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Adenoidectomy: Blind Curettage or Endoscopic Assisted Curettage? A Comparative Study

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Abstract:
Introduction*: Adenoidectomy is one of the commonest operations performed all over the world. Most frequently done procedure is conventional curette adenoidectomy. Numerous methods have been developed such as laser, microdebrider, radiofrequency, coblation and endoscopic-assisted techniques.The objective of this study is to compare the efficacy of conventional and endoscopic assisted curettage adenoidectomy (EAA).*
Materials and Methods*: 120 patients between the age of 7-15 years and requiring adenoidectomy for various symptoms were enrolled in the study. All the study participants underwent a preoperative assessment which includes clinical examination for nasal patency, ear examination, nasal endoscopy and radiography of post-nasal space. All the patients were randomized into two groups, each of sixty. Group A underwent blind curettage technique and Group B underwent endoscopic assisted curettage adenoidectomy*
Results*: Residual adenoid tissues were found in 22 patients (36.66%) of Group B while the same was seen in 40 patients (66.66%) of Group A. In Group A, 12 (20%) patients were seen to have injury to adjacent structures whereas in Group B only 4 (6.66%) patients showed injury. Blood loss was more in endoscopic assisted curettage adenoidectomy method as compared to conventional method.*
Conclusion: *Endoscopic assisted curettage adenoidectomy is a superior alternative as it gives better visualization and complete resection.*
Key Word*: Adenoidectomy, conventional curette adenoidectomy, Endoscopic assisted curettage Adenoidectomy*

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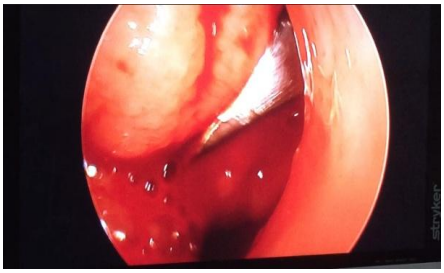
I. Introduction:

Adenoid hypertrophy is a common condition in children causing symptoms such as nasal obstruction, nasal discharge, mouth breathing, snoring, sleep apnea and other sleep related breathing disorders besides contributing to rhino sinusitis, recurrent otitis media and otitis media with effusion [(1)]. Adenoidectomy is among the most commonly performed surgical procedure all over the world. 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 hypo nasal 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 performed alone or combined with other procedures like tonsillectomy and/or myringotomy. It has been a subject for several clinical research studies, to enhance its quality, improve outcome and to reduce postoperative complications **(5)**. The operative procedure of choice for adenoidectomy should attain a safe removal criteria, which includes minimum blood loss, less postoperative morbidity, no or minimum recurrence **(6)**. Most commonly used conventional curettage adenoidectomy was first explained 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 a need to develop newer technologies and operative procedures which improve the post-operative outcome. Numerous methods have been developed such as monopolar and bipolar diathermy, laser, microdebrider, radiofrequency, coblation and endoscopic assisted techniques. All the above procedures were introduced with the aim 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)**. Endoscopic assisted curettage adenoidectomy had been proposed to enable complete to near-complete removal of adenoidectomy under direct visualization. The aim of the present study is to compare the advantages and disadvantages of the Endoscopic assisted curettage adenoidectomy with the conventional curettage technique in the operation of adenoidectomy.

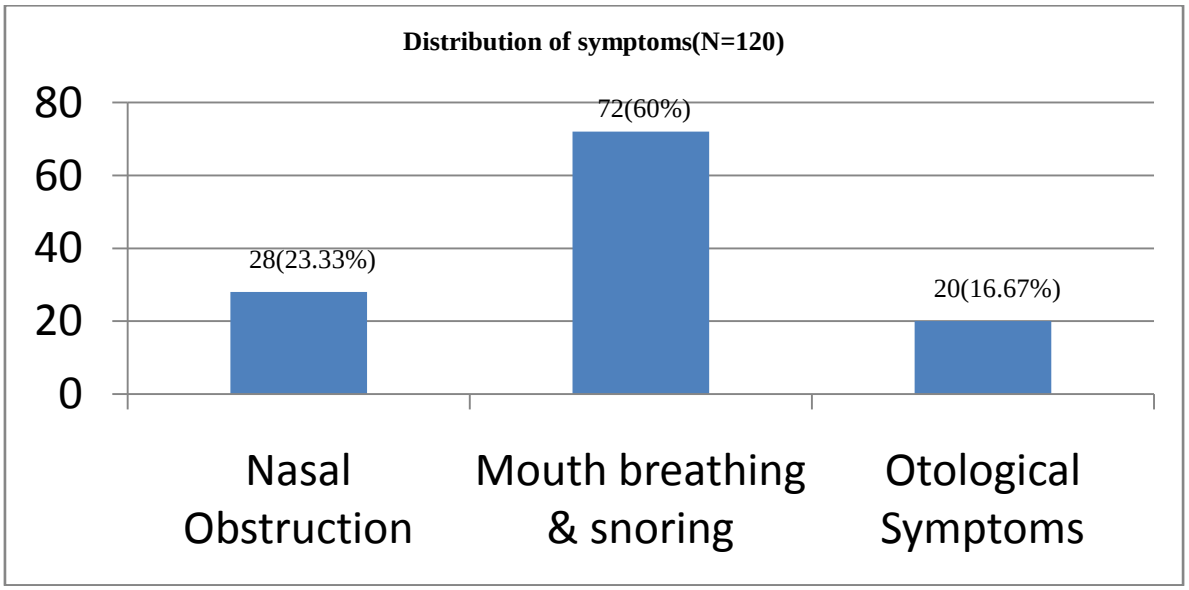
II. Material & Method:

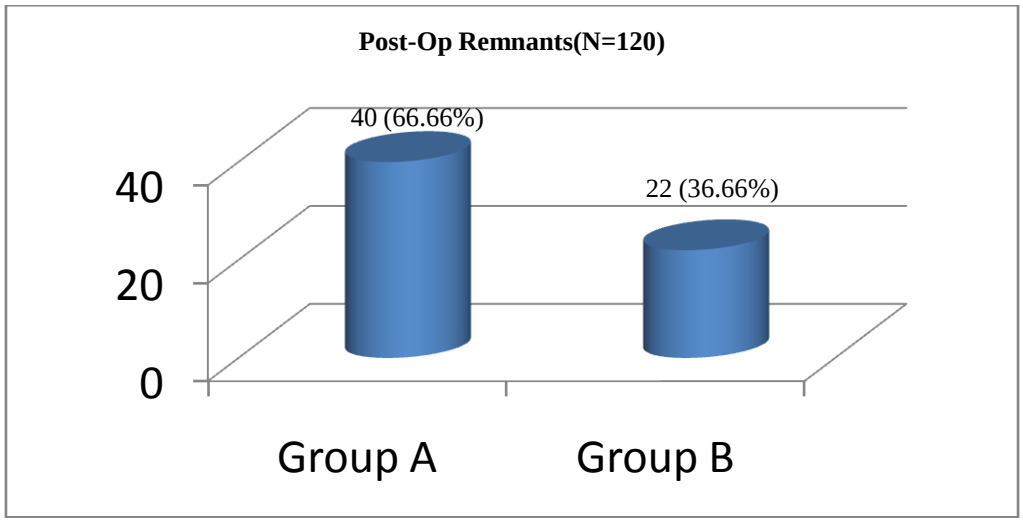
The present study was carried out in Mahatma Gandhi medical college and hospital, Jaipur, Rajasthan. To obtain the study objectives, we designed a prospective randomized trial. 120 patients between the age of 7-15 years and requiring adenoidectomy for various symptoms were enrolled in the study. All study participants underwent a preoperative assessment which includes clinical examination for nasal patency, ear examination, nasal endoscopy 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 sixty. Group A underwent blind curettage technique and Group B underwent endoscopic assisted curettage technique. In the endoscopic assisted technique, we used 0 degree endoscope of 4mm diameter trans-nasally and a St. Claire Thompson adenoid curette trans-orally. When it was not possible because of anatomical site limitations, we used 70 degree endoscope trans-orally. No posterior packing and no cautery was used during the procedure. The study variables were primary hemorrhage, injury to adjacent structures and complete removal of adenoids. Outcome variables include post-nasal space assessment, any remnant, and nasal endoscopy one month after the procedure along with symptoms of sleep obstruction pattern.

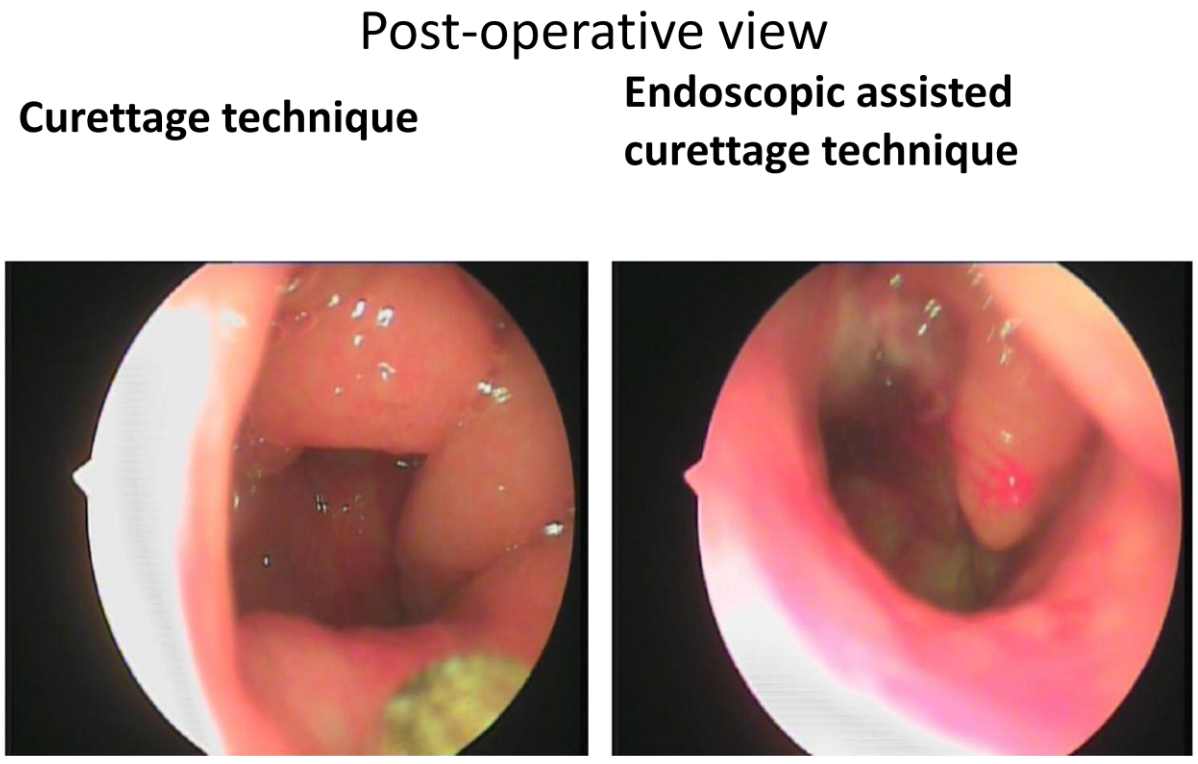


III. Results:

In the present study, a total of 120 subjects were randomly selected based on their need for Adenoidectomy. 120 subjects were randomly divided into two groups of sixty individuals each. Group A underwent blind curettage technique and Group B underwent endoscopic assisted curettage technique. The mean age of patients was 8.4 years in Group A and 9 years in Group B. Out of 120 patients, an overall male preponderance was seen with 69 (57.5%) males and 51 (42.5%) females. Among the 120 patients mouth breathing & snoring was found to be the most common symptom, seen in 72 patients (60%) which was followed by nasal obstruction, present in 28 patients (23.33%). The least common were otologic symptoms, seen in 20 patients (16.67%). Post-operative nasal endoscopy, done to check for the residual adenoid tissues, showed that both the groups had residual adenoid tissue but Group A 66.66% (40 cases) had a higher number of patients then Group B 36.66% (22 cases). The nasal endoscopy also assessed the injury to adjacent structures. In Group A, 12 patients (20%) had trauma, all were minor and associated with the uvula and posterior pharyngeal wall and Eustachian tube opening whereas in Group B trauma was seen in 4 patients (6.66%), which was minor septal mucosal injuries due to anatomical constraints. The mean blood loss in Group A was 30 ml and 35 ml in Group B.







IV. Discussion:

Adenoidectomy is one of the most common procedures performed by otolaryngologists. It has been performed for more than 100 years. For many years, it was performed by strictly a transoral approach with curettage, an adenoid punch, and an adenotome. One advantage of performing a more complete adenoidectomy is decreasing the bacterial reservoir, which affects children with Otitis Media, nasopharyngitis, and possibly sinusitis as well. It would also be beneficial in preventing recurrent airway obstructive symptoms. Adenoidectomy done using adenotome or adenoid curette to remove hypertrophied adenoid tissue does not always produce complete removal of the adenoid, especially the superior and peritubal portions of adenoid that obstruct the nasopharynx and the orifice of the Eustachian tube. Overly aggressive curettage may result in inadvertent damage to muscle, the choana, or other structures.

Pearl and Manoukian [(10)] identified the presence of choanal adenoids in 9.4% of the adenoidectomy population and suggested this tissue is missed using conventional adenoidectomy techniques. Conversely, if an attempt is made to remove the tissue with too much force, it is possible to injure the posterior choana and the muscular layer of the posterior pharyngeal wall. This may result in massive hemorrhage. If the Eustachian tube

is damaged, the dysfunction can be irreversible. To obtain better visualization of the adenoids, Pearl and Manoukian reported the adjuvant use of an indirect laryngeal mirror to light the dark nasopharyngeal space. However, the mirror image was no better than the direct visualisations. Additionally instruments used in the operation could affect the ability of the mirror image.

Becker et al [(11)] reported using endoscopic adenoidectomy for serous OM in young adolescents and adults. The enlarged adenoids were removed piece by piece with a Blakesley forceps under transnasal endoscopic visualization. This caused increased blood loss, prolonged time needed for anesthesia, and increased postoperative complications.

In our study, 120 cases were operated by either conventional method or endoscopic-assisted techniques. The cases were grouped into group A for conventional surgery and group B for EAA. The mean age was found to be 8.4 years, which compares well with the study by Georgalas et al [(12)] where the mean age of the patients was 8.4 years. In our study, a male preponderance was seen with 57.5% of males and 42.5% of females, which compares well with the study of Flanary [(13)] in which males were 51.6% and females were 43.3%. We observed sleep disturbance, nasal obstruction, mouth breathing, snoring followed by otological symptoms as commonest presentation whereas Georgalas et al reported symptoms such as mouth breathing snoring, rhinorrhea, and cough. Huang et al [(14)] reported in their study nasal obstruction, mouth breathing, and snoring, as was also observed by us. In our study, three patients had recurrence of nasal obstruction and nasal discharge after 6 months of conventional adenoidectomy, while in EAA there was no such case of recurrence which correlates with the study by Cannon et al [(15)]; which states that complete adenoidectomy involves decreasing the bacterial reservoir, which affects the children with Otitis Media, nasopharyngitis, and possibly sinusitis as well.

Although coblator, microdebrider, laser, and radiofrequency are the recent advances in the modern era of endoscopic surgery, owing to their high cost, they are not readily available at most ENT centers. On the other hand endoscopes are comparatively cheaper and essential OPD tool and are available at most of the centers. Therefore, instead of performing blind curettage, endoscopic guided curettage stands out as a far superior method as it assures direct visualization and complete removal of adenoid tissue. Also, hemostasis can be achieved under direct vision using a bipolar cautery. Hence, Endoscopic –assisted adenoidectomy was found to be safer, more effective and with particularly less complication rate, ensuring complete removal. However, it does have some drawbacks like anatomical constraints and need for expertise and availability of equipments.

V. Conclusion:

Endoscopic assisted curettage adenoidectomy is a superior alternative as it gives better visualization and complete resection. Conventional adenoidectomy in experienced hands and EAA have comparable success rates, but conventional adenoidectomy followed by endoscopic assisted removal of residual adenoid tissue achieves complete removal and hemostasis under direct vision. All powered procedures require special and often expensive equipments that are not universally available at most centers. Nowadays, endoscopes are cheap and readily available in almost all centers and thus one should make use of endoscopic guided curettage adenoidectomy rather than conventional blind curettage method.

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