

ORIGINAL ARTICLE

To Compare the Blood Loss in Bipolar Diathermy Versus Suture Ligation for Hemostasis in Patients Presented with Chronic TonsillitisANES UR REHMAN¹, SALMAN AHMED MANGRIO², MUHAMMAD FAROOQ BHUTTA³, IKRAM ULLAH⁴, ASHFAQ HUSSAIN RANA⁵, MUHAMMAD TAHIR⁶¹Associate Professor of ENT, Sheikh Zayed Hospital Rahim Yar Khan.²Assistant Professor, Dow International Medical College, Dow University of Health Sciences Karachi³Assistant Professor ENT, Shahida Islam Teaching Hospital Lodhran.⁴Associate Professor of ENT, Loralai Medical College Loralai Balochistan⁵Department of ENT, Shahida Islam Hospital, Lodhran.⁶Medical Officer, Ghulam Muhammad Mahar Medical College Hospital Sukkur.Corresponding author: Muhammad Farooq Bhutta, Email: drfarooqbhutta@gmail.com**ABSTRACT****Objective:** To compare the blood loss in bipolar diathermy versus suture ligation for hemostasis in patients presented with chronic tonsillitis**Material and methods:** We conducted this randomized controlled at ENT Department Sheikh Zayed Hospital Rahim Yar Khan from April, 2022 to September, 2022. Total 70 patients presenting with chronic tonsillitis divided in two groups equally. Patients were treated with two procedures bipolar diathermy and ligation. Mean blood loss and operative time was compared between both groups. T-Test was used for comparison keeping $P < 0.05$ as statistically significant.**Results:** Mean age of the patient was 22.86 ± 9.31 years in group A and 22.89 ± 7.29 years in group B. The mean blood loss in group A and group B was 27.71 ± 7.10 ml vs 43.40 ± 16.63 ml. Procedure time in group A and group B was 7.69 ± 1.85 mins vs 9.91 ± 2.09 mins.**Conclusion:** We conclude that bipolar diathermy group had statistically lower amount of blood loss and post-operative time when compared with ligation group.**Keywords:** bipolar diathermy, ligation, chronic tonsillitis, hemostasis**INTRODUCTION**

There is no shortage of contentious issues in the medical literature. As a surgical procedure, tonsillectomy is one for which we have more concerns than answers. Despite the fact it is among the most common surgeries done worldwide, surgeons still have to be aware of the risk of its most common and frightening complication: bleeding, which can cause aspiration and shock if not treated immediately¹. According to current understanding, tonsils should be kept until they become the source of embarrassment for breathing, Eustachian tube function, speech, or feeding, or until they become the site of disease. This is especially true in the first few years of life. Because of the risk of infection or inadequate blood supply, tonsillar excision is often the best option in such cases^{2,3}.

There has been a change in how tonsillectomy procedures are carried out recently. When it comes to tonsillectomy, the gold standard used to be dissection with hemostasis undertaken with or without ties⁴. However, in recent years, there has been a proliferation of alternative dissection techniques developed in an effort to reduce the discomfort and blood loss experienced after the operation. Intracapsular tonsillectomy with a debrider, harmonic scalpel tonsillectomy, plasma influenced ablation, cryosurgical, electrocautery, laser tonsillectomy, coblation tonsillectomy, and radiofrequency are some of the more recent methods that are being considered. A visible sign for adult tonsillectomy is the occurrence of true acute tonsillitis three to four times per year for two to three years^{5,6}.

Tonsillectomy remains the most frequently performed surgery in otolaryngology, despite the fact that it is known worldwide as a significant operation due to the risk of postoperative bleeding and anesthetic problems⁷. Some studies have found that 18% of patients experience significant blood loss during surgery, while 0-10% experience significant blood loss in the postoperative period. Between 1 in 1100 and 1 in 16000 deaths have been recorded⁸. Both perioperative and postoperative bleeding can be further classified into two types of bleeding: reactive and secondary. This complication is responsible, either directly or indirectly, for a significant portion of the mortality rate after tonsillectomy⁹.

Multiple hemostatic medications and specialized surgical procedures have been tried to minimize postoperative and intraoperative bleeding in tonsillectomy. Hemostasis is traditionally

achieved through the closure of blood arteries or bleeding sites^{10,11}. Silver nitrate, tannic acid, and diluted adrenaline solution are only some of the astringents that have been recommended for topical application after surgery to stem bleeding¹². Significantly less blood is lost during surgery when the antifibrinolytic drug epsilon amino caproic acid is administered intravenously¹³.

The fact that both of these methods of hemostasis are commonly used and that there are no clear and obvious grounds to choose one technique rather than the other demonstrates the importance of the issue chosen. The method used for tonsillectomy is entirely up to the discretion of the operating surgeon. Therefore, it was important to undertake a study in this context to compare the two methods, their morbidity, and their outcomes, with the intention of developing a safer and more effective approach to tonsillectomy in the future.

MATERIAL AND METHODS

We conducted this randomized controlled trial at ENT Department Sheikh Zayed Hospital Rahim Yar Khan from April, 2022 to September, 2022. Prior to commencing the study, we obtained an ethical clearance certificate from the hospital. We enrolled 70 patients presenting with chronic tonsillitis confirmed on physical and radiological examination. Patients were divided in two groups by lottery method. We assigned 35 patients to group A who underwent bipolar diathermy hemostasis and 35 patients were assigned to group B who underwent ligation hemostasis. Demographic data was collected on a predesigned proforma. We compared mean blood loss and mean operative time between groups.

All the data was analyzed using IBM SPSS 20. Gender and symptoms were presented as frequencies and percentages while age, mean blood loss and operative time was measured in mean and standard deviation. We used T-test for comparison of blood loss and operative time between both groups. We kept P value at < 0.05 as statistically significant.

RESULTS

This study was conducted on 70 patients presenting with chronic tonsillitis. Patients were divided in two groups. Group A patients had bipolar diathermy and group B patients had ligation. The mean age in group A was 22.86 ± 9.31 years and mean age in group B

was 22.89 ± 7.29 years. In group A there were 22 (62.9%) male and 13 (37.1%) female patients while in group B there were 19 (54.3%) male and 16 (45.7%) female patients in our study.

The patients were presented with the symptoms of chronic tonsillitis, in group A 21 (60%) patients had hypertrophied tonsils, there were 8 (22.9%) patients with ant pillars congestion and there were 6 (17.1%) patients presented with Palpable subdigastic lymph nodes while in group B 15 (42.9%) patients had hypertrophied tonsils, there were 13 (37.1%) patients with ant pillars congestion and there were 7 (20%) patients presented with Palpable subdigastic lymph nodes. We observed that group A had significantly lower amount of blood loss than group B (27.71 ± 7.10 ml vs 43.40 ± 16.63 ml; $P = 0.0001$). Regarding the procedure time we observed that the mean procedure time was significantly lower in group A than group B (7.69 ± 1.85 mins vs 9.91 ± 2.09 mins; $P = 0.0001$)

Table 1: Gender distribution

Groups		Gender		Total
		Male	Female	
Group A		22	13	35
		62.9%	37.1%	100.0%
Group B		19	16	35
		54.3%	45.7%	100.0%
Total		41	29	70
		58.6%	41.4%	100.0%

Table 2: Comparison of blood loss and procedure time between both groups

Parameters	Groups	N	Mean	Std. Deviation	P value
Blood loss (ml)	Group A	35	27.71	7.102	0.0001
	Group B	35	43.40	16.631	
Procedure time (min)	Group A	35	7.69	1.859	0.0001
	Group B	35	9.91	2.092	

DISCUSSION

There are a great deal of contentious issues discussed in the medical literature. One such procedure, the removal of the tonsils, presents us with more questions than solutions. Although being one of the most common surgeries done worldwide, doctors still have to be wary of the possibility of the most prevalent and frightening consequence, which is haemorrhage, which can cause aspiration and shock.¹²

A tonsillectomy should ideally be rapid, painless, and involve the least amount of blood loss possible. In an effort to lower the frequency of postoperative bleeding and intraoperative blood loss, a range of haemostatic drugs and procedures have been employed. Most of these medicines and methods have had their effectiveness mostly assessed based on clinical observations. Due to the dearth of prospective studies using bipolar diathermy for tonsillectomy hemostasis, a randomised prospective study with 50 tonsillectomy cases was done, using each patient as its own control.¹³

The effectiveness of bipolar diathermy and vascular ligation have been compared in numerous research. According to a study, reactive haemorrhage occurred three times more frequently in patients who had ligatures than in those who had diathermy (0.3%). However, the rate of late tonsillar (secondary) haemorrhage after diathermy (1.8%) was higher than the incidence of haemorrhage after artery ligation (0.9%).¹⁴ Another study discovered that the use of diathermy simply reduced the length of the procedure; there was no discernible difference in the frequency or severity of postoperative haemorrhage.¹⁵ According to the results of a different study, bipolar diathermy is just as effective as ligation in stopping bleeding, does not cause more postoperative pain, and does not increase the risk of secondary bleeding. Shorter operational and anaesthetic times arise from hemostasis being simpler and taking less time than ligation.¹⁶

A randomised trial was conducted to compare the post-tonsillectomy morbidity of the blunt dissection and ligation technique with the electrodissection technique. One hundred and four patients were randomly assigned to receive electrodissection of either the right or left tonsil, with each patient acting as their own

control. On the electrodissection side, there was noticeably less pharyngeal pain on the first postoperative day in adult patients. However, towards the end of the first week, there was increased pharyngeal discomfort and otalgia on the electrodissection side, both in terms of severity and length. Between the two procedures, there was no change in the frequency of haemorrhage.¹⁷

In our study we observed that patients in group A who underwent bipolar diathermy had significantly lower operative time than the patients in group B who underwent ligation for hemostasis (7.69 ± 1.85 mins vs 9.91 ± 2.09 mins; $P = 0.0001$). Regarding the blood loss, we observed that patients in group A had significantly lower amount of blood loss when compared with group B (27.71 ± 7.10 ml vs 43.40 ± 16.63 ml; $P = 0.0001$). Our results are comparable with various studies which reported lower operative time and lower amount of blood loss in bipolar diathermy group¹⁵.¹⁸ Compared to the traditional method of ligating the tonsils, tonsillectomy performed with bipolar diathermy greatly reduced operative time. The average amount of blood lost during bipolar diathermy was significantly less than that during ligation.

CONCLUSION

From our study we conclude that bipolar diathermy is an effective technique for hemostasis in chronic tonsillitis patients as compared to suture ligation with significantly lower amount of blood loss and post-operative time.

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