International Journal of Otorhinolaryngology and Head and Neck Surgery
Kumar A et al. Int J Otorhinolaryngol Head Neck Surg. 2018 Jul;4(4):1053-1056
http://www.ijorl.com
pISSN 2454-5929 | eISSN 2454-5937

DOI: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20182712

Original Research Article

A comparative study of endoscopic assisted curettage adenoidectomy with conventional adenoidectomy

Abhay Kumar[1], Prabhu Narayan[2], Prem Narain[1]*, Jaypal Singh[1], Prateek Kumar Porwal[1], Sanjay Sharma[3]

[1]Department of ENT, UPUMS, Saifai, Etawah, Uttar Pradesh, India
[2]P N Jaiswal ENT Care, Gorakhpur, Uttar Pradesh, India
[3]Department of ENT and Head and Neck Surgery, GSVM, Kanpur, Uttar Pradesh, India

Received: 23 April 2018
Revised: 01 June 2018
Accepted: 02 June 2018

***Correspondence:**
Dr. Prem Narain,
E-mail: njmsonline @gmail.com

ABSTRACT

Background: In ENT adenoidectomy is a commonly performed surgery. It is conventionally done using the curettage method. This present study aims to evaluate endoscopic assisted curettage adenoidectomy as an alternative.
Methods: The present study consisted of forty cases requiring adenoidectomy were divided into two groups of twenty each. In Group A adenoidectomy was done by conventional curettage method and in Group B by endoscopic assisted micro-debrider adenoidectomy. The parameters studied between two groups were intra-operative time, intra-operative bleeding and completeness of resection .The study period was from June 2015 to December 2016.
Results: The average time taken in Group A (conventional surgery) was 5.30 minutes and in Group B (powered endoscopic surgery) was 12.30 minute. The average blood loss in Group A was 35 ml (range 10–50) as compared to 30 ml in Group B. Nearly 25 % of the patients who underwent endoscopic assisted adenoidectomy had grade II adenoids. About 30% of the patients who underwent conventional adenoidectomy had Grade III adenoids. A total of 10% of the patients developed primary haemorrhage which was more in conventional adenoidectomy (15%) as compared to endoscopic adenoidectomy (5%).
Conclusions: Endoscopic assisted microdebrider adenoidectomy was found to be a safe and effective tool for adenoidectomy. Endoscopic adenoidectomy better for completeness of resection, accurate resection under vision. On the other hand, in conventional adenoidectomy operative time and intra-operative bleeding was less.

Keywords: Adenoidectomy, Curettage method, Endoscopic adenoidectomy

INTRODUCTION

Adenoids, is a condensation of lymphoid tissue in nasopharynx. It forms a part of Waldeyer's ring which was initely describe in 1868 by Meyer.[1] Waldeyer's ring is form by palatine tonsils, pharyngeal tonsil (or) adenoids, lingual tonsils and are part of the mucosa associated lymphoid tissue (MALT) system. Tonsils and adenoids are first line defense for protection of the lower airways and the gastrointestinal tract. An acute upper respiratory tract infection affects the adenoid results in hyperplasia with multiplication of lymphoid follicles. Hypertrophied adenoid produces impairment of nasal respiration, mouth breathing, snoring and recurrent otitis media. Adenoids hypertrophy occurs physiologically in children between the age of 6-10 years, then atrophy at the age of 16 years.[2] Enlargement of adenoid is uncommon in adults but various studies have shown that adenoid hypertrophy is increasing in adults due to various causes like chronic infection and allergy.[3] Adenoids

provide local immunity against bacteria, viruses and toxins. Although adenoid tissue undergoes regression toward the adolescent period, acute and chronic inflammation can cause progressive enlargement of adenoids.[4] Regressed adenoid tissue may re-proliferate in response to infections and irritants.[5] An adenoidectomy can be done by variety of instruments, such as adenoid curette, an adenotome, an adenoid punch, a suction cautery, Blakesley forceps, microdebriders.[6,7]. Traditionally, Adenoid curette is most commonly used for adenoidectomy but it should not remove the adenoid tissue completely .[6,8] In 1992, Becker at al reported endoscopic assisted adenoidectomy by using Blakesley forceps piece by piece.[9] Cannon et al in 1999 described "Endoscopic assisted adenoidectomy (EAA)". According to this technique, at the end of a conventional adenoidectomy, both the nasal cavities and the nasopharynx were inspected with a 4 mm 0 degree rigid telescope. Adenoid remnants in the nasopharynx were removed under direct visualization by pediatric straight forceps or pituitary forceps.[10]

Aims of the study

- To study the advantages of endoscopic assisted curettage adenoidectomy in comparison with conventional curettage adenoidectomy
- Comparing the complete removal of adenoid tissue intra operatively
- Comparing the blood loss in each surgical procedure.

METHODS

The study was carried out in in Department of ENT, Head and Neck Surgery at UPUMS, Saifai, Etawah between JUNE 2015 to Dec 2016. A prospective randomized study was designed.40 patients between 8 to16 years of age requiring adenoidectomy with or without tonsillectomy were included in the study. For the study, relevant institutional approval has been received. All patients in both the study groups were informed about the surgery and written consent were taken from the study participants/individuals about the study and publications. Diagnostic nasal ensdoscopy was done in all patients. The grade of adenoid hypertrophy was assessed using the scale described by Clemens and Mcmurray where Grade I has adenoid tissue filling 1:3 the vertical height of the choana, Grade II up to 2:3, Grade III from 2:3 to nearly all but not complete filling of the choana and Grade IV with complete channel obstruction .The cases were randomly divided into 2 groups: group A consisted of patients undergoing adenoidectomy with curette while group B of patients undergoing endoscopic adenoidectomy with microdebrider.

Clemens clinical grading of adenoid size

- Grade I: Adenoid tissue filling one-third of the vertical portion of the choanae.
- Grade II: Adenoid tissue filling from one-third to two-thirds of the choanae
- Grade III: From two-thirds to nearly complete obstruction of the choanae.
- Grade IV: Complete Choanal Obstruction

Inclusion criteria

Following are the Indications for adenoidectomy.

- Patients with adenoid hypertrophy in the age group between 8-16 years.
- Adenoid enlargement causing obstructive sleep apnoea.
- Adenoid enlargement causing otitis media with effusion.
- Patients with nasal obstruction, snoring and recurrent episodes of upper respiratory tract infection.
- Patients with adenoid enlargement causing recurrent rhinosinusitis.

Exclusion criteria

Exclusion criteria were patients less than 8 years or greater than 16 years of age; patients with cleft palate (or) sub mucosal cleft palate; patients with coagulation disorders; patients with sinonasal polyposis, choanal atresia, tumours of nose and nasopharynx.

Operative technique

Adenoidectomy with curette

Under general anesthesia, oro-tracheal intubation was done and patient was put in Rose position. Boyle-Davis mouth gag was applied and digital palpation of adenoid mass was done. Using St Clair Thompson adenoid curette, adenoidectomy was done. Hemostasis is achieved by putting gauze pack in nasopharynx.

Endoscopic adenoidectomy with microdebrider

Under general anesthesia with oro-tracheal intubation, patient is placed in supine position with head end up like endoscopic sinus surgeries. Both nasal cavities are packed with 4% xylocaine with adrenaline to constrict the nasal mucosa. 4 mm 0 degree endoscope is introduced in one nasal cavity to visualize the adenoid tissue and straight microdebrider in other nasal cavity. In some cases of septal deviation, angled microdebrider is introduced orally. Under endoscopic vision, precise removal of adenoid tissue is done with microdebrider. A gauze pack is inserted in nasopharynx for hemostasis. Suction cautery is used if bleeding is not controlled with packing. The intraoperative parameters studied were operative time, bleeding, completeness of adenoid removal, damage to surrounding structures. Postoperative parameters included postoperative pain and recovery time. All patients were followed up and at the end of 3 months; diagnostic nasal endoscopy was done to assess

completeness of adenoid removal and any other postoperative complications. Patients were studied for symptomatic relief of symptoms. Operative time was the time taken for the procedure from taking the patient from anesthetist to hemostasis. In cases of combined tonsillectomy, the time taken for tonsillectomy and its hemostasis was not considered. Bleeding was measured by number of three square inches gauze pieces used for hemostasis (one gauze is approximately 10 ml) and blood in suction chamber minus the irrigation fluid. At the end of the procedure, nasal endoscopy was done to see the completeness of adenoidectomy in both groups. Complete removal is considered if the remaining adenoid tissue is less than 20%. More than 20% residual adenoid tissue is considered only partial removal. Damage to the surrounding structures e.g. Eustachian tube opening; nasal mucosa etc. was also assessed. Pain in postoperative period was assessed only for patients undergoing adenoidectomy alone. Pain was assessed by universal pain assessment tool (0-no pain and 10- worst pain possible). Recovery time was indicated by the number of days patients took to return to normal activity.

RESULTS

The mean age in group 1 was 10.09% yrs and Group 2 was 9.09 yrs.

Table 1: Sex distribution among respondents.

Sex	Group (%)		Total (%)
	1	2	
Male child	11 (55)	08(40)	19 (47.5)
Female child	09 (45)	12 (60)	21 (52.5)

A higher proportion of subjects was females (52.5%) as compared to males (47.5%) (Table 2).

Table 2: Adenoid grading in the subjects.

Adenoid Grade	Group (%)		Total (%)
	1	2	
1	04 (20)	0 (0)	4 (10)
2	08 (40)	5 (25)	13 (32)
3	06 (30)	12 (60)	18 (45)
4	2 (10)	3 (15)	5 (13)

Nearly 25% of the patients who underwent endoscopic assisted adenoidectomy had Grade II adenoids.

About 30% of the patients who underwent conventional adenoidectomy had Grade III adenoids (Table 2).

The mean time taken for surgery in group 1 was 10.68 minutes and in group 2 was 15.28 minutes.

A higher proportion of the patients had blood loss of 30 ml (55%) followed by 35 ml (25%) (Table 3).

Table 3: Blood loss encountered during surgery.

Blood loss (ml)	Group (%)		Total (%)
	1	2	
20	0 (0)	2 (10))	2 (5)
25	2 (10)	4 (20)	6 (15)
30	12 (60)	10 (50)	22 (55)
35	6 (30)	4 (20)	10 (25)

The mean blood loss was 31 ml in Group 1 and 29 ml in Group 2 respectively.

Table 4: Group wise comparison of complications.

Complication	Group (%)		Total (%)
	1	2	
Primary haemorrhage	3 (15)	1 (5)	4 (10)

A total of 10% of the patients developed primary haemorrhage which is more in conventional adenoidectomy (15%) as compared to endoscopic adenoidectomy (5%) (Table 4).

DISCUSSION

Adenoidectomy is commonly performed surgery and most appropriate treatment in certain specific conditions, especially in children. Earlier adenoidectiomy was done with help of adenoid currete. Although the traditional method using a curette also has good results but being performed blindly has its own demerits, the most important being bleeding (0.5–8% incidence).[11] It may damage the torus tubaris, mucosa and Eustachian tube orifices.[12] To prevent these complications and to improve results and with advancement in endoscope and better diagnostic facility, the surgical technique also needs to be evolved. Thus various techniques of adenoidectomy have been devised. .Adenoidectomy with curette using a transnasal endoscopic approach has been described.[13,14] Others have used a mirror for visualization in the place of endoscope.[15] Suction diathermy ablation of adenoid has been a popular alternative, reported to be is safe with minimal blood loss, however, is slow and has the risk of cicatrisation and burns to surrounding tissue.[16,17] CO_2 laser also have these disadvantages in addition requires its special precautions.[18] Nasopharyngeal stenosis has been reported following adenoidectomy using a KTP laser.[19] Other methods described are radiofrequency and adenoidectomy.[20] The average time taken in Group A (conventional surgery) was 5.30 minutes and in Group B (powered endoscopic surgery) was 12.30 minute in our study. Nearly 25% of the patients who underwent endoscopic assisted adenoidectomy had Grade II adenoids. About 30% of the patients who underwent conventional adenoidectomy had Grade III adenoids. Similar results were observed by Bradoo et al.[21]

The average blood loss in Group A was 35 ml (range 10–50) as compared to 30 ml in Group B. A total of 10% of

the patients developed primary haemorrhage which was more in conventional adenoidectomy (15%) as compared to endoscopic adenoidectomy (5%). In a recent meta-analysis it was demonstrated that compared with conventional curettage adenoidectomy, endoscopic assisted adenoidectomy had a shorter operative time (SMD−1.09; 95% CI−1.29 to −0.90; p<0.00001), less blood loss (MD −19.74; 95% CI−22.75 to −16.73; p<0.00001), and fewer complications (OR 0.15; 95% CI 0.07–0.35; p<0.0001).[22]

CONCLUSION

From this we conclude that endoscopic assisted adenoidectomy is minimally invasive and is not associated with excessive bleeding. Patients who underwent endoscopic assisted adenoidectomy have less chance of remnants. Endoscopic assisted adenoidectomy is more time consuming procedure with less morbidity. Thus endoscopic assisted adenoidectomy technique is advocated for use as an adjuvant to a more complete adenoidectomy.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Thornval. A Wilhelm Meyer and the adenoids. Arch Otolaryngology Head Neck Surg. 1969;90:383.
2. Yildrim N, Sahan M, Karsliglu Y. Adenoid hypertrophy in adults: clinical and morphological characteristics. J Int Med Res. 2008;36:157-62.
3. Rout MR, Mohanty D, Vijaylakshmi Y, Bobba K, Metta C. Adenoid hypertrophy in adults: A case series. Indian J Otolaryngol Head Neck Surg. 2013;65(3):269-74.
4. Yuce I, Somdas M, Ketenci I, Caqli S, Unlu Y. Adenoidal vegetation in adults: an evaluation of 100 cases. Kulak Burun Boqaz Ihtis Derg. 2007;17(3):130-2.
5. Frenkiel S, Black MJ, Small P. Persistent adenoid presenting as a nasopharyngeal mass. J Otolaryngol. 1980;9:357-60.
6. Stanislaw P Jr, Koltai PJ, Feustel PJ. Comparison of power assisted adenoidectomy vs. adenoid curette adenoidectomy. Arch Otolaryngol Head Neck Surg. 2000;126:845-9.
7. Somani SS, Naik CS, Bangad SV. Endoscopic Adenoidectomy with Microdebrider. Indian J Otolaryngol Head Neck Surg. 2010;62(4):427431.
8. Havas T, Lowinger D. Obstructive adenoid tissue: an indication for powered-shaver adenoidectomy. Arch Otolaryngol Head Neck Surg. 2002;128:789791.
9. Becker SP, Roberts N, Coglianese D. Endoscopic Adenoidectomy for relief of serous otitis media. Laryngoscope. 1992;102(12):1379-84.
10. Cannon CR, Replogle WH, Schenk MP. Endoscopic assisted adenoidectomy. Otolaryngol Head Neck Surg. 1999;121(6):740-4
11. Tarantino V, Agostino R, Melagrana A, Porcu A, Stura M, Vallarino R; Safety of electronic molecular resonance adenoidectomy. Int J Pediatr Otolaryngol. 2004;68(12):1519–23.
12. Koltai PJ, Kalathia AS, Stanislaw P, Heras HA; Power-assisted adenoidectomy. Arch Otolaryngol Head Neck Surg. 1997;123:685–8.
13. Yanagisawa E, Weaver EM; Endoscopic adenoidectomy with the microdebrider. Ear Nose Throat J. 1997;76:72–4.
14. Havas T, Lowinger D. Obstructive Adenoid TissueAn Indication for Powered-Shaver Adenoidectomy. Arch Otolaryngol Head Neck Surg. 2002;128(7):789–791.
15. Murray N, Fitzpatrick P, Guarisco JL. Powered partial adenoidectomy. Arch Otolaryngol Head Neck Surg. 2002;128(7):792–6.
16. Stanislaw P, Koltai PJ, Feustel PJ. Found tissue dissecton more complete and too more appropriate with micodebrider the surgeon satisfaction was also greater. Comparison of power-assisted adenoidectomy vs adenoid curette adenoidectomy. Arch Otolaryngol Head Neck Surg. 2000;126(7):845–9.
17. Owens D, Jaramillo M, Saunders M. Suction diathermy adenoid ablation. J Laryngol Otol. 2005;119(1):34–5.
18. Wong L, Moxham JP, Ludemann JP. Electrosurgical adenoid ablation. J Otolaryngol, 2004;33(2):104–6.
19. Cannon CR, Replogle WH, Schenk MP; Endoscopic assisted adenoidectomy. Otolaryngol Head Neck Surg. 1999;121(6):740–4.
20. Giannoni C, Sulek M, Friedman EM, Duncan NO; Acquired nasopharyngeal stenosis: a warning and review. Arch Otolaryngol Head Neck Surg. 1998;124:163–7.
21. Bradoo RA, Modi RR, Joshi AA, Wahane V. Comparison of endoscopic assisted adenoidectomy with conventional method. Clinical Rhinol. 2011;4(2):75-8.
22. Yang L, Shan Y, Wang S, Cai C, Zhang H. Endoscopic assisted adenoidectomy versus conventional curettage adenoidectomy: a meta-analysis of randomized controlled trials. Springer Plus. 2016;5:426.

Cite this article as: Kumar A, Narayan P, Narain P, Singh J, Porwal PK, Sharma S. A comparative study of endoscopic assisted curettage adenoidectomy with conventional adenoidectomy. Int J Otorhinolaryngol Head Neck Surg 2018;4:1053-6.