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Research Article

Blind Adenoidectomy versus Blend Adenoidectomy: A Comparative Analysis

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ABSTRACT
Adenoids are masses of lymphoid tissues, situated at nasopharynx. Children with enlarged adenoids exhibit chronic nasal blockage, rhinorrhea, mouth breathing, snoring, etc., followed by hearing problems and delayed speech, thus requiring adenoidectomy. Due to the enormous quantity of adenoidectomies performed, surgeons must effectively consider safety, accuracy, and results while selecting from the several surgical adenoidectomy techniques available, such as curettage, microdebrider, bipolar coagulation, stripping under endoscopic control, and coblation. The Aim of this study is to compare safety and efficacy between conventional curettage adenoidectomy verses comprehensive Microdebrider with Coblation adenoidectomy. This is a Retrospective Observational Study of 1year, including 80 patients aged 3-15 years, with symptoms of upper airway obstruction undergoing adenoidectomy. Children with syndromes, bleeding disorders, cranio-facial abnormalities were excluded. The sample was divided into two groups, Group A: 40 patients who underwent Conventional Curettage adenoidectomy and Group B: 40 patients who underwent Microdebrider with Coblation adenoidectomy. The operating time, amount of bleeding, post-operative pain, days to resume regular diet and activity, residual tissues were compared and analysed. The operating time was approximately 10mins higher, Intraoperative bleeding 15ml lesser with lesser post operative pain found in Group B. Patients resumed regular meal and activity 0.5-2 days earlier in Group B. The recurrence of symptoms with residual adenoid tissues was 32.5% more in Group A.
Through this study it is found that, Blend adenoidectomy is superior to Blind adenoidectomy with respect to lesser intraoperative haemorrhage, post-operative pain and recurrence, early return to normal diet and activities but with increased operating time.

Keywords: Adenoidectomy, Blend adenoidectomy, Blind adenoidectomy, Coblation, Microdebrider.

INTRODUCTION

Waldeyer's ring includes adenoids (nasopharyngeal tonsils), which are lymphoid tissue masses positioned at the junction of the nasopharynx's roof and posterior wall. Adenoids play an important role in immune system development, serving as the first defense organs to come into contact with respiratory and the gut antigens.[1]
Children with this condition have chronic nasal obstruction, rhinorrhea, mouth breathing, snoring, recurrent sinusitis, feeding difficulties, craniofacial abnormalities, and recurrent otitis media with effusion, which is followed by hearing difficulties and delayed speech, as well as poor academic performance.

The Main Surgical Indications For Adenoidectomy Includes:

- Four or more occurrences of recurrent purulent rhinorrhea in the previous 12 months in a child under 12 years.
- Adenoiditis symptoms that persist following two antibiotic sessions.
- A sleep disruption that lasts for at least three months and involves nasal airway blockage.
- More than three months of otitis media with effusion.

Various adenoidectomy procedures, such as microdebrider, bovie, bipolar coagulation, stripping under endoscopic control, and coblation, have been introduced in recent years to lower surgical risk and morbidity. [2-4]. Numerous authors have detailed the use of a laryngeal mirror, a trans-nasal or trans-oral endoscope, and a curette, suction-coagulator, forceps, and a trans-nasal or trans-oral microdebrider as surgical instruments to remove the adenoids during surgery. [6–20]
Surgeons must pay close attention to safety, precision, and results while selecting surgical procedures because of the abundant quantity of adenoidectomies performed. [5].

Aims & Objectives

To compare safety and efficacy between conventional curettage adenoidectomy verses comprehensive microdebrider with coblation adenoidectomy.

METHODOLOGY

This study is a Retrospective Observational Study of 1year. It includes 80 patients aged 3 to 15 years, with symptoms of upper airway obstruction and undergoing adenoidectomy (either conventional or microdebrider with coblation technique) Children with any comorbidities like bleeding disorders, cranio facial abnormalities or syndromes were excluded.

- Pre-operative Datas like :

Patient's particulars with their chief complaints,

Medical history, grades of adenoid hypertrophy as per radiography

And nasal endoscopies data were taken into account.

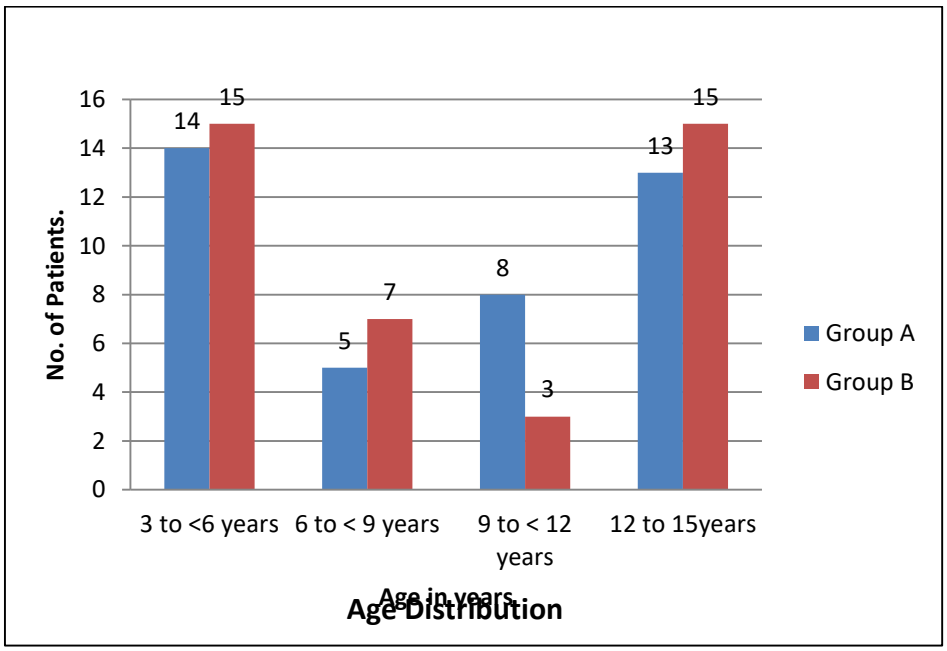
The sample was further divided into two group,

- Group A : comprising 40 patients who underwent Conventional Curettage adenoidectomy : Blind Adenoidectomy
- Group B: comprising 40 patients who underwent microdebrider with coblation adenoidectomy : Blend Adenoidectomy

Intra operative Datas collected like: surgical field exposure, operating time, amount of bleeding, along with post-operative examinations including, pain (VAS score), days to resume to regular diet and activity, recurrence and residual tissues were compared and analysed. Results with Mean, standard deviations (SD), students t test were obtained and used for comparing groups in overall evaluation. The p value of < 0.05 was considered statistically significant.

RESULTS

Among the 80 patients, divided in two groups, Group A undergoing conventional curettage adenoidectomy (n=40) and Group B undergoing microdebrider with coblation adenoidectomy (n=40), the Male: Female ratio was: 1:1



Age Distribution

Fig 1: Age distribution: The average age of patients undergoing adenoidectomy was 8.4years(±4.02) in Group A and 8.3years(±4.23) in Group B.

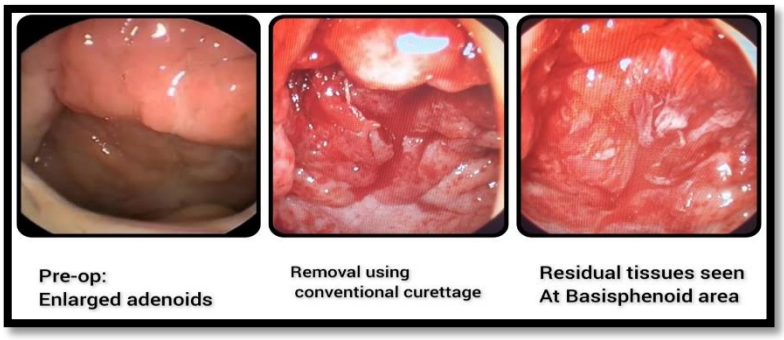


Image 1: Endoscopic images of conventional curettage adenoidectomy.

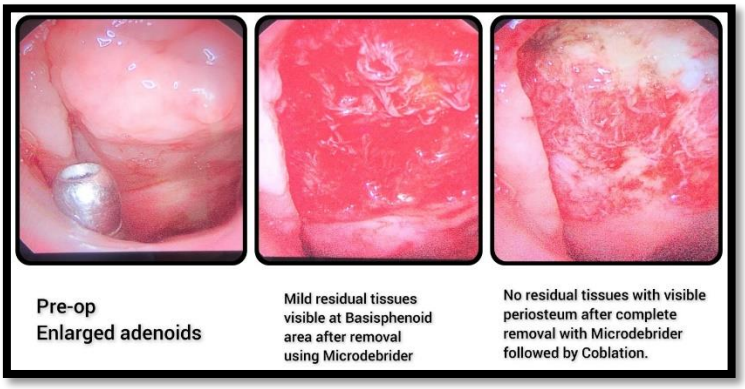


Image2: Endoscopic images of comprehensive Microdebrider with Coblation adenoidectomy.

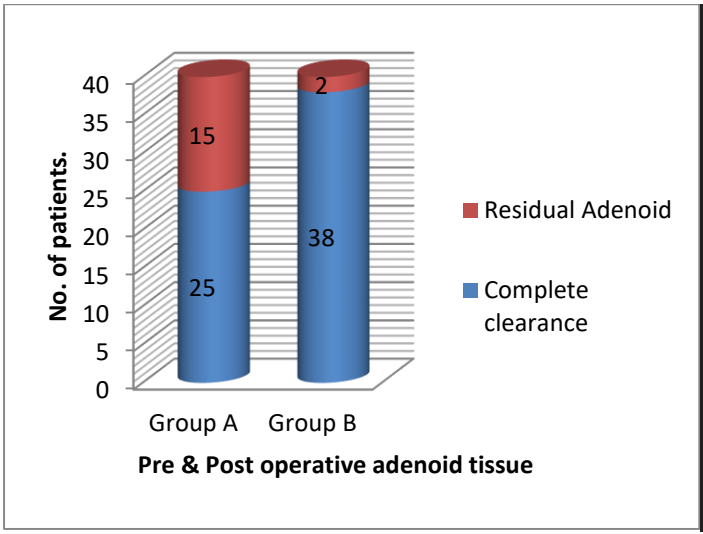
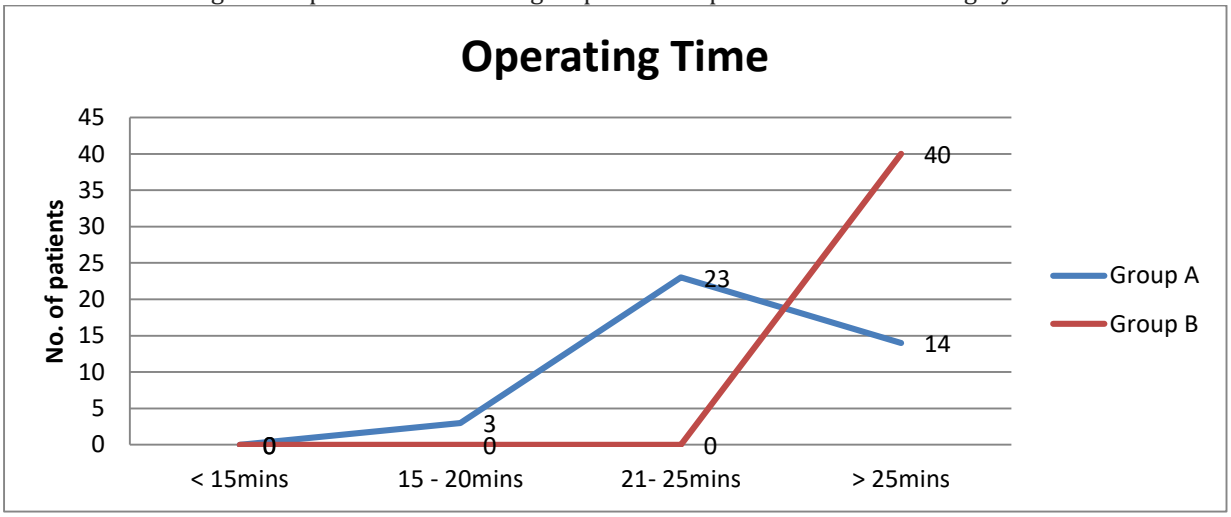


Fig2: Comparison between pre-operative and post-operative adenoid enlargement detected via radiography and nasal endoscopy between the two groups. P value: 0.00407 (significant)

Image 3: Pre-op and follow-up radiographic image of Microdebrider with Coblation adenoidectomy: No residual tissues found at 1 year

Fig 3: Comparison of both the groups with respect to duration of Surgery:



On an Average, **24.75±2.63 minutes** were required for Group A, whereas an **increased** time of **34.98±2.25minutes** were needed for Group B.

Fig 4: Comparison between both groups with respect to Intraoperative Haemorrhage.
On an average, Group A had an **increased** Intraoperative bleeding of amount **36.85±6.97 ml** whereas, Group B had **21.05±6.43ml**.

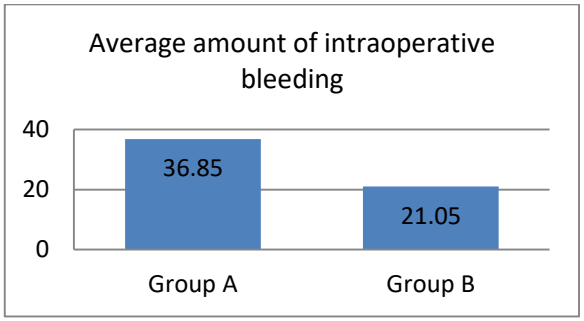
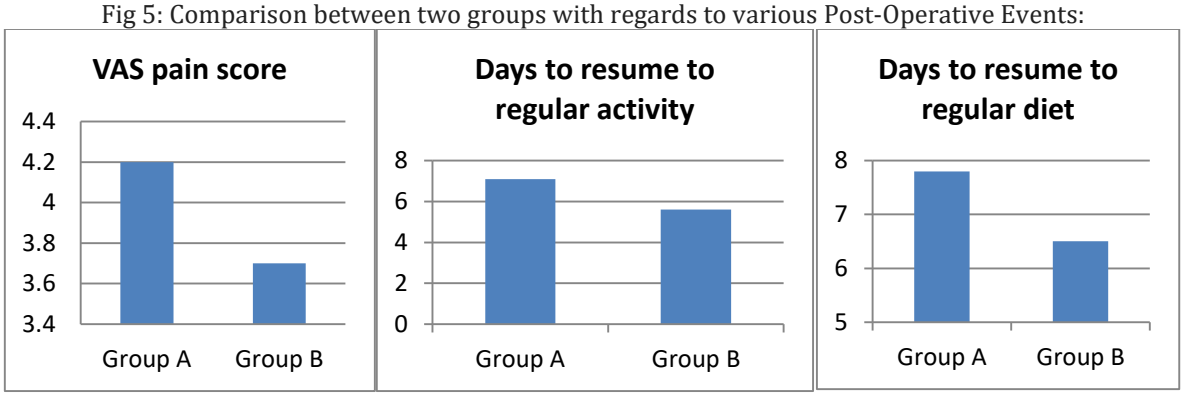


Fig 5: Comparison between two groups with regards to various Post-Operative Events:



On an average, Pain Score (VAS scale) of average of 3 days found lesser in Group B. Patients returned to normal diet and activity much earlier in Group B.

Table 1: Statistical analysis

SL.NO.	VARIABLES	Group A		Group B		P value <0.005significant
		MEAN	ST. DV	MEAN	ST. DV	
1	Intraoperative Haemorrhage	36.85	6.97	21.05	6.43	$1.28x10^{-16}$
2	Operating Time	24.75	2.63	34.98	2.25	$3.48x10^{-30}$

3	VAS pain score	4.2	0.52	3.8	0.43	0.00035
4	Days to return to Normal Diet	7.75	0.98	6.475	1.24	$2.51x10^{-6}$
5	Days to return to normal activity	7.1	1	5.63	1.4	$8.38x10^{-7}$
6	Residual tissue	0.225	0.066	0.075	0.0416	$1.75x10^{-18}$

All the paramaters show statistically significant diference between Group A and Group B.

DISCUSSIONS

Conventional curette adenoidectomy, as one of the oldest adenoidectomy techniques, has significant shortcomings as a blind approach, including the possibility of partial removal and inadvertent harm to neighboring structures[22]. New tools like coblators, microdebriders, and suction diathermy have been created and utilized for adenoidectomy in attempt to compensate for with these drawbacks. [23–25]

The coblation technique is becoming more popular because of its superior multifunctional capabilities of ablation, coagulation, suction, and saline irrigation.[21]

The powered microdebrider is specifically designed for avoiding post-operative velopharyngeal insufficiency. It is made up of an inner revolving hollow blade that is attached to a typical in-line continuous suction system and encased in an outer windowed sheath. The surgeon directs the window to the targeted tissue, which is pulled in by the vacuum, and the rotating blade shaves it. This allows for easy control over the amount of tissue removed. [26]

In our study, we studied the clinical outcome and efficacy of a mixed approach for adenoidectomy that combined Microdebrider with Coblation and found that it was superior to standard curettage adenoidectomy in terms of reduced intraoperative bleeding, less residual adenoid tissue, and no symptom recurrence. Especially the basisphenoid and the fossa of Rosesenmullar are prone to recurrence. The microdebrider aids in shaving tissues from the concealed parts of the Rosesenmullar fossa by suctioning and then shaving the tissues. Because of its tight adherence to the periosteum along with lengthy reach, the coblator is useful for ablating the tissues at the basisphenoid area. But operating time is slightly high because of dual instrument usage, and increased waiting period with adrenalin soaked pack in between.

The average VAS pain score was lesser in microdebrider plus coblation group than curettage group. Coblation plus microddebrider allowed for a faster return to normal meal and school than curettage did. Post operative usage of intranasal steroids and montelukast was initiated for all the patients after discharge.

CONCLUSION

Through this comparative observational study it is found that, coblation with microdebrider adenoidectomy is superior to conventional adenoidectomy with respect to adequate surgical field exposure, approximately 15ml lesser intraoperative blood loss, lesser post-operative pain, approximately 0.5-2days early resumption to regular diet and activities. There was an increased operating time of approximately 10mins more in Coblation with microdebrider adenoidectomies. The recurrence of symptoms with residual adenoid tissues in the basisphenoid and Rossenmuller fossa was 32.5% more in patients who underwent conventional curettage adenoidectomy. Intranasal steroids and Montelukast were initiated for all the patients at discharge. Considering the cost, the blend method was found cost effective as compared to sole coblation adenoidectomy. Surgeon's satisfaction was much higher with microdebrider with Coblation adenoidectomies.

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DECLARATIONS

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Conflict of Interest: None
Ethical Clearance: The Study was approved by Institutional Ethical Committee.

REFERENCES

1. Türkoğlu Babakurban S, Aydın E. Adenoidectomy: current approaches and review of the literature. Kulak Burun Bogaz Ihtis Derg. 2016 May-

Jun;26(3):181-90. doi: 10.5606/kbbihtisas.2016.32815. PMID: 27107607.

2. Timms MS, Ghosh S, Roper A. Adenoidectomy with the coblator: a logical extension of radiofrequency tonsillectomy. J Laryngol Otol. 2005 May;119(5):398-9. doi: 10.1258/0022215053945840. PMID: 15949107.
3. Krajewski M, Samoliaski B, Schmidt J. Ocena kliniczna wartości i bezpieczeństwa adenotomii endoskopowej - doświadczenia własne [Endoscopic adenotomy--clinical assessment of value and safety--an own experience]. Otolaryngol Pol. 2007;61(1):21-4. Polish. doi: 10.1016/s0030-6657(07)70377-3. PMID: 17605413.
4. Songu M, Altay C, Adibelli ZH, Adibelli H. Endoscopic-assisted versus curettage adenoidectomy: a prospective, randomized, double-blind study with objective outcome measures. Laryngoscope. 2010 Sep;120(9):1895-9. doi: 10.1002/lary.21045. PMID: 20715086.
5. Di Rienzo Businco L, Angelone AM, Mattei A, Ventura L, Lauriello M. Paediatric adenoidectomy: endoscopic coblation technique compared to cold curettage. Acta Otorhinolaryngol Ital. 2012 Apr;32(2):124-9. PMID: 22767975; PMCID: PMC3383074.
6. Cannon CR, Replogle WH, Schenk MP. Endoscopic-assisted adenoidectomy. Otolaryngol Head Neck Surg. 1999 Dec;121(6):740-4. doi: 10.1053/hn.1999.v121.a98201. PMID: 10580230.
7. Becker SP, Roberts N, Coglianese D. Endoscopic adenoidectomy for relief of serous otitis media. Laryngoscope. 1992 Dec;102(12 Pt 1):1379-84. doi: 10.1288/00005537-199212000-00014. PMID: 1453847.
8. Owens D, Jaramillo M, Saunders M. Suction diathermy adenoid ablation. J Laryngol Otol. 2005 Jan;119(1):34-5. doi: 10.1258/0022215053222743. PMID: 15807961.
9. Wynn R, Rosenfeld RM. Outcomes in suction coagulator adenoidectomy. Arch Otolaryngol Head Neck Surg. 2003 Feb;129(2):182-5. doi: 10.1001/archotol.129.2.182. PMID: 12578446.
10. Clemens J, McMurray JS, Willging JP. Electrocautery versus curette adenoidectomy: comparison of postoperative results. Int J Pediatr Otorhinolaryngol. 1998 Mar 1;43(2):115-22. doi: 10.1016/s0165-5876(97)00159-6. PMID: 9578120.
11. Shin JJ, Hartnick CJ. Pediatric endoscopic transnasal adenoid ablation. Ann Otol Rhinol Laryngol. 2003 Jun;112(6):511-4. doi: 10.1177/000348940311200605. PMID: 12834118.
12. Durr DG. Endoscopic electrosurgical adenoidectomy: technique and outcomes. J Otolaryngol. 2004 Apr;33(2):82-7. doi: 10.2310/7070.2004.02119. PMID: 15518094.
13. Lo S, Rowe-Jones J. How we do it: Transoral suction diathermy adenoid ablation under direct vision using a 45 degree endoscope. Clin Otolaryngol. 2006 Oct;31(5):440-2. doi: 10.1111/j.1749-4486.2006.01213.x. PMID: 17014458.
14. Yanagisawa E, Weaver EM. Endoscopic adenoidectomy with the microdebrider. Ear Nose Throat J. 1997 Feb;76(2):72, 74. PMID: 9046692.
15. Havas T, Lowinger D. Obstructive adenoid tissue: an indication for powered-shaver adenoidectomy. Arch Otolaryngol Head Neck Surg. 2002 Jul;128(7):789-91. doi: 10.1001/archotol.128.7.789. PMID: 12117336.
16. Rodriguez K, Murray N, Guarisco JL. Power-assisted partial adenoidectomy. Laryngoscope. 2002 Aug;112(8 Pt 2 Suppl 100):26-8. doi: 10.1002/lary.5541121410. PMID: 12172235.
17. Heras HA, Koltai PJ. Safety of powered instrumentation for adenoidectomy. Int J Pediatr Otorhinolaryngol. 1998 Jul 10;44(2):149-53. doi: 10.1016/s0165-5876(98)00066-4. PMID: 9725531.
18. Koltai PJ, Chan J, Younes A. Power-assisted adenoidectomy: total and partial resection. Laryngoscope. 2002 Aug;112(8 Pt 2 Suppl 100):29-31. doi: 10.1097/00005537-200208001-00011. PMID: 12172236.
19. Murray N, Fitzpatrick P, Guarisco JL. Powered partial adenoidectomy. Arch Otolaryngol Head Neck Surg. 2002 Jul;128(7):792-6. doi:

10.1001/archotol.128.7.792. PMID: 12117337.

20. Stanislaw P Jr, Koltai PJ, Feustel PJ. Comparison of power-assisted adenoidectomy vs adenoid curette adenoidectomy. Arch Otolaryngol Head Neck Surg. 2000 Jul;126(7):845-9. doi: 10.1001/archotol.126.7.845. PMID: 10888996.
21. Kim JW, Kim HJ, Lee WH, Kim DK, Kim SW, Kim YH, Nam JG, Park SW, Park CS, Bae WY, Yeo NK, Won TB, Lee SH, Lee TH, Lee HJ, Kim SW, Jeong SW, Choi JS, Han DH, Choi JH. Comparative Study for Efficacy and Safety of Adenoidectomy according to the Surgical Method: A Prospective Multicenter Study. PLoS One. 2015 Aug 12;10(8):e0135304. doi: 10.1371/journal.pone.0135304. PMID: 26267337; PMCID: PMC4534417.
22. Regmi D, Mathur NN, Bhattarai M. Rigid endoscopic evaluation of conventional curettage adenoidectomy. J Laryngol Otol. 2011 Jan;125(1):53-8. doi: 10.1017/S0022215110002100. Epub 2010 Oct 18. PMID: 20950511.
23. Hartley BE, Papsin BC, Albert DM. Suction diathermy adenoidectomy. Clin Otolaryngol Allied Sci. 1998 Aug;23(4):308-9. doi: 10.1046/j.1365-2273.1998.00148.x. PMID: 9762491.
24. Koltai PJ, Kalathia AS, Stanislaw P, Heras HA. Power-assisted adenoidectomy. Arch Otolaryngol Head Neck Surg. 1997 Jul;123(7):685-8. doi: 10.1001/archotol.1997.01900070023004. PMID: 9236585.
25. Benninger M, Walner D. Coblation: improving outcomes for children following adenotonsillectomy. Clin Cornerstone. 2007;9 Suppl 1:S13-23. doi: 10.1016/s1098-3597(07)80005-6. PMID: 17584619.
26. Somani SS, Naik CS, Bangad SV. Endoscopic adenoidectomy with microdebrider. Indian J Otolaryngol Head Neck Surg. 2010 Oct;62(4):427-31. doi: 10.1007/s12070-011-0118-9. Epub 2011 Jan 11. PMID: 22319707; PMCID: PMC3266095.