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**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1684787>Available online at: <http://www.iajps.com>**Research Article****A PROSPECTIVE STUDY TO ASSESS THE MODIFICATION
EFFECTS OF MONOPOLAR DIATHERMY TONSILLECTOMY
FOR REDUCTION OF POSTOPERATIVE BLEEDING****Aleena Saeed, Mishal Komal, Assad Ali Saeed**
Mayo Hospital Lahore**Abstract:**

Objective: This research aims to assess the modifications effects of the present strategy of monopolar diathermy tonsillectomy on an onset of postoperative bleeding and we also compared the outcomes with available international research outcomes.

Methodology: The design of the research is longitudinal prospective experimental research carried out on a total of 1500 patients in the timeframe of February 2016 to February 2017 at Mayo hospital Lahore. The range of the patient's age was in between 5 years – 15 years. Every patient underwent tonsillectomies through the modified method of monopolar diathermy. Every patient was also assessed for an onset of postoperative bleeding.

Results: Significant secondary haemorrhage developed in two patients which required another visit to operation theatre in order to control the incidence of postoperative bleeding among patients. One of these patients of secondary haemorrhage also required transfusion of blood in the operation theatre. There were five cases of minor secondary bleeding which was later managed through conservative resources. An incidence of reactionary bleeding was found in only two patients which were also managed at operation theatre before shifting to the concerned ward.

Conclusion: Modifications produces a significant decrease in the incidence of postoperative bleeding through present management technique in comparison to the tonsillar fossae. It also produces comparatively better outcomes than available international literature.

Keywords: Modified Diathermy Technique, Tonsillectomy, Postoperative, Strategy and Bleeding.

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INTRODUCTION:

Tonsillectomy is one of the most performed surgical interventions carried out by ENT surgeons all over the globe. It is performed in routine at various ENT departments of the hospitals all over the world. Tonsillectomy has two major indications which include chronic tonsillitis and sleep apnea syndrome. Sleep apnea syndrome is common among young children which are mostly treated with tonsillectomy [1 – 3]. Other cost-effective methods are diathermy and dissection.

Less operative time is required in diathermy method which gives bloodless operative experience with cent percent operative outcomes with complete tonsil removal. It is also reported by various research studies that there are increased chances of postoperative bleeding onset, slough formation and pain in tonsillar fossae diathermy in comparison to the cold tonsillectomies [4]. The possible cause of postoperative bleeding is variation in tissues from arc heat that flows from diathermy needle tip.

If postoperative pain increases with the diathermy thermal effects and postoperative bleeding significantly; then, modifications can possibly reduce the thermal effects on Peritonsillar tissues with the production of a totally opposite effect. Therefore, our research aims to assess the modifications effects of the present strategy of monopolar diathermy tonsillectomy on an onset of postoperative bleeding and we also compared the outcomes with available international research outcomes.

METHODOLOGY:

The design of the research is longitudinal prospective experimental research carried out on a total of 1500 patients in the timeframe of February 2016 to February 2017 at Mayo hospital Lahore. The range of the patient's age was in between 5 years – 15 years. Every patient underwent tonsillectomies through the modified method of monopolar diathermy. Every patient was also assessed for an onset of postoperative bleeding. In terms of age 1200 patients were in the age bracket of 5 – 8 years; whereas, 193 and 107 patients were in the age bracket of 9 – 12 years and 13 – 15 years respectively.

We used monopolar diathermy procedure to treat all the patients and every patient also underwent CBC, an activated partial thromboplastin time and Prothrombin time before the operation. No patient had any sign of inflammation or infection before the surgical intervention and underwent an antibiotic course before treatment (two weeks prior to surgical intervention). Research protocols were also explained

in detail to the guardian and parents and an experienced surgeon performed all the surgeries. We operated menstruating females in the time of mid-cycle and patients brushed their mouth before the operation. Researcher carried out coagulation and dissection with the help of a diathermy machine (Valley Lab).

We used scissors to cut mucosa along the pillars as a replacement of diathermy. Oral secretions were controlled through Pirolate injection which was given thirty minutes prior to anaesthesia induction. We used a pointed diathermy Colorado needle in order to dissect with eight Watts setting. We applied long-acting local anaesthetic on both sides for an equal amount of time and pulled the tonsil.

We did not include any patient who underwent simultaneous adenoidectomies, presented preoperative coagulation complications in the blood clinical assessment and requiring bleeding ligations in tonsillar bed.

Every patient received standard one-week treatment and discharged from the hospital after twenty-four hours with an advice to take a bland diet for a period of one week. In order to ensure dynamic pharyngeal muscular exercise patients were also advised to use chewing gum with better dental brushing practice. Five visits were planned at an interval of two weeks as follow-up scheme. We took a detailed history of fossae and blood tinged saliva in order to observe clotting of the blood. Reduction slough time was fifty percent with a complete epithelialization of tonsillar fossae. It has a direct association with the tonsillar fossae degree of the healing process.

RESULTS:

Significant secondary haemorrhage developed in two patients which required another visit to operation theatre in order to control the incidence of postoperative bleeding among patients. One of these patients of secondary haemorrhage also required transfusion of blood in the operation theatre. There were five cases of minor secondary bleeding which was later managed through conservative resources. An incidence of reactionary bleeding was found in only two patients which were also managed at operation theatre before shifting to the concerned ward.

We reported secondary bleeding and bleeding after tonsillectomy respectively 0.6% (9/1500) and 2.38% (37/1557); whereas, in the internationally reported data the same were respectively 1.6% (18/1133) and 4.6% (1840/40,000).

Table – I: Comparison of International Data and Present Study

Research Comparison		Number	Percentage	Total
Present Study	Secondary Bleeding	9	0.6	1500
	Bleeding after Tonsillectomy	37	2.38	1557
International Data	Secondary Bleeding	18	1.6	1133
	Bleeding after Tonsillectomy	1840	4.6	40000

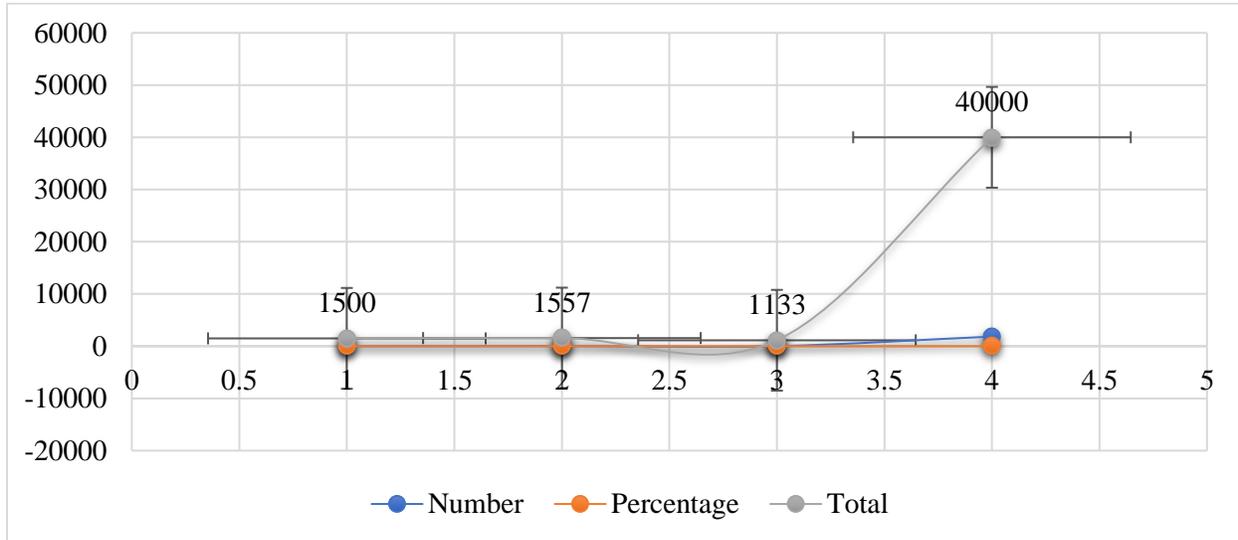
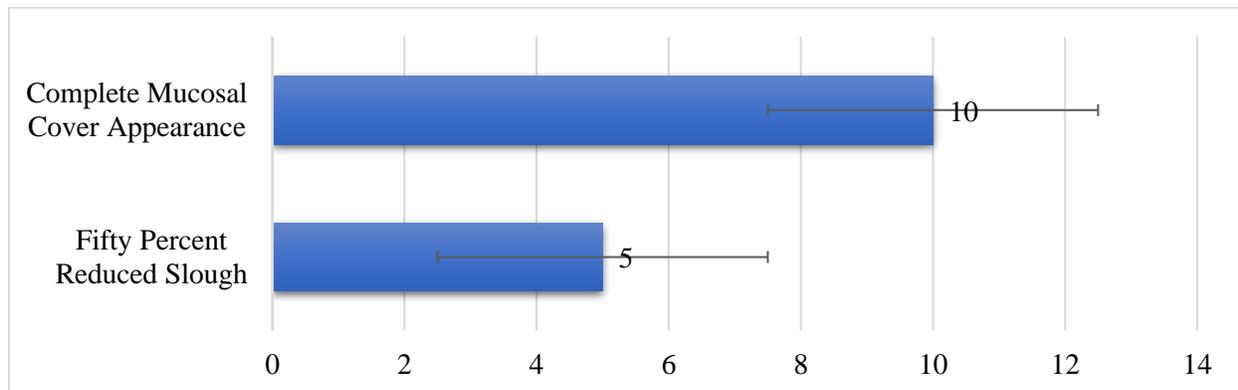


Table – II: Slough Size Comparison with respect to Days

Slough Size	Days
Fifty Percent Reduced Slough	5
Complete Mucosal Cover Appearance	10



DISCUSSION:

Tonsillectomy indicators are very much easy and evident but the removal strategies are different from each other. Any surgical intervention primarily aims at the complete removal of tonsil with a reduced rate of morbidity and maximum safety of the patients. Technology is under consideration for the removal of tonsils in the recent practice by ENT surgeons [5]. Many incidences of postoperative bleeding and pain are common among the patients experiencing tonsillectomies.

With the help of non-steroidal anti-inflammatory agents and intraoperative steroids, we can possibly reduce the onset of morbidity in the first forty-eight hours especially the morbidity that had an association with vomiting [6 – 8]. Antibiotics reduce pain, poor oral intake and halitosis; moreover, antibiotics are common in the routine practice of pediatric tonsillectomies with varying effectiveness [9, 10]. Majority of the tonsils receive blunt dissection treatment and safeguarding hemostasis through bipolar and monopolar diathermy or bleeder catching. It is also tied with the silk sutures. This technique is well known as “Cold Tonsillectomy”. With the current advancements in electrocautery, it cures the incidence of tonsillectomy which is also known as “Hot Tonsillectomy” [11, 12]. Children facing obstructive sleep usually receive Microdebrider treatment which can reduce the postoperative pain [13]. Plasma-mediated and Ultrasonic tissue Coblation strategies do not demonstrate any significant variation in the morbidity; whereas, they pose reduced tissue injury [14 – 16].

Microdissection needle reduces postoperative pain in diathermy tonsillectomy in comparison to the standard tip of diathermy as heat damages the tonsillar fosse [17]. Bipolar cautery produced a flow of the currents in between the forceps prongs; whereas, in case of monopolar cautery it damages a larger area of the necrosis that results in the shape of secondary haemorrhage [18]. Diathermy removes tonsil neatly from its bed; whereas, an onset of haemorrhage is totally dependent on the blood vessels exposure. Monopolar diathermy involves a large necrosis surface and increased the chance of secondary haemorrhage [19]. Various studies also debate the effectiveness of Hot and Cold Tonsillectomy [20].

It is also one of the numerous estimates that temperature rises to hundred degree centigrade [21]. According to us, diathermy heat dispersion is a result of oral secretions which damages the nearby surface. So, we recommend the use of Pirolate injection in

order to reduce the onset of oral secretions. We believe that we can prevent thermal damage through a cut of the scissor rather than diathermy. We saved bed from thermal and associated damages through minimum current usage, avoiding pillars and avoid bed from current and apply the current on tonsillar.

We reported secondary bleeding and bleeding after tonsillectomy respectively 0.6% (9/1500) and 2.38% (37/1557); whereas, in the internationally reported data the same were respectively 1.6% (18/1133) and 4.6% (1840/40,000) [22].

An author reported 37 postoperative bleeding among 1557 diathermy tonsillectomies patients (2.38%) in a cohort series. If we consider Control group as “Cold Dissection” and Treatment Group as “Diathermy Tonsillectomy” the relative postoperative bleeding incidence after diathermy tonsillectomy is 1.30 with a confidence interval of (95%) in an interval range of (0.88 – 1.93) [23].

Another review reports secondary haemorrhage among 2.4% patients [24]. In another review held at Royal College, England reported postoperative bleeding among 3.5% patients in the total sample of 40,000 during the first twenty-eight days. Patients operated through Hot technique had haemorrhage rate of 4.6%; whereas, in Cold technique rate of tonsillar haemorrhage was 2.7% [25].

CONCLUSION:

Modifications produce a significant decrease in the incidence of postoperative bleeding through present management technique in comparison to the tonsillar fossae. It also produces comparatively better outcomes than available international literature.

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