Original Article

Comparison of Post-operative Pain and Hemorrhage in Different Techniques of Tonsillectomy

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Abstract

Background: Tonsillectomy is a surgery to remove the tonsils. It's one of the most common surgeries both teens and kids get. The merits and demerits of different surgical techniques for tonsillectomy is an ongoing debate. Through ages different techniques have been tried to improve the post- surgical outcome and reduce morbidity among patients.

Objective: To compare the post-operative pain and hemorrhage among the patients underwent tonsillectomy by cold dissection and bipolar electrocautery method.

Methods: Ninety patients who went through tonsillectomy in ENT departments of CMH Rangpur from January 2022 to December 2023 were included in this study. Patients were randomly distributed to undergo above were informed about two techniques of tonsillectomy. The statistics of post-operative pain and hemorrhage were examined and result were analyzed.

Results: The immediate post-operative pain following tonsillectomy was found higher among the group went through tonsillectomy by bipolar electrocautery method than that of the cold dissection method where extent of pain was measured by VAS score. On the contrary, complications of post-operative hemorrhage were seen in 3.33% patients following tonsillectomy by cold dissection method and 1.11% patients were facing this type of complications following tonsillectomy by bipolar electrocautery dissection method.

Conclusion: Statistically significant pain were found post-operatively following tonsillectomy in case of bipolar cautery dissection and complication of hemorrhage following tonsillectomy was more seen in cold dissection technique.

Keywords: Tonsillectomy, Post-operative pain, Hemorrhage, VAS (Visual Analogue Scale) score.

Introduction

Tonsillectomy is one of the maximum commonplace operative strategies which is finished by means of otolaryngologists everywhere in the world. Regardless of ordinary tonsils provide immune safety, dangerous tonsils are commonly less functioning. Inflamed tonsils can be related to much less antibody formation and even decreased charge of antigen transport.[1] No matter tonsillectomy is now a days carried out much less regularly than it turned into performed before, it is nevertheless a common surgical procedure achieved globally. As the process is a not unusual exercise, it represents a prime subject for the otolaryngologists. The records of historical tonsillectomy in literature become dated back to a thousand BC wherein it turned into practiced with the aid of Sushruta in India.[2] After 100 years the surgical treatment changed into developed with exclusive techniques being used to make it a more secure method and enhance the submit-operative final results. There's numerous indications for tonsillectomy in a patient levels from chronic tonsillitis, peritonsillar abscess, suspicious of malignancy to tonsillar hypertrophy causing obstructive sleep apnea and in elongated styloid process excision. The distinctive techniques used for tonsillectomy encompass bloodless dissection, bipolar electrocautery technique, guillotine tonsillectomy, ultrasonic dissection, coblation dissection, laser tonsillectomy andmicrodebrider tonsillectomy; amongst them bipolar electrocautery and cold dissection approach are extensively used technique in Bangladesh.

The post-operative ache and hemorrhage are two primary concern factors in tonsillectomy patients.[3] some observations indicates bipolar cautery dissection gives better result in respect of post-operative hemorrhage and bloodless dissection technique gives a higher outcome in view of post-operative pain than that of bipolar electrocauterization. The current observations mainly objectives to examine and examine if there's any statistically significant difference in the post-operative pain and hemorrhage in patients undergoing tonsillectomy via cold dissection and bipolar cautery dissection.

Materials and Methods

This randomized prospective observational study was conducted in in ENT department of CMH Rangpur from January 2022 to December 2023. A total of 90 patients who underwent tonsillectomy during the above given period were included in the study. Inclusion criteria for current study were patients age group between 5 to 50 years, patients with complain of recurrent tonsillar infections i.e. chronic tonsillitis; 7 or more episodes/year or 5 or more episodes/year for 2 years or 3 or more episodes/year for 3 years and patients with complain of obstructive symptoms related to tonsil hypertrophy. Exclusion

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criteria for current study were need of any concurrent surgery other than tonsillectomy like adenoidectomy, myringotomy with ventilation tube insertion, patients with acute tonsillitis, impaired mental status of patient, any bleeding disorder and hypersensitivity/allergy to drugs involved in procedure.

Tonsillectomies by all two techniques were done under general anaesthesia with endotracheal intubation. Patients were placed in supine position with extension at the neck using a shoulder roll (rose position). A Boyle-Davis mouth gag was used to keep the mouth open and it was fixed using Draffins metallic bipod stand. A tonsil holding forceps was used to pull the tonsil medially and incision was given in the superior pole of the tonsil using the tooth forceps in the CD technique. The tonsil was dissected from underlying bed by gauze dissection till the inferior pole. The inferior pole tonsil was snared using Eve's tonsillar snare. The bed of the tonsil was observed for any bleeding point and any bleeding point found was ligated using 3-0 vicryl sutures.

In bipolar dissection after general anaesthesia and similar positioning of the patient, bipolar cautery was used to give incision in the superior pole of the tonsil and the same was used to dissect the tonsil from the bed. Snaring of the inferior pole was done using the Eve's tonsillar snare. The surgeon holds the electrode and uses it for incision and dissection whereas the return electrode is usually placed under the patient's thigh.[4] At the end of the procedure exposed vessels or bleeding points can be cauterized carefully at a settings of 30-35w.[5,6] Patient were discharged 48 hours after the surgery and were given a combination of ibuprofen and paracetamol tablet based on their body weight three times a day for 5 days and intravenous diclofenac was given as rescue therapy in case of more pain based on body weight on day.[1,3,7] Post tonsillectomy pain was assessed using standard visual analogue pain scale.

Results

Ninety patients were included in the study, out of which, 50 patients (55.55%) were male and 40 patients (44.45%) were female (Table-I). Age was in between 5-50 years; 38 patients (42.22%) ranged between 5-60 years underwent tonsillectomy by cold dissection method and 52 patients (57.78%) underwent tonsillectomy by bipolar dissection method (Figure-1).

Table-I: Distribution of the patients according to sex (n=90)

Total patients (n=90)	n	%
Male	50	55.55%
Female	40	40.44%

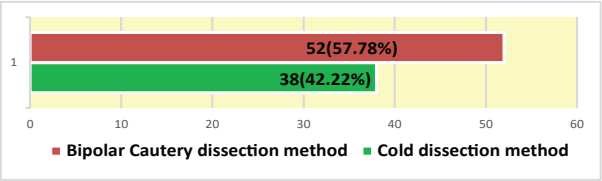

Figure-1: Dissection methods.

In this study, there are 59 patients are of young age and in the age group of 5 to 20 years. Then 23 patients among total 90 are belonged to the age group of 20-30 years. Fifteen patients are in the 30-40 years, 11 patients are in the group 40-50 years and only 2 of them are in the 50 or more age group (Table-II).

Table-II: Distribution of the patients according to age (n=90)

Age Group	Number of Patients
5-20	39
20-30	23
30-40	15
40-50	11
>50	2
Total	**90**

So we've found 50 patients of 90 are from military combatant group who are currently serving in the armed forces on the other hand only 15 patients are retired member of armed forces. There are 25 non-combatant military service holders and 10 patients who are in the non-military person group including family and relatives underwent the surgery (Figure-2).

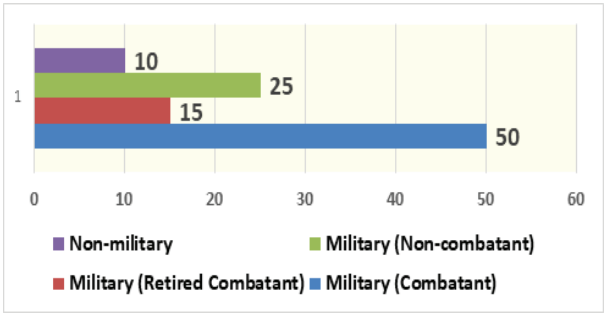

Figure-2: Military and non-military patients underwent the surgery (n=90)

Post-operative pain scores were assessed using VAS scoring. The mean VAS score for post-operative pain in the patients who underwent tonsillectomy by cold dissection method 4.7 on day 1, 6.14 on day 3, 4.89 on day 7 and 1.26 on day 14. The patient who underwent tonsillectomy by bipolar dissection method had mean score of 5.28 on day 1, 6.26 on day 3, 5.10 on day 7 and 1.4 on day 14. Statistically significant difference was found in day 1 of post-operative period between two groups while the mean pain scores on day 3, 7 and 14 showed no significant difference between groups (Table-III).

Table-III: Post-operative pain on the day 1, 3, 7, 14 following two different technique after surgery

Days	Cold dissection (n=38)	Bipolar dissection (n=52)
	Mean	Mean
Day 1	4.57	5.28
Day 3	6.14	6.26
Day 7	4.89	5.10
Day 14	1.26	1.4

We have found about 21.05% patient needed to consume excess analgesic in cold dissection method whereas about 35.54% patient needed to consume excess analgesic in case of bipolar dissection method (Table-IV).

Table-IV: Number of analgesic consumption following postoperative pain

Variables	Cold dissection (n=38)	Bipolar dissection (n=52)
Normal	30(78.95%)	35(63.46%)
Excess	08(21.05%)	19(36.54%)

Bleeding remains the most significant complication following tonsillectomy. Sometimes requiring revision surgery under general anaesthesia. Some studies have compared post-operative hemorrhage between cold dissection versus bipolar cautery dissection and found significant increase in the first. However other studies reported so significant differences.[10]

Among the study patients, complication of hemorrhage were more seen in cold dissection group in compared to bipolar diathermy group. Complications of hemorrhage were seen in 4(4.44%) of all patients; 3(3.89%) were in cold dissection group and 1(1.92%) in bipolar cautery dissection group (Table-V).

Table-V: Post-operative hemorrhage following two different technique (n=90)

	Hemorrhage		
Dissection Method	Hemorrhage	No Hemorrhage	Total
Cold Dissection	3(7.89%)	35(92.11%)	38
Bipolar Cautery	1(1.92%)	51(98.08%)	52
Total	4(4.44%)	86(95.96%)	90

Discussion

Postoperative pain and bleeding are two important issues for tonsillectomy patients. Over the years, different techniques have been developed to reduce the side effects of tonsillectomy. Scientists have done many studies, but there is still debate about what is the best technique for tonsillectomy. The 9th and 10th cranial nerves supply this area, as well as the muscles of the pharynx.[7] Assessments were conducted four times; on the 1st, 3rd, 7th and 14th days after surgery. In all cases, patients who underwent bipolar tonsillectomy experienced significantly worse symptoms than those in the cold dissection group. Scientific evidence[8], Silveria et al[9] and Khan et al[10], Chettri et al[11,12] and Bukhari and Al-Ammar[13] The percentage of patients complaining of pain in the bipolar cautery resection group was significantly higher than that of influenza, consistent with this study. When aches and pains occur, painkillers such as acetaminophen and ibuprofen are often prescribed to reduce the severity of the pain. In this study, patients who needed more painkillers were given pethidine 0.7 mg/kg intramuscularly within 24 hours after surgery, with more acetaminophen given at home. Nunez et al, in the influenza group, this is consistent with this findings.[14] Pham et al when comparing the postoperative morbidity of ion ablation and electrocautery during tonsillectomy, concluded that the analgesics administered during the electrocautery method were significantly higher compared to this study.[15] In contrast, Stavroulaki et al's study showed that analgesic drug consumption was higher in this group than after bipolar cauterization, but this was not the case.[7] However, this was not associated with increased post-operative bleeding. Post-tonsillectomy bleeding can be classified as primary, reactionary or secondary. Primary bleeding occurs during surgery, reactionary bleeding occurs within 24 hours after surgery and other bleeding occurs within 5 to 10 days after surgery.

Tonsillectomy has been performed by many methods to reduce bleeding activity and diabetes.[16] A new method is to perform tonsillectomy using bipolar electrothermal therapy called hot knife. This surgery has become the first choice due to low blood pressure[17,18] and short absences from school or work. Studies have shown that bipolar tonsillectomy is a safe procedure under conditions similar to tonsillectomy and therefore may be the first choice for everyone, especially for younger age groups.[19,20] This study findings are consistent with other findings in the literature.[21,22] The bleeding seen in both groups is secondary and occurs between days 5 and 10. All patients were treated in the operating room without recurrence or blood transfusion.

Conclusion

Statistically significant pain scores were found on post-operative day 1 between the two techniques and higher pain scores in patients who underwent bipolar cautery tonsillectomy. The pain scores on post-operative day 3, 7 and 14 were similar with no significant differences between them and hemorrhage following tonsillectomy was more seen in cold dissection technique. However, studies with larger sample size are needed to prove conclusively whether any difference exits in various techniques of tonsillectomy or not.

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