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COMPARATIVE STUDY BETWEEN CONVENTIONAL CURETTAGE ADENOIDECTOMY AND ENDOSCOPIC POWER ASSISTED ADENOIDECTOMY

Otolaryngology

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ABSTRACT

Objective: To compare adenoidectomy using conventional curettage method to endoscopic power assisted method with respect to subjective relief of symptoms, intra operative and post operative parameters and complications

Study Design: Prospective Study

Methods: Sixty consecutive cases between the ages of 5-15, requiring adenoidectomy for various indications and fulfilling the inclusion and exclusion criteria were included in the study. Consisting of Group A, cases undergoing Conventional Adenoidectomy using Curettage method and Group B undergoing Endoscopic Power assisted Adenoidectomy

Results:

Conclusion: The newer method of endoscopic powered adenoidectomy was found to be a safe and useful tool for adenoidectomy. It scored on rapid surgery, less bleeding, completeness of resection, accurate removal, less collateral damage, lesser post operative pain and faster recovery.

KEYWORDS

Microdebrider, Endoscope, Curettage, Adenoid

INTRODUCTION:

Adenoidectomy is a commonly performed ENT surgery. Adenoidectomy forms a valuable treatment option when chronic adenoiditis or chronic adenotonsillitis or adenoid hypertrophy with middle ear and sinus disorders is the definite disorder in nasal airway obstruction, with sleep disordered breathing, otitis media with effusion, recurrent otitis media, and chronic and/or recurrent rhinosinusitis .Patients present with rhinorrhea, chronic mouth breathing, excessive snoring , apneic episodes, enuresis, daytime somnolence, neurocognitive and learning problems. Adenoidectomy provides a symptomatic recovery with a strong impact on improving the quality of life and health status of the patients.

METHODS:

Sixty consecutive cases between the ages of 5-15, admitted in Government Theni Medical College Hospital, Theni and requiring adenoidectomy for various indications and fulfilling the inclusion and exclusion criteria were included in the study.

All subjects including their parents were counselled about the nature of the study and informed and written consent taken.

On enrolment, the subject underwent a baseline evaluation including symptom analysis and nasal endoscopy.

All symptoms recorded and their severity graded with Visual Analog Scale.

The grade of adenoid hypertrophy was assessed using the scale described by Clemens and Mcmurray All the cases were randomized into two groups consecutively. Group A consisted of cases undergoing Conventional Adenoidectomy using Curettage method and Group B undergoing Endoscopic Powered

Adenoidectomy.

All surgeries were performed by a single surgeon.
General anaesthesia was used using oro-tracheal tube and a laryngeal pack.

Surgical Technique

In the conventional technique, adenoidectomy was done using the adenoid curette.

In the endoscopic technique, the endoscope was used along with a micro-debrider in the oscillating mode with saline irrigation using speeds up to 2400 rpm to curette and shave off the adenoid tissue using angled adenoidectomy blades.

Bipolar cautery was used to stop bleeding from the raw surface of the adenoid bed. The procedure was visualized using 2.7mm and 4mm nasal endoscopes using the contra- lateral nostril as the conduit. When it was not possible to introduce the scope from the opposite side, an angled 45-70 degree scope was introduced through the oral cavity and working end of the instruments seen.

PARAMETERS COMPARED:

The intra-operative parameters studied were operative time, primary bleeding, completeness of removal of adenoid and collateral damage. Post-operative parameters included assessment of post-operative pain and recovery time. During each followup patient evaluated for symptom relief and remnant adenoid tissue

Intra operative time was defined as the time taken for completion of the procedure from the time patient was handed over by the anaesthetist and included preoperative endoscopic examination to assess adenoid grade, operative steps, packing, securing the bleeding and post operative endoscopy. The measurement ended when the patient was handed back to the anaesthetist.

The amount of primary bleeding was assessed by a rough though time tested guide. For the conventional adenoidectomy group, the number of three square inch gauze pieces used for packing the nasopharynx were counted and each gauze was assumed to a corresponding blood loss of 10 ml. In the endoscopic method, the blood loss was assessed by whatever came into the suction minus the irrigation solution.

At the end of the procedure, completeness of adenoid removal was assessed by nasal endoscopy in both groups. Less than 20% of residual adenoid was regarded as complete removal, 20-50% indicating partial removal and more than 50% residual indicating suboptimal removal.

Post operative pain was assessed using a six point faces scale (where 0= no pain and 10= intolerable pain).

The recovery time was, number of days taken to return to normal activity as gauged by the patient / parents during the routine follow-up visit at seven days.

Patient advised post operative follow up on first and third week, and on second month, in each visit, symptom relief and nasal endoscopy to assess remnant, and neighbouring structure injury was done.

RESULTS:
The data obtained was compared in each group and the mean in two groups statistically analysed using the paired t test for significance.

Age distribution:

AGE GROUP	NUMBER OF PATIENTS
5 TO 10 YEARS	45
11 TO 15 YEARS	15

Out of 60 patients included in the study, 45 patients(75%) were in the age group 5 to 10 years and remaining 15 patients(25%) were in 11 to 15 years age group.

Groupwise age distribution:

AGE IN YEARS	CONVENTIONAL CURETTAGE ADENOIDECTOMY	ENDOSCOPIC POWER ASSISTED ADENOIDECTOMY
5 TO 10	22	23
11 TO 15	8	7

Out of 45 children in 5 to 10 years age group, 22 underwent curettage adenoidectomy and 23 underwent powered adenoidectomy. Similarly out of 15 children in 11 to 15 age group, 8 underwent curettage method and 7 underwent powered adenoidectomy.

Sex Distribution: Out of 60 children included in the study, 26 children (43%) were male and 34children (57%) were female.

GroupWise Sex Distribution: Out of 26 males, 15 underwent curettage adenoidectomy and 11 underwent powered adenoidectomy. Out of 34 female patients,15 underwent curettage adenoidectomy and 19 underwent powered adenoidectomy.

Symptom profile of patients: Among 60 children chosen for the study, all 60 children (100%) had nasal obstruction ,55 children (92%) had mouth breathing and snoring. Thus the sleep disordered breathing accounts as major indicator for adenoidectomy.34 children (57%) had throat pain requiring tonsillectomy along with adenoidectomy.

13 children had middle ear diseases,10 children (17%) having hard of hearing and 3children (5%) having ear discharge.Only 2 children(3%) has nasal discharge indicating paediatric rhinosinusitis along with adenoiditis.

Grades of adenoid: Out of 60 symptomatic children,39 children (65%) had grade 3 adenoid hypertrophy,while about 21 children(35%) has complete obstruction(grade 4). 5 children(8%) had symptom even with grade 2 enlargement.

Intra operative blood loss: The intraoperative blood loss in curettage adenoidectomy subjects varied from 15 to 32 ml with a mean of 23.3 ml . In contrast in powered endoscopic surgery the time taken varied from 10 to 30 ml with a mean of 17.8 ml. The difference in time taken in the two procedure was found to be significant ($p<0.05$).

Operative time: Mean Operative time in curettage adenoidectomy group was 18.33 minutes and mean operative time in powered adenoidectomy was 12.17 minutes. The difference was found to be statistically significant.($P<0.05\%$).

Painscale: Post operatively, patients undergoing isolated adenoidectomy were assessed for pain. The two groups were compared and statistical analysis showed mean pain score of 4.75 in curettage group and 3.5 in powered adenoidectomy group. This showed that the difference was statistically not significant ($P>0.05$).
Post operative recovery: The mean recovery period was 3.6 days in curettage adenoidectomy and 2.1 days in powered adenoidectomy. Thus the difference was statistically significant ($P<0.05$).

Post operative adenoid remnant: Post operative endoscopic examination shows that in power assisted adenoidectomy all patients had optimal adenoid removal. In curettage adenoidectomy out of 30 patients, 7 children (23%) had significant adenoid remnant indicating sub optimal removal of adenoid.

Neighbouring structure injury: Out of 60 children undergoing adenoidectomy, only 5 children had neighbouring structure injury. All 5 children had undergone curettage adenoidectomy.2 having torus tubaris injury and 3 having nasal or septal injury.

Post-operative symptom relief:

SYMPTOM RELIEF AFTER	CONVENTIONAL CURETTAGE ADENOIDECTOMY	ENDOSCOPIC POWER ASSISTED ADENOIDECTOMY
1ST WEEK	5	8
3RD WEEK	13	21
2ND MONTH	21	28

28 out of 30 (93%) children are symptom free in powered adenoidectomy group while 21 out of 30(70%) children are symptom free in curettage method after 2 months of surgery.

DISCUSSION:
The present study attempts to compare the conventional curettage method with endoscopic powered technique. Randomisation was done in the present study to enable a more thorough comparison. The groups were also evenly matched to type of surgery done.

In the present series sleep disordered breathing formed the predominant indication in both our groups, thus depicting the increasing trend to diagnose and surgically treat this condition.

Though the precise steps of the adenoidectomy would only take 4-5 minutes, we felt that a true assessment of the operative time should include all steps including preoperative endoscopy, packing and securing the bleeding and checking for haemostasis. The overall operative time was on the higher side in curettage adenoidectomy group. The lesser operative time in the endoscopic powered adenoidectomy technique is probably due to direct visualisation of nasopharynx with endoscope was precise and rapid removal with powered instrument. Precise dissection and use of bipolar diathermy reduces bleeding and leads to quick surgery further leading to early recovery.

Similarly, intra-operative blood loss was higher in curettage adenoidectomy group. Further precise dissection reduces tissue damage. Electocautery can also be applied to attain hemostasis, further more less operative time leads to lesser bleeding.

It has often been noted by authors that the extent of resection following conventional adenoidectomy has been incomplete. It was felt therefore that an endoscopic assessment be used to determine the extent of residual tissue. The results show that resection was invariably complete by the endoscopic method in contrast to curettage method where in seven (23%) cases more than 50% tissue was remaining and an additional 30% where between 20-50% of adenoid tissue was left.

Collateral damage following adenoidectomy is uncommon. However there is always a fear of trauma to the Eustachian tube opening. The torus tubaris region was partially injured in two cases and septal/nasal injury occurred in three cases of curettage adenoidectomy. To summarise, though curettage technique has its own peculiar problems Adenoidectomy is a well tolerated procedure. The simple six point faces pain scale which has shown it to be a simple and reliable pain scale was used. The post-operative pain in the powered adenoidectomy group was lesser than the conventional method though this was not statistically significant. The present study does not show such a significant reduction in post-operative pain, probably due to the fact that adenoidectomy done in isolation causes lesser post- operative pain per se. The recovery time after any surgery is difficult to define as different parameters are used by different studies. We adopted a simple method and let the parent/ patient determine when he/she felt normal. The question was asked about "return to normal activity" following the surgery in the post operative follow up. The recovery period in the debrider assisted adenoidectomy was shorter than conventional adenoidectomy and this difference was statistically significant. The use of debrider resulted in faster recovery by an average of 1.5 days.

CONCLUSION:
The newer method of endoscopic powered adenoidectomy was found to be a safe and useful tool for adenoidectomy.
It scored on rapid surgery,less bleeding,completeness of resection,

accurate removal, less collateral damage, lesser post operative pain and faster recovery.

The need for special equipment and cost of procedure has to be kept in mind. The Indian scenario presents a situation where availability of the equipment is also a factor in choosing the method of surgery for each patient.

But in cases of submucus cleft palate and cranio facial anomalies requires an accurate removal using endoscope and debrider enabling the surgeon to carefully excise part of the adenoid and leave the velopharyngeal sphincter untouched.

To conclude, endoscope assisted powered adenoidectomy needs to be acknowledged as a safe alternate to conventional adenoidectomy.

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