COMPARISON BETWEEN ADENOIDECTOMY BY COBLATION VERSUS MICRODEBRIDER VERSUS CURETTAGE IN PEDIATRIC AGE GROUP

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Introduction

Adenoidectomy is one of the most frequently performed surgeries worldwide. Since the earliest descriptions of adenoidectomy, numerous techniques have been described and used successfully either used alone or in combinations. With the development of endoscopic sinus surgery instrumentation, the standard surgical procedure using an adenoid curette has advanced, improving patient outcomes and increasing surgeon satisfaction. All techniques are based on the principle of the adequate removal of the adenoids without damage to the surrounding structures, such as the torus tubarus, the palate, the posterior pharyngeal wall, and the choana. Dissatisfaction with the traditional adenoidectomy due to inadequate removal of the adenoid tissue and poor visualization, as well as the significant advancement in fiberoptic and endoscopic instruments, both contributed to the development of alternative adenoidectomy techniques, such as endoscopic guided and power aided techniques. Recent studies have revealed that when choosing a technique for an adenoidectomy, effectiveness is the most crucial consideration and the cost is the least crucial. There are numerous adenoidectomy techniques, however, few studies compare more than two different types of instruments in a single analysis.

Aim of the work

The aim of this study is to compare the Outcome of surgery for adenoidectomy by curettage, microdebrider and coblation.

Subjects and Methods

Subjects: This present study has been conducted at the Otorhinolaryngology Department of Alexandria Main University Hospital. All patients diagnosed as having moderate to severe (grade 3 and 4) adenoid enlargement. Preoperative assessment included demographic data ,history taking with focus on symptoms of adenoid hypertrophy, nasal endoscopy, lateral neck x-ray and tympanometry. The exclusion criteria included children who had neuromuscular disorders, craniofacial anomalies and children who are candidate for adenotonsillectomy. The number of our target sample was sixty patients.

Methods: This research is a prospective study. All patients have been randomized into either group A, group B or group C by computer-generated randomization (online random generator): **1-** Curettage adenoidectomy is group A by using adequate size adenoid curette. Removal was then confirmed by using an endoscopic examination. **2-** Microdebrider assisted adenoidectomy is group B . Under an endoscopic view of a 70° or 30° endoscope, the microdebrider was inserted transorally after adjusting the blade at a speed of 3000 rpm in oscillating mode. **3-** Coblation assisted adenoidectomy is group C. The coblator was used trans-orally, under an endoscopic view of a 70° or 30° endoscope, with the ablation power on three to four and coagulation power on two. Intraoperative evaluation included operative time, amount of bleeding and any complication. Postoperative assessment included Symptoms improvement using the OSA-18 questionnaire and tympanometry after one month .

Results

The operative time was shortest in group (B) with mean duration (15.30 ± 5.12 minutes) which is statistically significant followed by group (A) where mean duration was 19.45 ± 5.93 minutes. The longest duration was in group (C) with mean duration 28.0 ± 4.61 minutes**. (Table 1)**

Table (1): Intraoperative assessment (Operative time (minutes))

	Group A (n = 20)	Group B (n = 20)	Group C (n = 20)	Test of sig.	p
Operative time (minutes)					
10 – <20	11 (55%)	16 (80%)	0 (0%)	c^2= 36.371*	MCp <0.001*
20 – <30	8 (40%)	4 (20%)	10 (50%)		
≥30	1 (5%)	0 (0%)	10 (50%)		
Min. – Max.	10.0 – 31.0	10.0 – 27.0	20.0 – 35.0	F= 30.428*	<0.001*
Mean ± SD.	19.45 ± 5.93	15.30 ± 5.12	28.0 ± 4.61		
Median (IQR)	19.0 (15 – 24.5)	14.0 (12 – 16.5)	29.50 (24.5 - 32)		
Sig.bet.Grps	p_1=0.040*,p_2<0.001*,p_3<0.001*				

As regard the amount of intraoperative bleeding; it was found that group (C) was the least bloody operation followed by group (B). Group (A) is the most bloody operation **(Table 2)**

Table (2):Intraoperative assessment (Amount of intraoperative bleeding (ml))

	Group A (n = 20)	Group B (n = 20)	Group C (n = 20)	Test of sig.	p
Amount of intraoperative bleeding (ml)					
<10	0 (0%)	0 (0%)	13 (65%)	c^2= 61.021*	MCp <0.001*
10 – <20	1 (5%)	4 (20%)	7 (35%)		
20 - <30	5 (25%)	13 (65%)	0 (0%)		
≥30	14 (70%)	3 (15%)	0 (0%)		
Min. – Max.	18.0 – 39.0	12.0 – 32.0	5.0 – 15.0	F= 127.998*	<0.001*
Mean ± SD.	31.35 ± 5.48	23.30 ± 5.17	8.25 ± 2.77		
Median (IQR)	32.0 (28 - 35)	24.50 (20 – 26.5)	7.50 (6 - 10)		
Sig.bet.Grps	p_1<0.001*,p_2<0.001*,p_3<0.001*				

Adenoid residue immediately after adenoidectomy was worst in group(A) where 18 patients (90%) had adenoid residue, which is statistically significant. Group (B) and (C) had no adenoid residue at all.

Conclusion

Both Shaver adenoidectomy and coblation have the benefits of direct vision of adenoid tissue, fewer complications and precise tissue removal.

Postoperative endoscopic assessment of the nasopharynx after curettage adenoidectomy is mandatory and removing any residual adenoid tissue improves the outcome and could replace shaver adenoidectomy in developing countries with poor economies.

Blood loss during surgery and damage to the tubal cartilage are more likely after curettage adenoidectomy

Preoperative endoscopic evaluation and grading are highly correlated with plain x-rays of the nasopharynx but without the potential risks of early radiation exposure and additional costs.