portion of the choanae
Grade 2	Adenoid tissue filling from one-third to two-thirds of the choanae
Grade 3	From two-thirds to nearly complete obstruction of the choanae
Grade 4	Complete choanae obstruction

Table 1: Clement's grading for Adenoid Size

The last part of the case proforma consisted of the post-operative parameters to be evaluated, such as the severity of pain, development of nasal discharge, or visualisation of the blood stain in the posterior pharyngeal wall or from the nasal cavities were assessed continuously during the 15^{th} and 90^{th} postoperative day of the surgery.

After the history, examination, and investigations, the patients were divided equally into groups, Group A and Group B, based on simple random sampling through computer-generated random numbers. All the patients in Group A were subjected to adenoidectomy by the conventional popular method using the St. Clair Thomson Adenoid Curette. The patients in Group B were subjected to a newer technique, which has been evolving: endoscopic guided microdebrider-assisted adenoidectomy.

The patient was subjected to the diagnostic nasal examination after removing the adenoid. The patient is extubated and sent to the post-operative ward for monitoring. During the post-operative period, the patient was evaluated for parameters such as severity of pain, development of nasal discharge, or visualisation of the blood stain in the posterior pharyngeal wall or from the nasal cavities. Then, intraoperative and postoperative parameters were monitored and recorded. Then, the patient was extubated and transferred to the post-operative ward for monitoring.

Assessment of Blood Loss during Surgery
The blood loss during the convention method was assessed with the help of the number of soakage of the 3-inch gauze and each soaked gauze corresponds to blood absorption of approximately 10 ml plus the blood collected in the suction apparatus. In the endoscopic method, the blood loss was calculated by subtracting the irrigation solution from the total fluid contained during the surgery in the suction apparatus.

Statistical analysis:
The analysis was done using SPSS software; descriptive statistics were obtained for quantitative variables like age and duration of surgery. Continuous variables like intraoperative blood loss, pain scale, and number of days of hospital stay was expressed in mean and standard deviation. Categorical variables like sex and chief complaints were expressed in frequency and percentage. To compare the significant mean difference between the group's student-t tests were used. The chi-square test was used to test the association between categorical groups. A p-value <0.05 will be considered as statistically significant.

RESULTS:
The age-wise distribution of the study participants is in Table 2. Nearly 50% of the study participants were 11 to 15 years old, and 33.3% belonged to the 6 to 10-year age group. And 11.7% were in the age group of 16 to 20 years, and only 1.7% of the study participants were in the 1 to 5-year age group. None of the study participants were above 20 years of age.

Age	Number	Percentage (%)
1-5	3	1.7
6-10	20	33.3
11-15	30	50
16-20	7	11.7

Table 2: Age Wise distribution of the study population (n=60)

Age distribution of the study participants based on the age group, in Group A more than quarter of the study participants 25% belonged to the 6 to 10 years of age, followed by 18.3% of the study participants were in the 6 to 10 year age group and 5% of the study participants were in the 16 to 20 year age group and only 1.7% in the 1 to 5 year age group. Concerning group B, about 25% were in the 11 to 15-year age group like group A, and 15% of the study participants were in the age group of 6 to 10 years. About 6.7 % of the study participants were in the 16 to 20 age group, and only 3.3% were in the 1 to 5 year age group, as in Table 3

Age	Group A	Group B
	N(%)	N(%)
1-5	1 (1.7)	2 (3.3)
6-10	11 (18.3)	9 (15)
11-15	15 (25)	15 (25)
16-20	3(5)	4 (6.7)

Table 3: Age-wise distribution of the study population based on the intervention group

Gender wise distribution of the study participants showed 33 males and 27 females participated. Among the male participants, 54.5% were in Group A and the remaining male participants, 45.5% were in Group B. Regarding the female participants who participated in the study, among 27 female participants, more than half, 44.5% of the female participants were in group A, and 45.5% of the participants were in group B as in Table 4

Age	Total Number	Group A	Group B
		N(%)	N(%)
Male	33	18 (54.5)	15 (45.5)
Female	27	12 (44.5)	15 (45.5)

Table 4: Gender distribution of the study participants

Based on the symptoms, 91.7%, had a history of nasal obstruction, and nearly half, 56.7% of the study participants had a mouth breathing history. Also, 56.7% of the study participants had a history of snoring. About 36.7% of the study participants had a history of nasal discharge; half of the study participants in both the intervention groups had a history of Hyponasal voice, and 56.7% had some history of otological symptoms as in Table 5.

Symptoms	Number	Percentage
Nasal Obstruction	55	91.7
Mouth breathing	34	56.7
Snoring	34	56.7
Nasal discharge	22	36.7
Hyponasal Voice	30	50
Otological Symptoms	34	56.7

Table 5: Distribution of the patients based on the symptoms

All the patients were evaluated for adenoid grading by Clemens and McMurray adenoid grading. In this study, nearly half of the patients (50%) had an adenoid grade of three. This was followed by 41.7% of the study participants having a grade of 2. 6.6% had a grade of 4, and only 1.7% had a grade one adenoid who participated in this study, as in Table 6.

Grade	Number	Percentage
Grade 1	1	1.7
Grade 2	25	41.7
Grade 3	30	50
Grade 4	4	6.6

Table 6: Preoperative adenoid grading of the study patients.

Amount of bleeding during the procedure between the two intervention groups was evaluated. In Group A, the mean bleeding volume was noted to be 52.6 $\pm$ 16.9 and in Group B the bleeding volume was found to be 133.2 $\pm$ 20.8 ml, table 7. There is a significant difference noted between the two intervention groups with a p-value of <0.001

Group	n	Bleeding Volume (ml)	p-value
Group A	30	52.6 $\pm$ 16.9	<0.001
Group B	30	133.2 $\pm$ 20.8	

Table 7: Comparison of bleeding Volume between the two intervention groups

On comparing the operative timing between conventional curettage adenoidectomy and microdebrider-assisted adenoidectomy, Group A's mean operative time was about 20.6 $\pm$ 5.8 minutes, the mean operative time for group B was found to be a little higher than the conventional group, 40.6 $\pm$ 6.1 ml, table 8. On comparing the difference between the two intervention groups, a significant association was noted between the two intervention groups with a p-value of less than 0.001.

Group	n	Operative Time (min)	p-value
Group A	30	20.6 $\pm$ 5.8	<0.001
Group B	30	40.6 $\pm$ 6.1	

Table 8: Comparison of Operative timing between the two intervention groups

The patients in both groups were evaluated for the presence of residual tissue between the two intervention groups after the surgical procedure. In Group A, it is surprising that about 23 patients had some form of residual tissue in the nasopharynx after the surgical procedure. Among the 23 patients, 63.3% had Grade 1 residual adenoids in the nasopharynx, and about 13.3% had Grade 2 residual adenoids in the nasopharynx, as in Table 9. In group B, only three patients had the presence of residual adenoid tissue after the procedure, and all of them had grade 1 residual adenoid tissue in the nasopharynx. On comparing the difference between the two intervention groups, a significant difference was noted between the two groups.

Residual Tissue Grading	Group A n (%)	Group B n (%)	p-value
Grade 1	19 (63.3)	3 (10)	<0.001
Grade 2	4 (13.3)	0	

Table9: Comparison of the Residual tissue after the procedure between the intervention groups

Patients in both intervention groups were evaluated for the recovery time between the procedures. In group A patients, the mean recovery time after the surgical procedure was 40.8 $\pm$ 6.8 minutes and in Group B was noted to be 42.6 $\pm$ 4.1 minutes. No significant difference was noted in evaluating the difference between the two intervention groups, as in Table 10.

Group	n	Recovery Time (min)	p-value
Group A	30	40.8 $\pm$ 6.8	0.2194
Group B	30	42.6 $\pm$ 4.1	

Table 10: Comparison of recovery time between the two-intervention groups

Regarding the development of intraoperative complications between the two groups, in Group A, about 33.3% of the patients had injuries of the eustachian tube opening in the nasopharynx during the operation by conventional technique, followed by 16.7% of the patient's injuries to the uvula and the gums respectively. Nearly 6.7% of the patients had injuries to lips and anterior pillars during the operation by conventional curettage technique, respectively, as in Table 11. Group B's percentage of the damage is less than Group A's. About 6.7% of the patients had injuries to the eustachian tube while operating with the help of the microdebrider and 3.3% of the patients had injuries to lips and gums, respectively. It was found that none of the patients got injuries to the uvula and the anterior pillars in our study.

Site of Trauma	**Group A n(%)**	**Group B n(%)**	**Total (n=60)**
Lips	2 (6.7)	1 (3.3)	3 (5)
Gums	5 (16.7)	1 (3.3)	6 (10)
Anterior pillar	2 (6.7)	0	2 (3.3)
Uvula	5 (16.7)	0	5 (8.3)
Eustachian tube opening	10 (33.3)	2 (6.7)	12 (20)

Table 11: Development of intraoperative complications between the two intervention groups

Regarding the pain on postoperative day 1, in group A, the mean amount of pain was found to be 3.4; in group B, the mean pain score was found to be 3.1 and there was no significant difference noted between the mean pain scores of the groups. On evaluating the pain score on postoperative day 7, the mean score of group A was 2.6, and the mean pain score for group B was 2.4 and on the 7th post-operative day, no significant difference was noted between the two intervention groups. Although the pain score decreased from the post operative day one to day seven, no significant difference was pointed out among the two intervention groups as in Table 12.

c	Group	Mean	SD	P value
Post-op Day 1	Group A	3.4	1.6	0.4287
	Group B	3.1	1.3	
Post-op Day 7	Group A	2.6	1.3	0.5686
	Group B	2.4	1.4	

Table 12: Comparison of pain score on the post-operative Day 1 and Day 7 between the two intervention groups

On evaluation for the development of post-operative complications; in group A, about 16.7% of the patients developed nasal bleeding, followed by 10% of the patients who developed velopharyngeal insufficiency, and only 6.7% of patients had oral bleeding during the post-operative period. In Group B, it is surprising that nearly 23.3% of the patients developed bleeding from the nasal cavity and 3.3% developed oral bleeding and synechiae during the post-operative period, as in Table 13.

Post Operative Complications	Group A n (%)	Group B n (%)	Total (n=60)
Nasal Bleed	5 (16.7)	7 (23.3)	12 (20)
Oral Bleed	2 (6.7)	1 (3.3)	3 (5)
Synechiae	0	1 (3.3)	1 (0.2)
Velopharyngeal Insufficiency	3 (10)	0	3 (5)

Table 13: Development of Postoperative complications between the intervention groups

On assessing the improvement of symptoms after three months, group A patients had 66.7% improvement of the symptoms. In group B about 96.7% of the patients reported improvement in symptoms and only 3.3% reported persistence of symptoms, as in Table 14.

Group	No. of patients with improved Symptoms n(%)	No. of patients with persistent symptoms n(%)
Group A	20 (66.7)	10 (33.3)
Group B	29 (96.7)	1 (3.3)

Table 14: Improvement of symptoms during the follow-up period

DISCUSSION:

In the present study, the age-wise distribution of the study participants, half were in the age group of 11 to 15 years and the age group of 6 to 15 years is more commonly affected because it is the age group of lymphoid development. Similar to our study, Modi *et al.*, [8] also showed most commonly affected age group is 11 to 15 years of age, next most common is 6 to 10 years of age. The study by Rout *et al.*, [9] also showed that the most common age group of adenoid hypertrophy is between 6 and 10 years of age, followed by it begins to atrophy by 15 years of age.

Distribution of the study population based on the intervention groups was nearly equal number of patients, which was similar to Modi *et al.*, [8] showed equal age group distribution between the intervention groups. Males and females equally participated led to reduced gender bias. Survey by Shaweta *et al.*, showed similar results regarding the distribution of the sex among the study participants [10]. Distribution of the symptoms among the patients with adenoid hypertrophy, about 91.7% of the study participants had a history of nasal obstruction. The study from the informed health organization also showed that the most common symptoms of adenoid hypertrophy are mouth breathing, snoring, and following by nasal obstruction [11].

In the present study, about half of the patients had adenoid enlargement of grade 3, 41.7% with grade 2 adenoid enlargement, 6.6% grade 4, and only 1.7% were in grade 1. Study by Ananth *et al.*, [12] showed 76% had Grade IV adenoids, followed by 24% of the patients had Grade III adenoids. The study by Thingujam *et al.*, [13] showed most of the patients had grade II and Grade III adenoid enlargement.

The mean blood loss during the conventional curettage adenoidectomy was about 52.6$\pm$16.9 ml, and the average amount of blood loss by the microdebrider assisted adenoidectomy was found to be 133.2+20.8 ml which is somewhat higher than the conventional curettage technique. A significant difference was noted in the blood loss between the two groups, with a value of less than 0.001. The study by Harugop *et al.*, [1] also showed similar results; the mean blood loss by conventional technique was 44.8 ml, and the average blood loss in microdebrider-assisted adenoidectomy was 77.3 ml. The study by Alokkan *et al.*, [14] also showed similar results: the mean average blood loss during the conventional curettage adenoidectomy was found to be 30.5 ml, and the average blood loss during the microdebrider-assisted adenoidectomy was found to be 41.7 ml and this difference shows significance with the p-value of 0.0001. Contrary to our study, Feng *et al.*, [15] showed that the conventional curettage technique group had more bleeding than the powered instrument group, which was not statistically significant.

In the present study, the mean operative time for the conventional curettage adenoidectomy was 20.6+5.8 minutes, and for microdebrider-assisted adenoidectomy was 40.6+6.1 minutes. Like our study, Harugop *et al.*, [1] also showed that the conventional curettage adenoidectomy took less operative time. The study by Singh *et al.*, [16] also showed similar results; the endoscopic microdebrider-assisted adenoidectomy took longer time. The study by Modi *et al*., [8] also showed that microdebrider-assisted adenoidectomy took longer than the conventional technique. The longer time in the microdebrider-assisted adenoidectomy is due mainly to the

time taken up for setting up the instrumentation and equipment and the endoscopic visualization of the nasopharynx and the adenoid tissue and the bit-by-bit removal of the adenoid tissue under endoscopic guidance and the time consumption for the achieving hemostasis is taking longer than the conventional technique due to increasing amount of bleeding in this group. Microdebrider-assisted adenoidectomy is one of the new surgical techniques that evolved to remove adenoids since most of the latest surgical procedures take a learning curve to the verse in the procedure.

Similar to our study Bradoo *et al.,* [17] in 2010 also showed that the mean time taken for the conventional adenoidectomy was only 9 minutes and for microdebrider assisted adenoidectomy was found to be 14 minutes with a statically significant difference. The study by Datta *et al.,* [5] also showed the mean average time for the conventional technique was 29.3 minutes and for powered endoscopic adenoidectomy, the operative time was 39.3 minutes with a significant difference between the two.

On comparing the presence of the residual tissue after the surgical procedure, in Group A about 63% of the patients had Grade I residual adenoid tissue, in Group B, only 10% had Grade 1 residual adenoid tissue postoperatively, which is statistically significant with p value less than 0.001.

Results were also noted in the Bradoo study [17], which showed that 87.5% of the patients operated by the conventional technique and 31.2% of the patients operated by the microdebrider technique showed residual adenoid tissue with a statistically significant difference. The study by Harugop *et al.,* [1] also showed a significant difference between the two groups with the complete removal of the adenoid tissue in the microdebrider group. Microdebrider assisted adenoidectomy is done under the guidance of the endoscope, each bit of tissues were removed slowly under endoscopic guidance, so there is least possibility of the procedure to leave some residual tissue in the nasopharynx during the surgery. If sometimes left also, that can be easily find during the procedure itself, and that also can be removed then and there without any morbidity. This is the reason for the complete removal of the tissue in the microdebrider assisted adenoidectomy than the conventional technique.

On evaluating the recovery time after the procedure between the two intervention groups, this study showed no significant difference between the two groups was noted in recovery time after the surgery, similar results were also noted in the study by Singh *et al.,* [16]. The study by Das [18] *et al.,* showed no significant p-value which is consistent the results of our study.

Evaluation of the incidence of injury to various structures between the two intervention groups, the microdebrider group's injury to various structures during the intra-operative period is comparatively less than the conventional curettage technique. The study by Modi *et al.,* [8] also showed similar results to our research. The reason behind the lower amount of morbidities associated with microdebrider-assisted adenoidectomy was explained by Costantini *et al.,* [19]. The studies by Rodriguez *et al.,* [20], Koltai *et al.,* [21] and Murray *et al.,* [22] described the safety and precision of the trans-oral curved microdebrider.

On evaluating the presence of pain on the post-operative days, no significant difference was noted between the two groups in our study. Similar results were also noted in the study by Das *et al.,* [23]. Contrary to our study, Lister *et al.,* [24] and Costantini *et al.,* [19] showed a substantial reduction in pain during the postoperative period in the microdebrider group. Similar to our study, Elmagd *et al.,* [25] compared the pain on the first and seventh postoperative days using visual analogue scales between the two intervention groups. Studies by Datta *et al.,* [5] and Anand *et al.,* [26] showed less post operative pain in the microdebrider-assisted adenoidectomy group contradicting our present study. The study by Suresh Kumar *et al.,* [27] showed that the microdebrider-assisted adenoidectomy is associated with more post operative pain, pain during feeding and difficulty in talking than the comparison group.

Follow up after three months for the improvement and persistence of symptoms; in group A, about 66.7% showed improvement in symptoms and 33.3% had persistent symptoms. In group B, 96.7% had improvement of symptoms and only one patient (3.3%) had persistent symptoms. Our study results were consistent with the results of the Modi study [8]. The study by Singh *et al.,* [16] followed by the patients for three months showed no residual disease was noted in the microdebrider-assisted adenoidectomy group. Similar to our research, a study by Havas and Lowinger [28] and Stanislaw *et al.,* [29] also showed the presence of greater residual

adenoid tissue in the nasopharynx of the conventional curettage adenoidectomy patient than the microdebrider assisted adenoidectomy patients which in turn leads the development of the nasopharyngeal symptoms in the post-operative period and development of complications such as obstructive sleep apnea.

CONCLUSION:

Microdebrider-assisted adenoidectomy has proven its importance by complete tissue clearance at the expense of increased bleeding and operative time. In the present time, the use of the nasal endoscope is a routine practice, but the availability of the powered instrument like microdebrider is less. The endoscopic guided microdebrider-assisted adenoidectomy needed a smaller learning curve than the conventional technique. Though the surgery cost is higher than the conventional technique, precise dissection under endoscopic vision, fewer complications and better disease clearance make this technique a safe and efficacious one.

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