

COMPARISON OF COLD TONSILLECTOMY AND COBILATION TONSILLECTOMY

Aso Nuri Jalizada MBChB, DLO, Febohns, Mowafaq Al Rawi

Department of Otolaryngology
Rzgary Teaching Hospital
Erbil Iraq 44001
assojalizada@gmail.com

Abstract— This study aims to systematically compare and contrast the two most commonly used techniques of tonsillectomy- Cold tonsillectomy and cobilation tonsillectomy.

Three different age group of patients were examined and operated. The total number of patients was 104. There were 52 patients each of cobilation and cold tonsillectomy. The specifications being following: 35 patients of age between 3 to 7 years, 6 patients of age 7-12 years and 11 patients of age greater than 12 years.

The result of this study showed that there is no significant and noticeable difference between the two procedures of operating tonsils. However slight differences in the post operative pain and primary and secondary bleeding was seen. The operation time was considerably lower in patients of younger age.

Key words —Cold tonsillectomy, cobilation

I. INTRODUCTION

Any surgical method which includes the removal of tonsils can be referred to as tonsillectomy. Tonsils are a group of lymphoid tissue oval in shape, two in number. These tissues are located at the back of throat behind nasal passage. These are a typical immunity rendering glands of the body and thus are referred to as a part of lymph glands. At the time of tonsillectomy, these tonsillar tissue are removed from a recess which is present alongside pharynx. It is known as tonsillar fossa. Usually, the adenoids are also removed along with the tonsils in children, in a surgical procedure known as Tonsillectomy and Adenoidectomy or T&A. The tonsils may be cut, burnt or shaved and the surgery is done without any external incision.

The need for tonsillectomy generally arises due to recurrent infections of throat. Acute tonsillitis which is recurrent for more than or equal to seven times a year, 5 times per year for years or three or more per year for three years. Other absolute indications include peritonsillar abscess, hypertrophy of tonsils which causes obstruction in food pathway or suspicion of malignancy. Tonsillectomy may also be carried out due to relative indications such as diphtheria or streptococcal carriers. The surgery may also be performed as a part of another operation such as Palatopharyngoplasty, Glassopharyngeal neurectomy or removal of styloid process.

The contraindications of the surgery include low haemoglobin levels (<10%) Acute infection of upper respiratory tract as the bleeding is more in acute infection, children under the age of three years, overt or submucous cleft palate, any one of the bleeding disorders like leukaemia, puprura, aplastic anaemia or haemophilia. Other contraindications include polio epidemic and uncontrolled systemic disease such as diabetes or hypertension etc.

II. MATERIALS AND METHODS

A. Population and collection of data

A total of 104 patients, both adult and children were included in this study between {date} to {date}. The data of

this study was collected using personal interviewing of the patients before and after the tonsillectomy surgery at {place of study}. A total of 2 groups and 3 sub- groups were created. The two groups were of cobilation tonsillectomy and cold tonsillectomy. The first sub- group was the group from age 3 to 7 years, second from 7 to 12 years and third for patients above the age of 12 years.

B. Surgical equipments used

Set of instruments used included- knife, toothed and non toothed waugh's forceps, tonsil dissector and anterior pillar retractor, scissor, curved artery forceps, Negus artery forceps, tonsillar snare, Boyle- Davis mouth gag with three different sizes of tongue blades for different age group of patients, adenoid curette, tonsil swabs, nasopharyngeal pack, towel clips.



C. Pre surgical procedures and preparations

The pre-surgical preparations include the study of medical case history by the anesthesiologist of the surgical staff. Most patients were reached a night before the surgery to stipulate the medical history and upcoming procedures. If not accessible, the patient's medical history was studied in the morning. The patients were advised to collect the same and summarize them, in case of non availability of case history few days before the surgery occurs.

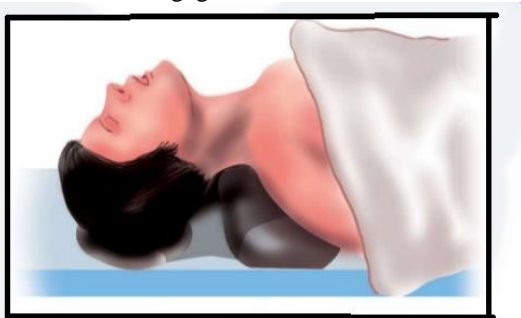
Besides this, it was strictly prohibited for the patients to intake aspirin or any medicinal product containing aspirin 10 days before the surgery. Medicines which are non- steroidal and anti-inflammatory (for example ibuprofen, advil etc) were not allowed to be taken before a week of the tonsillectomy. However, acetaminophen was recommended as a safe pain killer during the pre surgical time period. Any and every kind of oral intake including water, chewing gums etc were strictly prohibited before 6 hours of surgery as it would have increased the chances of anesthetic complications. In the case

of children, a psychological approach was used to familiarise them and make them comfortable with the entire surgical procedure.

D. Surgical proceeding

The basic steps for the two types of surgeries were same. The patient was first sent to the pre- operative room where a nurse started an intravenous infusion line (IV) and the patient was given a medication to relax. The surgery was performed under general anesthesia with endotracheal intubation. The patient was consistently observed by using a pulse oximeter and a heart rate monitor. Boyle- Davis mouth gag was introduced and opened. These were held in position by Draffin’s bipods.

Cold steel tonsillectomy still remains the most commonly performed tonsillectomy procedure. In cold tonsillectomy, the patient is placed under sister rose tonsillectomy position. The lower pole of tonsil was clamped & ligated .Hemostasis was secured with ligature. The adenoid tissue is scooped out of the soft palate and any Bleeding is kept in control by packing the nasal pharynx. Tonsil was grasped with tonsil holding forceps and pulled medially. Incision was made in the mucous membrane where it reflects from the tonsil to anterior pillar. It may be extended along the upper pole to mucous membrane between the tonsil and posterior pillar. The patient was always placed in Sister Rose position as there is virtually no aspiration of blood or secretion into the airway. Both hands of the surgeon remain free and allows the surgeon to properly apply the Boyle’s- davis mouth gag.



Rose’s position for tonsillectomy. Neck is extended by a sand bag under the shoulders and the head is supported on a ring

In cobilation tonsillectomy coblator 2 is used from Arthrocare in which presence of saline irrigating the tissue continuously, makes the temperature on the tissue not more than 70 degree Centigrade which is much less than electrocautery.a probe known as Evac 70 was used for removal of tonsil which dissects the tonsil and cauterize the bed at the same time. Coagulation of bleeders the done using the coagulation button.



Image showing Coblator 2



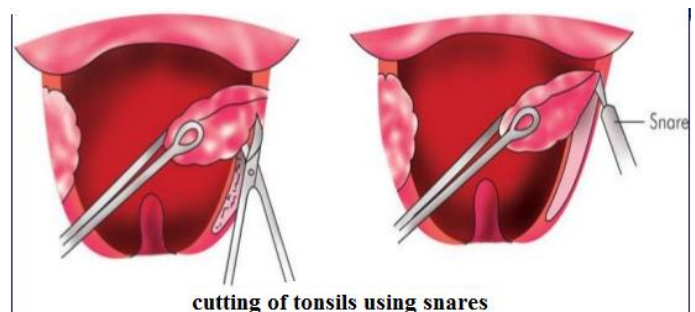
Image showing Evac 70



Throat with tonsillitis



Two removed tonsils



cutting of tonsils using snares

E. Post surgical precautions and medications

The post surgical precautions included continual resting time for the patients. It was ensured that the patient’s head was always in an elevated position, resting on 2 to 3 pillows. It ensured that the head is placed above the level of the heart. This was necessary to minimize the chances of getting edema. Any swelling complains about the neck were treated using ice packs. The patient was abstained from taking any food despite of the feeling of sharp hunger to avoid any feeling of post operative nausea and vomiting. Slow feeding and liquid diet

was recommended for the patient. Hot food or liquid intake was prohibited even after probable recovery.

Antibiotic was routinely given to all patients orally so as analgesics. The patients who suffered from severe vomiting post-operatively were prescribed some anti-emesis medications such as promethazine, ondansetron etc. any reactions to these medicines was strictly kept under check.

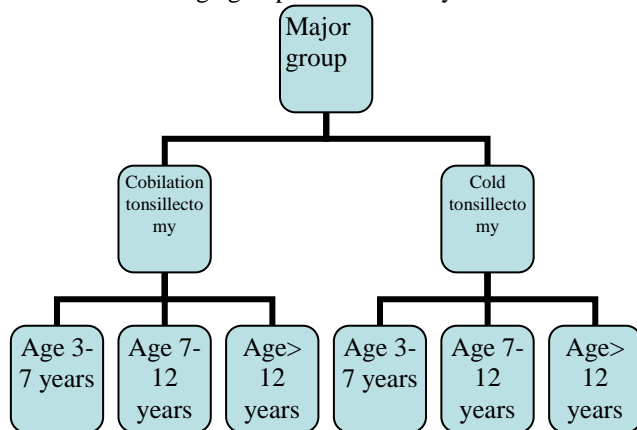
III. RESULTS

A sum total of 104 patients were examined and observed under this study. While 22 male and 30 female patients were studied in cold tonsillectomy, 32 male and 20 female patients were studied in cobilation tonsillectomy.

	Male	Female
Cold Tonsillectomy	22	30
Cobilation	32	20
Total	54	50
	114	

The study was made under two major groups, the first one being cobilation tonsillectomy and the second one being cold tonsillectomy. These groups were further subdivided into three groups based on age-

1. Patients of age group 3- 7 years - 35
2. Patients of age group 7-12 years - 6
3. Patients of age group more than 12 years - 11



Every sub- group was studied under five parameters. The parameters chosen for comparison of the two techniques were concentrated upon basic 5 entities.

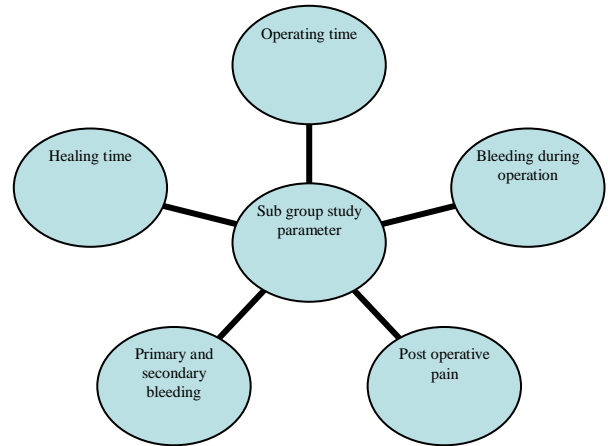
The first parameter included the operating time of cold tonsillectomy and cobilation tonsillectomy. In this the minimum, maximum and average operating time in cold tonsillectomy and cobilation tonsillectomy was compared.

The second parameter was bleeding during operation of cold tonsillectomy and cobilation tonsillectomy. It was divided into four categories, viz. nil bleeding, moderate bleeding, mild bleeding and severe bleeding.

The third parameter involved the inspection of the post operative pain in the patients undergone cold steel tonsillectomy and cobilation tonsillectomy. It was subdivided into Nil post operative pain, mild post operative pain moderate post operative pain and severe post operative pain

The fourth parameter also cumulated the bleeding process into its account. But the categories were this time divided into primary bleeding and secondary bleeding. Primary bleeding included the bleeding caused due to haemorrhage at the time of operation, either cold steel tonsillectomy or cobilation tonsillectomy. Secondary bleeding refers to bleeding caused by secondary haemorrhage just usually after 5th to 10th post operative day.

The fifth parameter involved the study of healing procedures in the patients. The healing time period was divided into ten, fourteen, eighteen, twenty one and twenty eight days. It was based on the patient follow up and interviewing and hence an additional category of no follow up was also introduced.



In the age group of 3-7 years the minimum operating time for cold steel tonsillectomy was 8 minutes while that for cobilation tonsillectomy was 5 minutes. The average operating time was 15.9 minutes for cold steel tonsillectomy while it was reduced to 10.2 minutes in cobilation tonsillectomy.

Bleeding during operation saw 1 patient with Nil bleeding in cold steel tonsillectomy whereas 6 patients with nil bleeding in cobilation tonsillectomy. 25 patients were reported to have mild bleeding in cold tonsillectomy while only 17 had mild bleeding in cobilation tonsillectomy. No patient was reported facing severe bleeding during operation in both types of tonsillectomy.

Post operative pain was absent in three patients of cobilation tonsillectomy and there was no case of nil post operative pain in the patients of cold tonsillectomy. 13 patients were reported to have mild post operative pain in cold tonsillectomy while 20 patients with mild post operative pain after cobilation tonsillectomy were identified. 1 patient each with severe post operative pain was observed on both types of tonsillectomy 1 patient faced primary bleeding in cold tonsillectomy while there was no case of primary bleeding in cobilation tonsillectomy. 1 patient each of secondary bleeding was observed in both cold and cobilation tonsillectomy.

Regarding the healing days, maximum patients recovered during the time period of 14 days; 20 patients of cold tonsillectomy and 17 patients of cobilation tonsillectomy. No follow up could be taken for 1 patient each of cold tonsillectomy and cobilation tonsillectomy.

	Minimum/ min	Maximum / min	Average / min
Operation time of Cold Tonsillectomy	8	22	15.9
Operation time of Cobilation Tonsillectomy	5	23	10.2

Table 1. The operating time in cold tonsillectomy and cobilation tonsillectomy in the patients of age group 3 to 7 years.

Bleeding during operation				
	Nil	Mild	Moderate	Sever
Cold Tonsillectomy	1 (male)	25 10 (male) 15 (female)	9 3 (male) 6 (female)	0
Coblation	6	17	2	0

Table 2. Bleeding during operation of the cold tonsillectomy and coblation tonsillectomy in the patients of age group 3 to 7 years

Post operative Pain				
	Nil	Mild	Moderate	Sever
Cold Tonsillectomy	0	13 3 (male) 10 (female)	21 11 (male) 10 (female)	1 (female)
Coblation	3	20	11	1

Table 3. Post operative pain in the patients of age group 3 to 7 years

	Primary Bleeding	Secondary bleeding
Cold Tonsillectomy	1 (female)	1 (male)
Coblation	0	1

Table 4. Primary bleeding and secondary bleeding in the patients with age group 3 to 7 years

Healing/ days	10	14	18	21	28	No follow up
Cold Tonsillectomy	2	20	1	9	2	1
Coblation	9	17	0	8	0	1

Table 5. Healing days in the patients between age group 3 to 7 years

In the patients of age group 7 to 12 years, years the minimum operating time for cold steel tonsillectomy was 15 minutes while that for coblation tonsillectomy was 10 minutes. The average operating time was 20.6 minutes for cold steel tonsillectomy while it was reduced to 17.2 minutes in coblation tonsillectomy.

Bleeding during operation saw zero patient with Nil bleeding in both cold steel tonsillectomy and coblation tonsillectomy. 3 patients were reported to have mild bleeding in cold tonsillectomy while only 2 had mild bleeding in coblation tonsillectomy. No patient was reported facing severe bleeding during operation in both types of tonsillectomy.

There was no case of nil post operative pain in the patients of cold tonsillectomy as well as coblation tonsillectomy. 1 patient was reported to have mild post operative pain in cold tonsillectomy while 2 patients with mild post operative pain after coblation tonsillectomy were identified. 2 patients with severe post operative pain was observed cold tonsillectomy.

There was no case of primary bleeding as well as secondary bleeding in both cold tonsillectomy and coblation tonsillectomy.

Regarding the healing days, maximum patients recovered during the time period of 21 days; 3 patients of cold tonsillectomy and 3 patients of coblation tonsillectomy.

	Minimum/ min	Maximum / min	Average / min
Operation time of Cold Tonsillectomy	15	25	20.6
Operation time of Coblation Tonsillectomy	10	22	17.3

Table 6. operating time in the patients of age group 7 to 12 years

Bleeding during operation				
	Nil	Mild	Moderate	Sever
Cold Tonsillectomy	0	3 (female)	3 (male)	0
Coblation	0	2	4	0

Table 7. Bleeding during operation in the patients of age group 7 to 12 years

Post operative Pain				
	Nil	Mild	Moderate	Sever
Cold Tonsillectomy	0	1 (male)	3 1 (male) 2 (female)	2 (female)
Coblation	0	2	4	0

Table 8. post operative pain in patients of age group 7 to 12 years

	Primary Bleeding	Secondary bleeding
Cold Tonsillectomy	0	0
Coblation	0	0

Table 9. primary and secondary bleeding in patients of age group 7 to 12 years.

Healing/ days	10	14	18	21	28	No follow up
Cold Tonsillectomy	0	2	0	3	1	0
Coblation	0	3	0	3	0	0

Table 10. Healing days in the patients of age group 7 to 12 years.

In the patients of age group of more than 12 years the minimum operating time for both coblation and cold steel tonsillectomy was 18 minutes. The average operating time was 22.9 minutes for cold steel tonsillectomy while it was reduced to 33.2 minutes in coblation tonsillectomy.

Bleeding during operation saw no patient with Nil bleeding in both cold steel tonsillectomy and coblation tonsillectomy. 2 patients were reported to have mild bleeding in cold tonsillectomy while none had mild bleeding in coblation tonsillectomy. No patient was reported facing severe bleeding during operation in cold tonsillectomy while 7 patients had to face severe bleeding during operation in coblation tonsillectomy.

Post operative pain was not found absent in any patients of coblation tonsillectomy and cold tonsillectomy. 2 patients were reported to have mild post operative pain in cold tonsillectomy while no patients with mild post operative pain after coblation tonsillectomy were identified. 7 patients of severe post operative pain were identified in coblation tonsillectomy.

then the yearly savings from the loss of worker productivity would be substantial.

Recently, cobilation tonsillectomy has turned out to be quite popular and aptly recognized while operating children, while our study showed no significant advantage of cobilation tonsillectomy in the adults. On a general basis, cobilation tonsillectomy has found to decrease postoperative morbidity as compared to cold tonsillectomy and other tonsillectomy. There was lesser postoperative pain, faster return to normal activities and a considerable decrease in the use of postoperative analgesics.

Majority of studies undertaking cobilation tonsillectomy have established that intraoperative blood loss during cobilation tonsillectomy is generally equal to or less than that of blood loss using other techniques and averaging a reading of about 20 mL. However, some studies also suggest that cobilation tonsillectomy has found to increase the rate of haemorrhage when compared to cold tonsillectomy performed with electrocautery assistance. Numerous other studies indicate that there was no major or statistically important difference between the bleeding rate after cobilation and non-cobilation tonsillectomy.

Theoretically, and as established in other studies, the healing of tonsillar fossa after cobilation tonsillectomy should be faster than cold tonsillectomy. Cobilation penetrates through the tissues at temperatures of around 70 degree C while cold tonsillectomy assisted by electrocautery would reach around 400 to 600 degree C.

V. CONCLUSION

Postoperative pain using cobilation tonsillectomy was found to infuse lesser post-operative pain in the patients of younger age. However, in the patients of adult community, there was no significant difference found in the postoperative pain and primary and secondary bleeding.

REFERENCES

- [1] <https://www.youtube.com/watch?v=6wy4C-DeWvI>
- [2] <http://www.drtdbalu.co.in/tonsillectomy.html>
- [3] <http://www.entvideos.drtdbalu.co.in/>
- [4] <http://www.ncbi.nlm.nih.gov/pubmed/14574289>
- [5] <http://www.medicinenet.com/tonsillectomy/article.htm>
- [6] M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.
- [7] <http://en.wikipedia.org/wiki/Tonsillectomy>
- [8] <http://www.mayoclinic.org/tests-procedures/tonsillectomy/basics/definition/prc-20019889>
- [9] <http://www.slideshare.net/edasampa/tonsillectomy-15557828>
- [10] <http://www.nlm.nih.gov/medlineplus/ency/article/003013.htm>
- [11] <http://www.entnet.org/content/tonsillectomy-and-adenoids-postop>
- [12] <http://www.healthline.com/health/tonsillectomy>
- [13] Timms MS, Temple RH. Cobilation tonsillectomy: a double blind randomised controlled study. J Laryngol Otol 2002
- [14] Curtin JM. The history of tonsil and adenoid surgery.
- [15] Temple RH, Timms MS. Paediatric cobilation tonsillectomy.
- [16] Younis RT, Lazar RH. History and current practice of tonsillectomy. Laryngoscope 2002
- [17] Cobilation Tonsillectomy Versus Dissection Tonsillectomy: Postoperative Hemorrhage by Antonio Belloso. Laryngoscope 2003
- [18] Scott Brown's Otolaryngology

1 patient faced primary bleeding in cobilation tonsillectomy while there was no case of primary bleeding in cold tonsillectomy. 1 patient of secondary bleeding was observed in cobilation tonsillectomy.

Regarding the healing days, maximum patients recovered during the time period of 21 days in cold tonsillectomy (10 patients). For cobilation tonsillectomy, maximum patient recovered during the time period of 28 days (6 patients).

	Minimum/ min	Maximum / min	Average / min
Operation time of Cold Tonsillectomy	18	32	22.9
Operation time of Cobilation Tonsillectomy	18	45	33.2

Table 11. Operation time in the patients of age group more than 12 years

	Bleeding during operation			
	Nil	Mild	Moderate	Sever
Cold Tonsillectomy	0	2 (female)	8 6 (male) 2 (female)	1 (female)
Cobilation	0	2	5	4

Table 12. Bleeding during operation in the patients of age group more than 12 years

	Post operative Pain			
	Nil	Mild	Moderate	Sever
Cold Tonsillectomy	0	2 (female)	9 6 (male) 3 (female)	0
Cobilation	0	0	4	7

Table 13: post operative pain in patients of age more than 12 years

	Primary Bleeding	Secondary bleeding
Cold Tonsillectomy	0	0
Cobilation	1	1

Table 14. primary and secondary bleeding in patients of age more than 12 years

Healing/ days							No follow up
	10	14	18	21	28	35	
Cold Tonsillectomy	0	1	0	10	0	0	0
Cobilation	0	0	0	4	6	1	0

Table 15. healing days in patients of age more than 12 years

IV. DISCUSSIONS

Although tonsillectomy is considered a minor surgery worldwide, it is, on a widespread basis, found to incense a lot of post operative pain and unease in the patients, both adult and children. Not only this, the recovery time of the patients is also considerably large, with a minimum of 14 days involved in bed rest before going back to work or school. Clearly, there are two major points on which the researches on the various types of tonsillectomy are taking place. First, the decrease in post-operative pain, and second, reduce in substantial recovery time. A personal conversation with the patients revealed that they would prefer to undergo any type of tonsillectomy lest it meant a decreased postoperative pain and trailing discomforts. It is also found that if the recovery time is cut short to 10% or 20%