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Original Research Article

Microdebrider: a painless and effective technique for adenoidectomy; comparative study with curette assisted adenoidectomy

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ABSTRACT

Background: Adenoid is a nasopharyngeal tissue which forms Waldeyer's ring as said by Meyer, 1968. Adenoids become demonstrable with signs of CSOM with adenoid hyperplasia, recurrent rhino-sinusitis, characteristic 'adenoid facies', nasal obstruction, mouth breathing, snoring, drooling of saliva and speech abnormalities and dental malocclusion. Adenoidectomy is the common surgery done using various techniques like curette, microdebrider and many more. In this study we evaluate and compare the efficacy of adenoidectomy by microdebrider verses curette assisted adenoidectomy. Aim of the study was to evaluate and compare the efficacy and benefits of adenoidectomy by microdebrider with curette assisted adenoidectomy.
Methods: This is a prospective randomized single-blind study done for 1 year. Total 150 patients were included which were diagnosed as adenoid hypertrophy based on clinical and radiological examination and were equally divided in 2 group for both the procedures (curette and microdebrider).
Results: Patients show good response to the treatment with microdebrider assisted adenoidectomy with less complication and early recovery.
Conclusions: We observe that proper examination and early surgical intervention using modern technique i.e., microdebrider reduces the time, residual tissue with less complication and promote early recovery.

Keywords: Adenoidectomy, Microdebrider, Curette

INTRODUCTION

Adenoid is a nasopharyngeal tissue which forms Waldeyer's ring as said by Meyer, 1968.[1] It is formed by the collaboration of primordial and creates the Waldeyer's ring. Adenoid is not seen in the x-ray in infants but become visible at 6 months. Hypertrophy of adenoids occurs from the age of 2 years and cause breathing disordered. Adenoid stops getting enlarged after the age of 5.[2] Child comes with the signs of CSOM with adenoid hyperplasia, recurrent rhino-sinusitis, and characteristic 'adenoid facies' with the features like nasal obstruction, mouth breathing, snoring, and sleep apnea syndrome drooling of saliva and speech abnormalities, dental malocclusion.[3] Adenoidectomy is the commonest surgery done in the children with chronic adenoiditis. In case of otitis media adenoidectomy is done with removal of tonsil also.

Aim and objective of the study

Aim of the study was to compare study on endoscope assisted microdebrider adenoidectomy vs adenoidectomy by conventional curettage method.

Objective was to assess and compare the outcome of microdebrider assisted adenoidectomy and curette assisted adenoidectomy.

METHODS

This is a prospective randomized single-blind study carried out for 1 year between December 2018 to 2019, after using the formula for calculating the minimal sample size, $n=Z^2\times P(1-P)/m^2$ (sample size=150) on the patients of age 5-16 years attending the public health camps organized by the Teerthanker Mahaveer medical college and research centre, Moradabad with the clinical and radiological signs with signs of adenoid hypertrophy after obtaining ethical committee clearance. Total number of patients selected was 150, diagnosed as adenoid hypertrophy based on history and clinical examination, including anterior and posterior rhinoscopy, X-ray nasopharynx with diagnostic endoscopy.

Patients were divided randomly into 2 groups-Group A-Endoscope assisted microdebrider adenoidectomy and Group B-Conventional adenoidectomy by curette.

Statistical analysis

A data was entered and analysed using "IBM SPSS version 25". Frequency and percentage are reported for qualitative variables where else the quantitative variables were expressed as mean±SD

Chi test was used for the distribution like: 1. To show gender and age distribution. 2. The association between sign and symptoms with frequency among the patients. 3. Complication in the relation with procedure performed.

A $p<0.5$ was considered as statistically significant. Chi square and Fischer tests were used for these p.

Inclusion criteria

Study included children of age 5-16 years of age and signs and symptoms of chronic adenoiditis.

Exclusion criteria

Patients not giving the consent for the study, immunocompromised status, patients with URTI, children having submucosal cleft, significant septal deviations (craniofacial abnormalities), children with neuromuscular disorders, previously underwent adenoidectomy were excluded from the study.

RESULTS

As per our study we operated 150 patients who underwent adenoidectomy by both microdebrider assisted adenoidectomy and curette assisted adenoidectomy and by the records following results were drawn. Most of the cases of adenoid are male from age group of 10-12 years.

Table 1: Age group distribution.

	Age (years)	Frequency	Percentage (%)	Valid (%)	Cumulative (%)
Valid	5-6	24	16	16	16
	7-9	28	18.7	18.7	34.7
	10-12	63	42	42	76.7
	13-15	18	12	12	88.7
	16-18	17	11.3	11.3	100
	Total	150	100	100	

Table 2: Distribution according to gender.

		Frequency	Percentage (%)	Valid (%)	Cumulative (%)
Valid	Female	47	31.3	31.3	31.3
	Male	103	68.7	68.7	100
	Total	150	100	100	

Table 3: Presenting complaints (sign and symptoms).

Sign/symptom	Frequency	Percentage (%)
Nasal obstruction	136	90.67
Nasal discharge	28	18.67
Post nasal discharge	25	16.67
Cough	32	21.33
Snoring	89	59.33
Mouth breathing	93	62.00
Sneezing	16	10.67
Headache	10	6.67
Disturbance of smell	98	65.33
Recurrent sore throat	22	14.67
Halitosis	26	17.33
Adenoid facies	38	25.33
Aural symptoms	32	21.33

Table 4: Distribution of patients according to complications in patients across two treatment groups.

Complications	Microdebridement	Percentage (%)	Curette	Percentage (%)
Neck stiffness	4	5.33	6	8.00
Speech changes	5	6.67	8	10.67
Dysphagia	9	12.00	19	25.33
Pain	12	16	50	66.67
Bleeding	10	13.33	30	40.00

High arched palate and Overcrowded teeth were found while examining the throat. Grade 4 Adenoid was diagnosed as the most common group while performing pre-operative diagnostic nasal endoscopy.

Hypertrophy and blockage are the most common finding during posterior rhinoscopy. Low or absent fogging was found in cold spatula test (90%). Majority of the patients i.e., 75 (50%) were having 75-100% (size) of blockage. An average time needed to perform curette assisted adenoidectomy was 45-60 minutes and 15-30 minutes in case of microdebrider assisted surgery.

In curette assisted adenoidectomy no residual tissue was found in 82.7% of the patients but in microdebrider assisted procedure 93.3% of the patients were found to have no residual adenoid tissue. An average of 30-45 ml of blood was lost in curette assisted adenoidectomy while only 15-30 ml blood loss was seen when performed via microdebrider. A majority number of patients took 3 days to recover after curette assisted adenoidectomy while 2 days were recorded for recovery after microdebrider assisted surgery.

DISCUSSION

The term 'Adenoid' is coined by Wilhelm Meyer in 1870 to describe "nasopharyngeal vegetations". In late 1800s first adenoidectomy was done by Wilhelm Meyer of Denmark after finding that adenoid vegetation is the main reason for impaired hearing and most of the nasal symptoms. After observing that adenoid is the reservoir of infection, adenoidectomy is performed routinely in early era of 1900s. Adenoidectomy by using conventional curette method was introduced in 1885.[5]

Adenoidectomy is the commonest surgery done in the children with chronic adenoiditis. It is done alone or along with tonsillectomy or with grommet insertion for otitis media with effusion (OME) if present. First ever trials of adenotonsillectomy reported by McKee in 1963.

Surgery is indicated in children with hypertrophied adenoid and symptoms of mouth breathing, snoring, nasal obstruction and hearing loss due to otitis media with effusion.[6] In 1979 Mawson describe headache, nasal obstruction, recurrent ear ache with cough and snoring in case of hypertrophy of adenoid.[7] Symptoms of snoring in relation to adenoid weight was first described in 1978, by Hibbert et al.[8] Surgery can be done by the conventional curette method or by using specialized powered instruments like debrider and coblator. Previously, adenosis was used to be curetted with the sharp Barnhill curette or La force adenotome and sometime with the help of St. Clair Thompson adenoidectomy curette.[9-11]

Adenoidectomy by conventional curettage method can cause various complications like nasopharyngeal stenosis, injury to eustachian tube opening, inadequate removal of the adenoids and recurrence. However, the curette is the most frequently done procedure among the surgeons.[12]

Adenoidectomy by curette, microdebrider, coblation or by coagulation are very well known among all the surgeons.[13] Stanislaw states that adenoidectomy by shaver very potent as it is done quickly with less complications with no adenoid residual.[14] Ravishakar et al in their study concluded that adenoidectomy with microdebrider is much safer when compare with curette procedure with no complication and early return of patient to regular routine work.[15]

According to Costantini et al, microdebrider assisted adenoidectomy required great practice and if that precision is achieved then adenoidectomy will end up with no blood loss during procedure. The combination of endoscope and microdebrider helps in achieving the target very easily with complete and clean removal of adenoid.[16] Adenoidectomy by microdebrider can reduce the complications and provide benefits like no residual tissue, minimal blood loss, less duration of time, safer and quick surgery.[17]

In this study, we compare the outcome of the endoscope assisted microdebrider adenoidectomy and endoscopic assisted adenoidectomy by curette.

Limitations

Many more methods are also described for that particular surgery which may be popular among surgeons and is not mention in this study. Similarly, in future more effective and better treatment option will be designed in combination with medical along surgical treatment for adenoid hypertrophy.

CONCLUSION

Our study was performed on 150 patients who presented with adenoid and considered for surgical removal. From

the analysis of our study, we observe that proper examination and early surgical intervention using modern technique i.e., microdebrider assisted procedure reduces the time of procedure, risk of residual tissue with less complication that are associated with adenoid and promote early recovery.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Somani SS, Naik CS, Bangad SV. Endoscopic adenoidectomy with microdebrider. Indian J Otolaryngol Head Neck Surg. 2010;62(4):427-31.
2. Kato H, Bundo J, Watanabe N, Mogi G. Lymphocyte migration to the middle ear mucosa. Attals Otol Laryngol. 1994;103:118-24.
3. Muniraju M, Saifulla M. A comparative study of adenoidectomy by microdebrider vs conventional method. Int J Otorhinolaryngol Head Neck Surg. 2018;4(3):808-14.
4. Basista H, Saxena G, Modwal A, Prasad B. Endoscopic Adenoidectomy with Microdebrider. Sch J App Med Sci. 2015;3(5B):1906-9.
5. Thornval. A Wilhelm Meyer and the adenoids Arch otolaryngology head Neck Surg. Int J Otorhinolaryngol Head Neck Surg. 1969;90:383.
6. Hibbert J, Whitehouse GH. The assessment of adenoidal size by radiologicalj means. Clin Otorhinolaryngol. 1978;3:43-7.
7. Mawson S. Diseases of tonsil and adenoid. In Scott Brown's Diseases of the Ear, Nose and Throat (Ballantyne, J. and Groves J. eds) 4th Edition, Butterworth and Co., London. 1979;4.
8. Hibbert J, Stell PM. A radiological study of the adenoid in normal children. Clin Otorhinolaryngol. 1979;4:321-7.
9. Pratt LW. Infections of the lymphoid tissues. In: English GM, editor. Otolaryngology. Philadelphia: JB Lippincott. 1980;27.
10. Joseph DJ, Jeny T. Tonsillectomy and adenoidectomy. In: English GM, editor. Otolaryngology, Vol 3. Philadelphia: JB Lippincott. 1989;28.
11. Komblut AD. A traditional approach to surgery of the tonsils and adenoids (review). Otolaryngology Clin North Am. 1987;20:349-63.
12. Wang DV, Clement PA, Kauman L, Derde MP. Chronic nasal obstruction in children; a fiberoptic study. Rhinology. 1995;33:4-6.
13. Kemaloglu YK, Goksu N, Inal E. Radiographic evaluation of children with nasophayngeal obstruction due to the adenoid. Ann otol Rhinol Layngol. 1999;108;67-72.
14. Stanislaw P, Koltai PJ, Feustel PJ. Comparison of power-assisted adenoidectomy vs adenoid curette adenoidectomy. Archives of Otolaryngol Head Neck Surg. 2000;126(7):845-9.
15. Ravishakar C, Killera S. Comparing endoscopic microdebrider assisted adenoidectomy with curettage procedure. Int J Otorhinolaryngol Head Neck Surg. 2018;4(2):559-64.
16. Costantini F, Salamanca F, Amaina T, Zibordi F. Videoendoscopic adenoidectomy with microdebrider. ACTA Otorhinolaryngologica Italica. 2008;28(1):26.
17. Elwany S. The adenoidal-nasopharyngeal ratio (AN ratio). Its validity in selecting children for adenoidectomy. J Laryngol Otol. 1987;101:569-73.

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