
**“EFFECTIVENESS OF TOPICAL PLATELET-RICH PLASMA IN
PROMOTING WOUND HEALING AND REDUCING PAIN
AFTER TONSILLECTOMY: A RANDOMIZED CLINICAL
TRIAL.”**

Submitted by



ABSTRACT

Background: Tonsillectomy is one of the most frequently performed otorhinolaryngological procedures worldwide. Despite advances in surgical techniques and perioperative care, postoperative pain and delayed wound healing remain significant challenges that adversely affect patient recovery, oral intake, and overall quality of life. Platelet-Rich Plasma (PRP), an autologous concentrate rich in growth factors and cytokines, has emerged as a promising biological adjunct capable of enhancing tissue regeneration and reducing inflammation. The present study was undertaken to evaluate the effectiveness of topical PRP in improving wound healing and reducing postoperative pain following tonsillectomy.

Objectives:

Materials and Methods:

Results:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Conclusion: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Keywords: Platelet-Rich Plasma; PRP; Tonsillectomy; Postoperative Pain; Wound Healing; Tonsillar Fossa Healing, Tissue Regeneration; Epithelialization; Otorhinolaryngology; Randomized Clinical Trial

LIST OF ABBREVIATIONS

Abbreviation	Full Form
PRP	Platelet-Rich Plasma
RCT	Randomized Controlled Trial
SBP	Systolic Blood Pressure
DBP	Diastolic Blood Pressure
bpm	Beats Per Minute
IBM	International Business Machines
SPSS	Statistical Package for the Social Sciences
n	Number of Participants/Sample Size
p	Probability Value (Level of Statistical Significance)
χ^2	Chi-Square Test
mmHg	Millimetres of Mercury
Group C	Control Group
Group P	PRP Group

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INTRODUCTION

INTRODUCTION

According to the World Health Organization (WHO), health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] By addressing both major postoperative concerns pain and delayed healing this intervention has the potential to improve patient outcomes, reduce morbidity, and contribute to better quality of life following surgery (8).

Epidemiology

Global Epidemiology

Tonsillectomy is one of the most frequently performed surgical procedures worldwide, particularly in children and adolescents. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Advances in surgical techniques have reduced complications, but postoperative morbidity, particularly pain and delayed healing, continues to be significant (9).

Indian Epidemiology

In India, tonsillectomy is a commonly performed ENT procedure, especially in tertiary care centers. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Increasing awareness and improved healthcare infrastructure have led to a steady rise in surgical interventions for tonsillar diseases (11).

Karnataka Epidemiology

In Karnataka, particularly in tertiary care institutions like KLE's Dr. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The adoption of newer techniques and adjunct therapies such as platelet-rich plasma is gradually increasing in Karnataka to improve surgical outcomes and patient satisfaction (13).

AIMS AND OBJECTIVES

AIMS AND OBJECTIVES

Objective of the study:

[REDACTED]

[REDACTED]

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Tonsillectomy

Tonsillectomy is a surgical procedure performed for the removal of the palatine tonsils from the tonsillar fossa. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



Figure 1: Acute Exudative Tonsillitis (Bilateral Tonsillar Enlargement with Pus)

Historical Perspective

The history of tonsillectomy reflects the evolution of surgical practice from crude excision methods to modern standardized operative procedures. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The historical progression of this procedure also highlights the growing emphasis on minimizing pain, improving healing, and enhancing patient safety (18).

Indications (Recurrent Tonsillitis, OSA, Others)

The indications for tonsillectomy have become more specific with improved clinical guidelines and better understanding of tonsillar disease. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

██████████ Careful patient selection helps ensure that the expected benefits of surgery outweigh the risks of postoperative pain, bleeding, and healing-related morbidity (2).

Anatomy and Physiology of Palatine Tonsils

Gross Anatomy

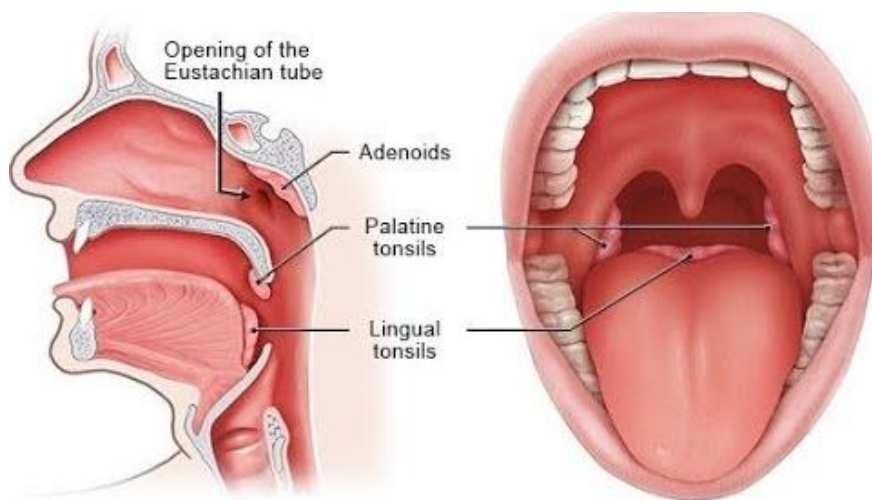


Figure 2: Anatomy of Palatine Tonsils

The palatine tonsils are paired lymphoid structures situated in the lateral wall of the oropharynx, specifically within the tonsillar fossa between the palatoglossal and palatopharyngeal arches. ██████████

██████████

██████████

Blood Supply and Nerve Supply



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Irritation of this nerve can also lead to referred otalgia due to shared nerve pathways (21).

Immunological Function

The palatine tonsils are an important component of the mucosa-associated lymphoid tissue and contribute significantly to local immune defense mechanisms. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Repeated infections can alter the normal immune function of the tonsils, leading to chronic inflammation and fibrosis, which reduces their protective role and may necessitate surgical removal (25).

Pathophysiology of Tonsillar Diseases

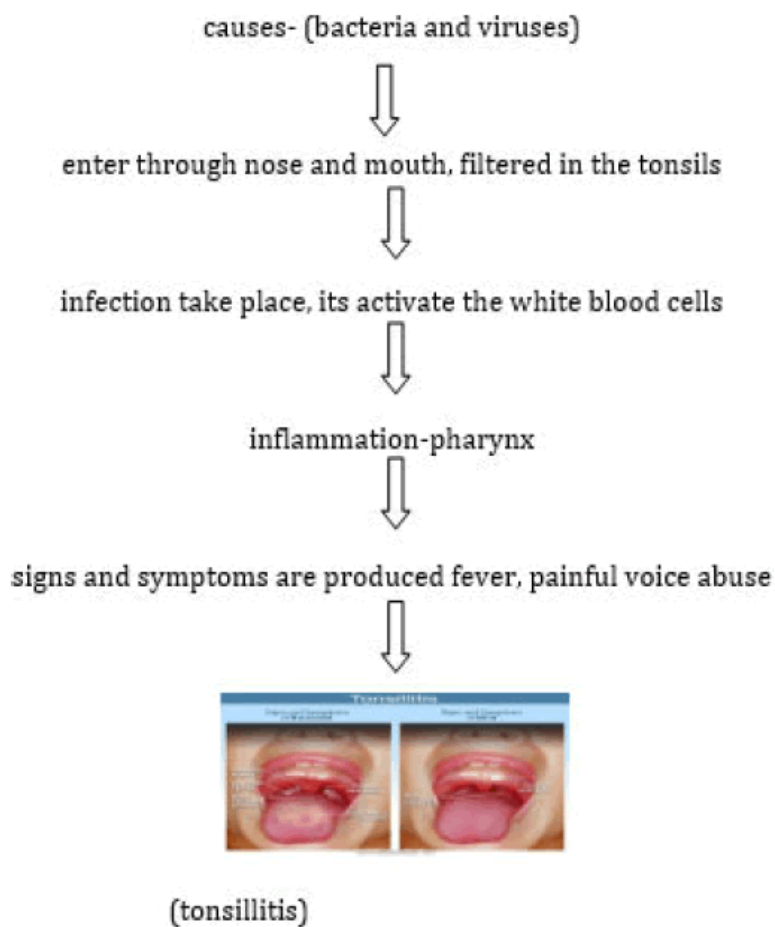


Figure 4: Pathophysiology of Tonsillar Diseases

Acute Tonsillitis

Acute tonsillitis is an inflammatory condition of the palatine tonsils, most commonly caused by viral or bacterial pathogens.

[REDACTED]

[REDACTED]

[REDACTED] The acute inflammatory response is usually self-limiting but may recur or progress if inadequately treated (28).

Chronic/Recurrent Tonsillitis

Chronic or recurrent tonsillitis develops as a consequence of repeated episodes of acute inflammation, leading to persistent structural and functional alterations in the tonsillar tissue.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] This shift from defense to disease is a key factor in considering surgical removal (26).

Tonsillar Hypertrophy and Obstruction

Tonsillar hypertrophy refers to the enlargement of the palatine tonsils, which may occur as a result of repeated antigenic stimulation or chronic inflammation. [REDACTED]

Unlike infective conditions, hypertrophy may occur even in the absence of active infection but still significantly affects quality of life (33).

Surgical Techniques of Tonsillectomy

Cold Dissection and Snare Technique

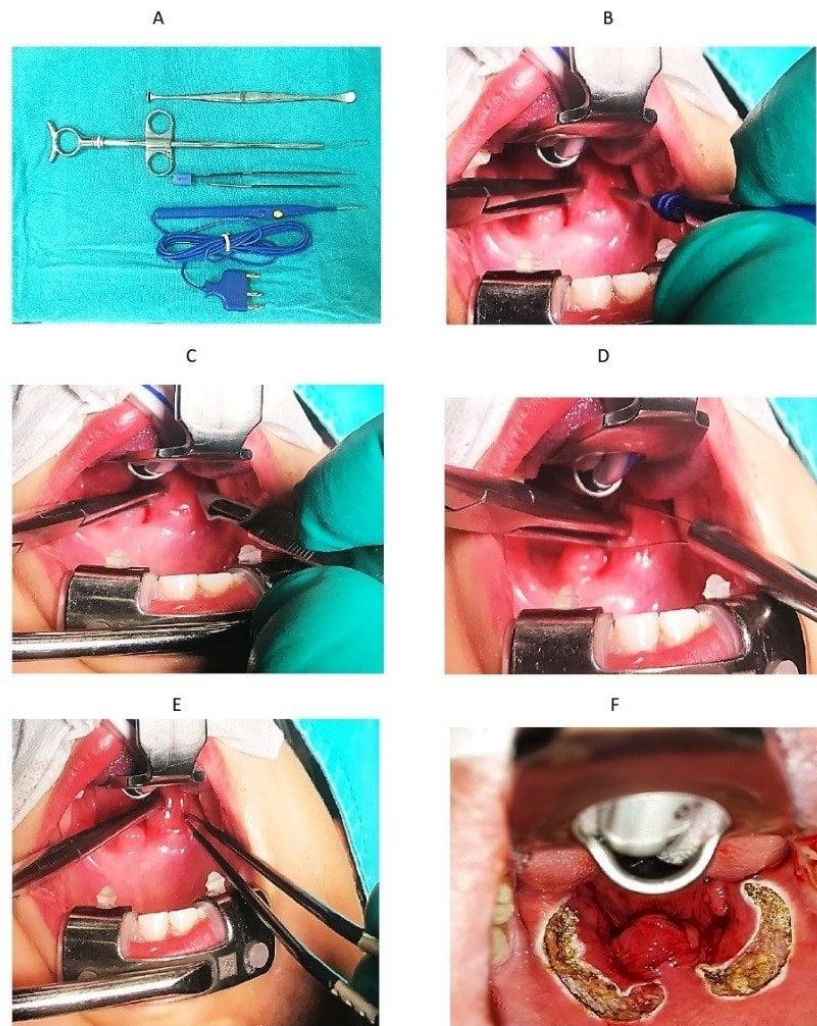
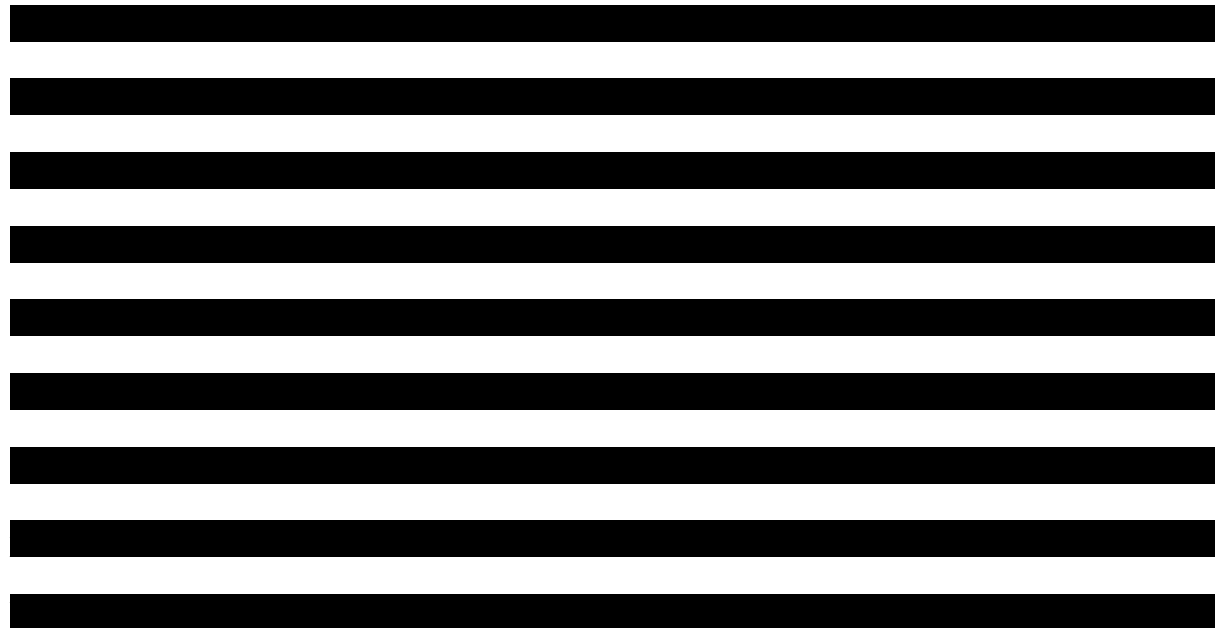


Figure 5: Intraoperative Appearance of Dissection Methods.

(A: instruments of dissection, B: Monopolar dissection technique, C, D: dissection and snare technique, E: Bipolar dissection, F: Appearance of tonsil bed after haemostasis)



It remains a gold standard in many institutions due to its cost-effectiveness and familiarity among surgeons (18).

Electrocautery

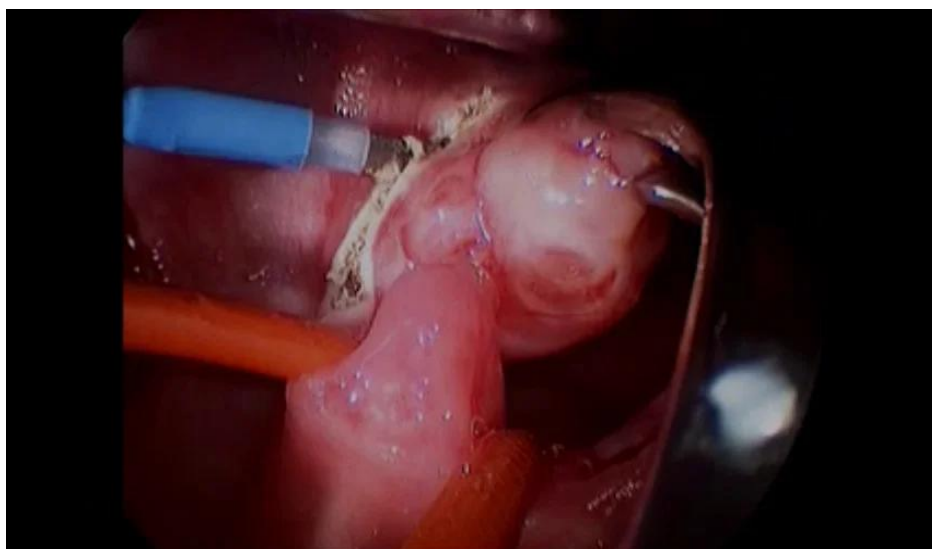


Figure 6: Electrocautery Tonsillectomy

Electrocautery tonsillectomy utilizes thermal energy to both dissect tissue and achieve hemostasis simultaneously. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

It is particularly useful in cases where bleeding control is a major concern (36).

Coblation and Other Techniques

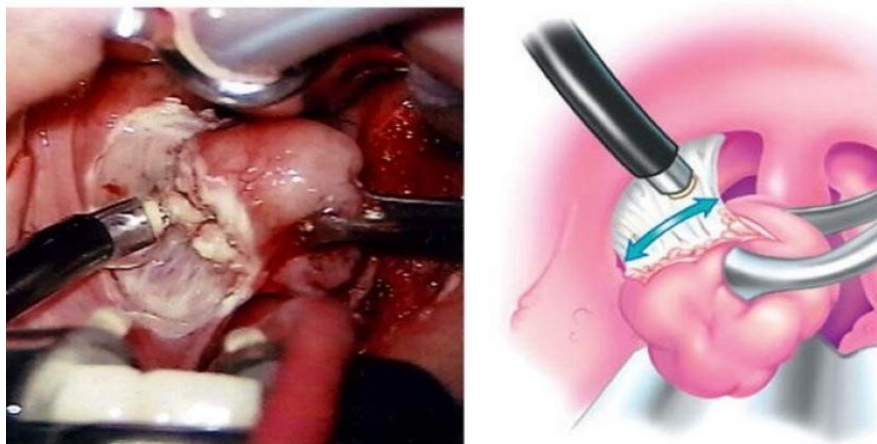


Figure 7: Coblation Assisted Tonsillectomy

Coblation tonsillectomy is a modern technique that uses radiofrequency energy in a saline medium to create a plasma field, which dissolves tissue at relatively low temperatures compared to electrocautery. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The choice of technique depends on surgeon expertise, availability of resources, and patient factors (39).

Comparison of Techniques

Various tonsillectomy techniques differ in terms of intraoperative blood loss, operative time, postoperative pain, and healing outcomes. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Technique	Blood Loss	Pain	Healing	Cost
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Perioperative Management in Tonsillectomy

Preoperative Evaluation

Preoperative evaluation is a critical step in tonsillectomy to ensure patient safety and optimize surgical outcomes. [REDACTED]

It also includes counseling of patients and caregivers regarding the procedure, expected outcomes, and possible complications, thereby improving compliance and reducing anxiety (43).

[illegible]

Intraoperative Monitoring

Intraoperative monitoring during tonsillectomy is vital to maintain patient safety and detect any early signs of complications. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Proper intraoperative monitoring contributes to stable hemodynamics and reduces the risk of perioperative complications (49).

Post-Tonsillectomy Morbidity

Postoperative Pain

Postoperative pain is the most common and significant morbidity following tonsillectomy, affecting nearly all patients to varying degrees. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Effective management of postoperative pain is therefore a central concern in improving patient comfort and recovery outcomes (51).

Primary and Secondary Hemorrhage

Hemorrhage is one of the most serious complications following tonsillectomy and can be classified as primary or secondary based on timing. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Early recognition and prompt management are essential to prevent significant morbidity and potential airway compromise (53).

Infection

Infection following tonsillectomy is relatively uncommon but can contribute to increased morbidity when it occurs. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Although routine antibiotic use is not universally recommended, it may be considered in selected cases based on clinical judgment (55).

Dehydration and Poor Oral Intake

Dehydration and poor oral intake are common postoperative issues following tonsillectomy, primarily due to pain and discomfort during swallowing. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In some cases, intravenous fluids may be required to maintain hydration (56).

Delayed Wound Healing

Delayed wound healing is an important postoperative concern following tonsillectomy, as the tonsillar fossa heals by secondary intention. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Enhancing wound healing has therefore become an area of interest, with newer modalities such as platelet-rich plasma being explored to accelerate tissue repair and improve outcomes (58).

Post-Tonsillectomy Pain

Etiopathogenesis

Post-tonsillectomy pain arises due to a combination of surgical trauma, inflammation, and neural irritation following removal of the palatine tonsils. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Additionally, muscle spasm during swallowing increases discomfort, perpetuating a cycle of pain and reduced oral intake (59).

Clinical Presentation

The clinical presentation of post-tonsillectomy pain typically begins soon after recovery from anesthesia and can persist for several days to weeks. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The intensity and duration of pain can vary widely among individuals depending on age, pain tolerance, and surgical factors (61).

Pain Assessment Tools (VAS Scale)

Assessment of postoperative pain is essential for effective management and monitoring of recovery. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Regular assessment using VAS allows clinicians to evaluate the effectiveness of analgesic interventions and adjust treatment accordingly (63).

Impact on Recovery and Morbidity

Post-tonsillectomy pain has a significant impact on recovery and overall morbidity.

Persistent pain increases the risk of complications such as secondary hemorrhage due to inadequate healing or trauma during swallowing (64).

Wound Healing in Tonsillar Fossa

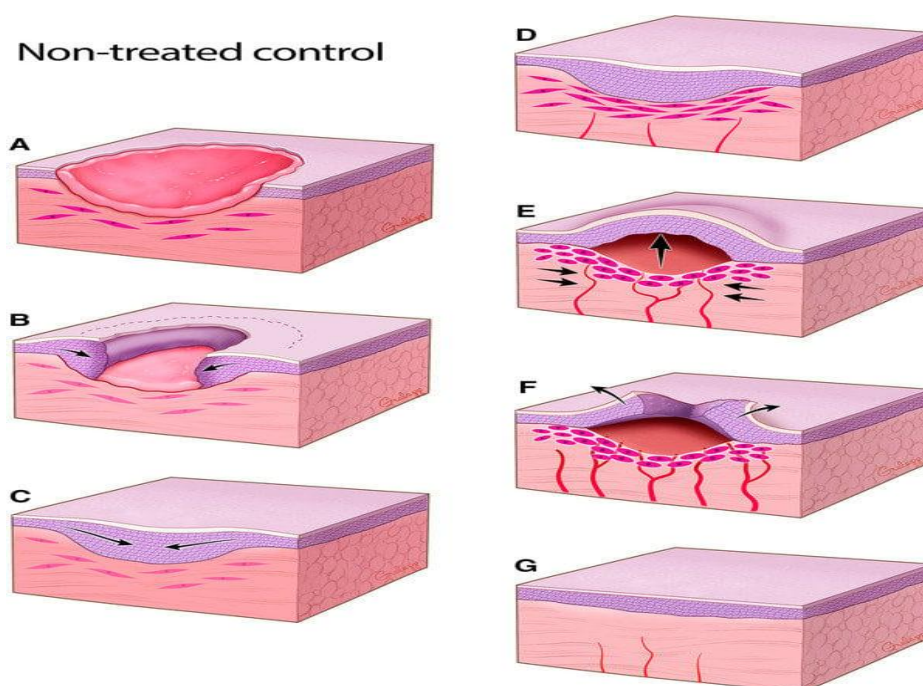


Figure 8: Schematic representations of post-tonsillectomy wound healing in the control group.

(a Granulation tissue, days 2–5.

g Wound closure.)

Phases of Healing

Wound healing in the tonsillar fossa follows the classical phases of healing, although modified by the oral environment.

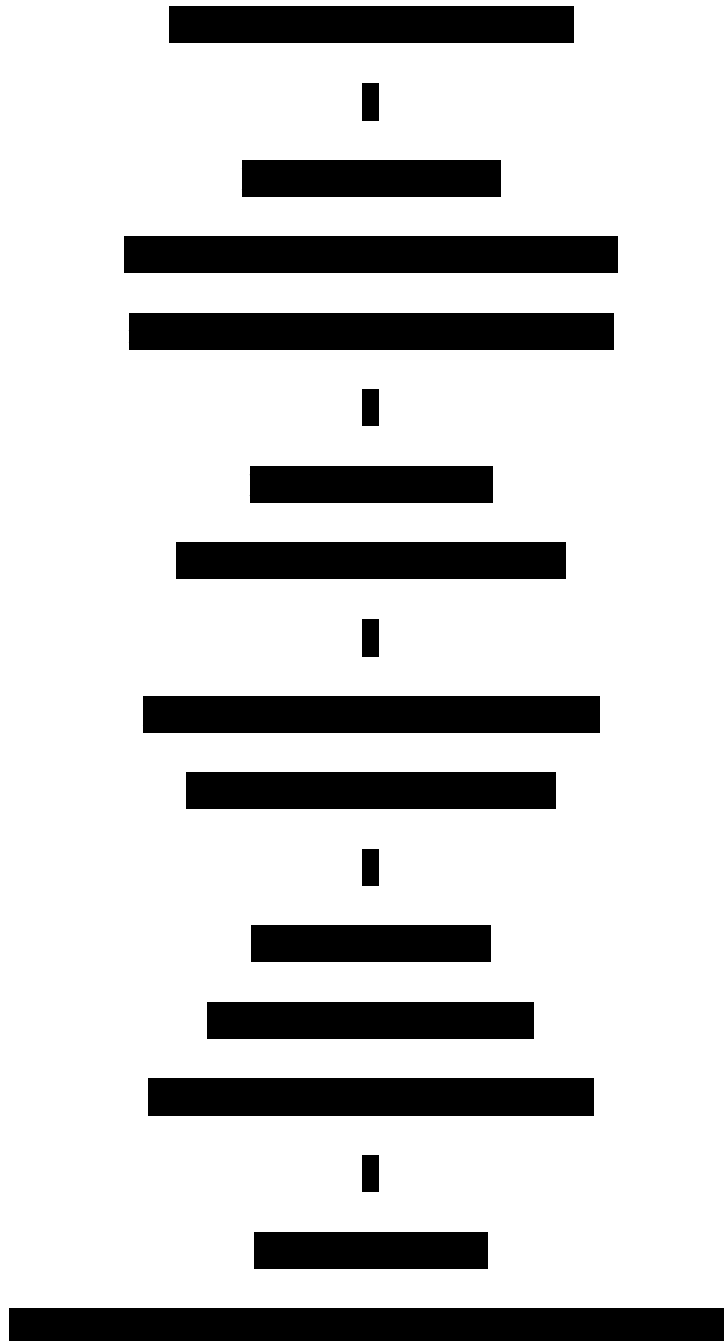


Figure 10: Flow Chart of Phases of Healing

Factors Influencing Healing in Tonsillectomy

Multiple factors influence the rate and quality of wound healing in the tonsillar fossa.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Emerging therapies such as platelet-rich plasma aim to enhance healing by promoting tissue regeneration and reducing inflammation (66).

Conventional Methods of Pain Management

Systemic Analgesics (NSAIDs, Opioids, Paracetamol)

Systemic analgesics form the cornerstone of postoperative pain management following tonsillectomy. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Risk of side effects with opioid use

Local Anesthetic Techniques

Local anesthetic techniques are used as adjuncts to reduce postoperative pain by directly blocking nerve conduction at the surgical site. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Limited duration of action

Supportive Measures

Supportive measures play an important role in managing post-tonsillectomy pain and improving patient comfort. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] These measures complement pharmacological treatment and contribute significantly to overall recovery (74).

Limitations of Conventional Management

Drug-Related Adverse Effects

Conventional pharmacological management of post-tonsillectomy pain, although effective, is frequently associated with various adverse effects that may complicate recovery.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- Adverse effects reduce patient compliance

Inadequate Pain Relief

Despite the availability of multiple analgesic options, adequate pain relief following tonsillectomy is often difficult to achieve. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- Affects patient satisfaction

Delayed Healing and Complications

Conventional management approaches primarily focus on symptomatic relief and do not directly enhance the healing process of the tonsillar fossa. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Influenced by infection and dehydration

Platelet-Rich Plasma (PRP)

Platelet-rich plasma is an autologous concentration of platelets suspended in a small volume of plasma, obtained by centrifugation of the patient's own blood. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The concept of PRP is based on harnessing the natural healing potential of platelets, which release growth factors upon activation at the site of tissue injury (6).

Composition

Table 1: Composition of Platelet-Rich Plasma (PRP):

Component Category	Specific Components	Function in Healing

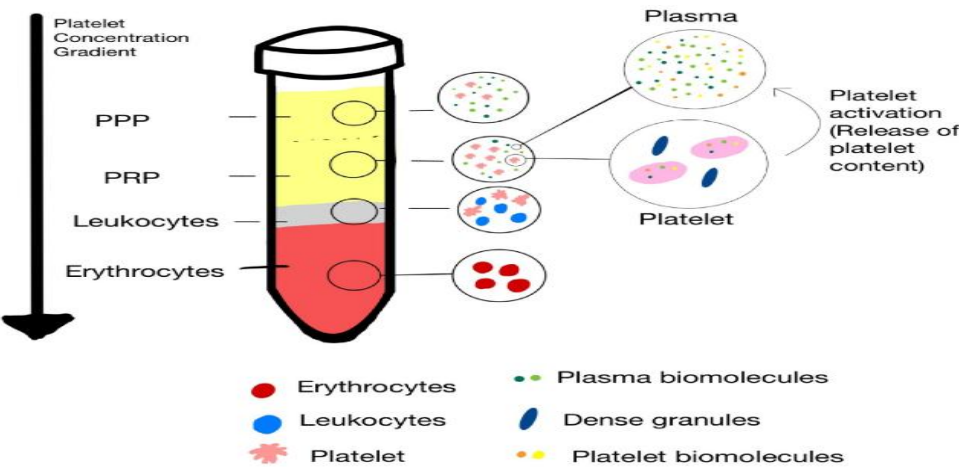


Figure 11: Composition of PRP

Classification of PRP

Platelet-rich plasma can be classified based on its cellular composition and fibrin architecture.

The choice of PRP type depends on the clinical application and desired therapeutic outcome (6).

Preparation of Platelet-Rich Plasma

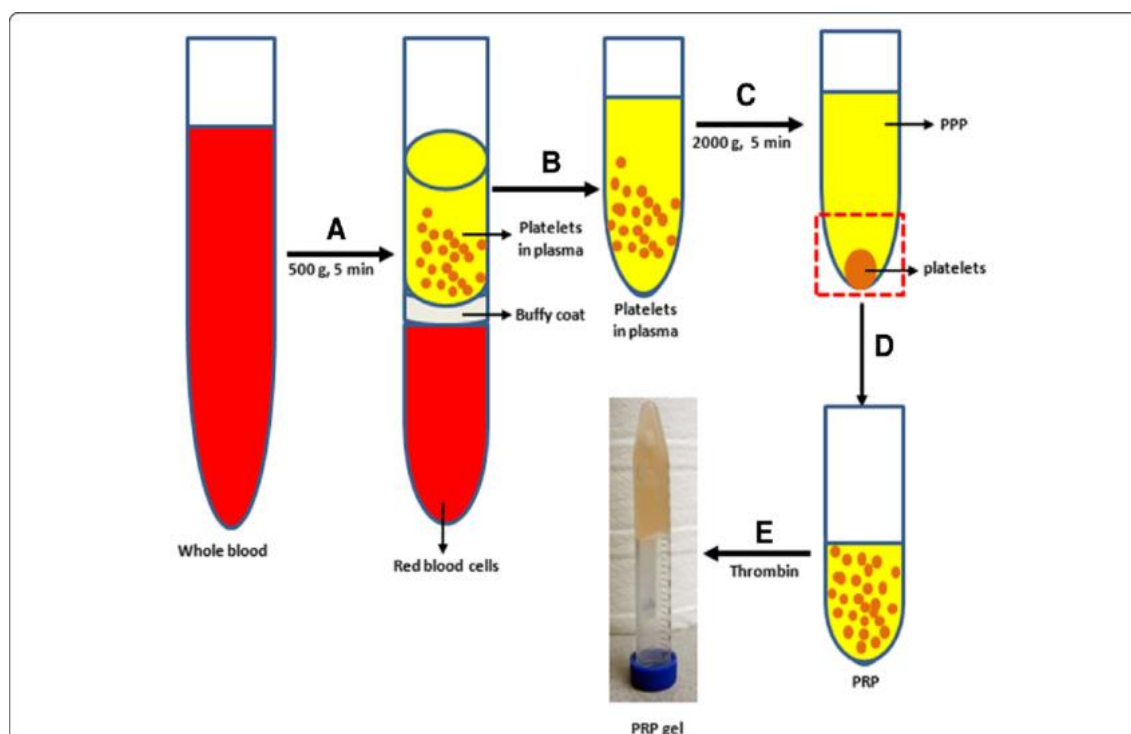


Figure 12: Preparation of Platelet-Rich Plasma (PRP) from the Whole Blood by Five Steps.

(a) Whole blood was separated into three layers by a centrifuge at 500g for 5 min. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Blood Collection

The preparation of platelet-rich plasma begins with careful collection of the patient's venous blood under aseptic conditions. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Ensuring minimal trauma during venipuncture helps maintain platelet viability, which is crucial for effective release of growth factors (6).

Centrifugation Techniques

Centrifugation is the most important step in the preparation of platelet-rich plasma, as it separates blood components based on their density. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Proper technique ensures optimal separation without damaging platelets, thereby preserving their biological activity (80).

Activation Methods

Activation of platelet-rich plasma is a crucial step that triggers the release of growth factors from platelet alpha granules.

Proper activation enhances the biological effectiveness of PRP in promoting wound healing and reducing inflammation (82).

Mechanism of Action of PRP

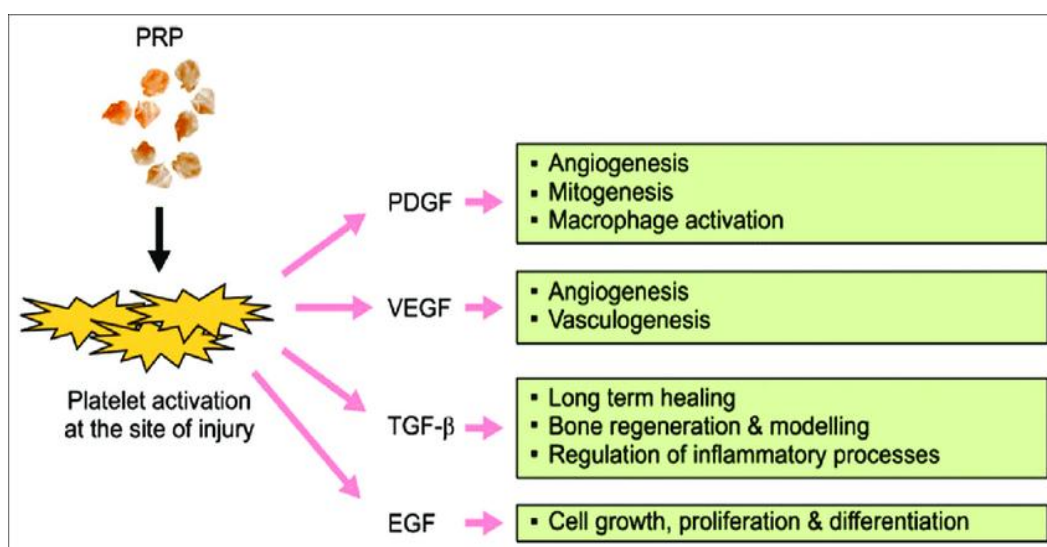


Figure 13: Mechanism of Action of PRP

Role of Growth Factors (PDGF, TGF- β , VEGF, EGF)

Platelet-rich plasma exerts its therapeutic effect mainly through the release of multiple growth factors stored within the alpha granules of platelets. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The biologic advantage of PRP lies in delivering these mediators directly to the surgical wound in a localized and concentrated manner (8).

Angiogenesis and Neovascularization

Angiogenesis and neovascularization are major components of tissue repair, and PRP supports both of these processes effectively. [REDACTED]

[REDACTED]

[REDACTED]

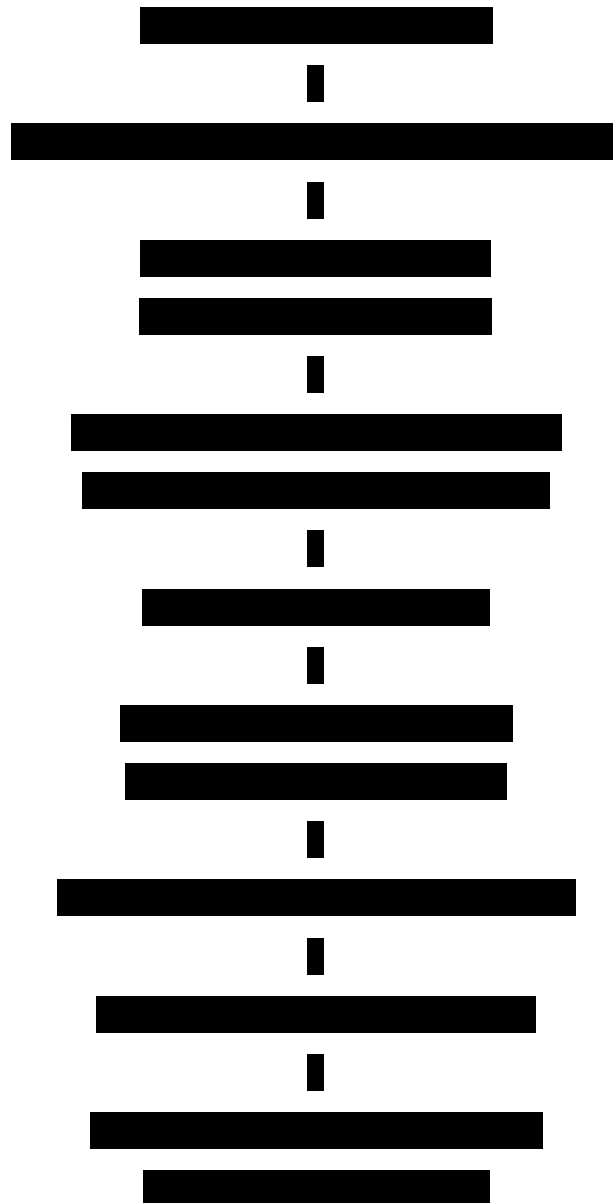


Figure 14: Flowchart of Angiogenesis and Neovascularization With PRP

Collagen Formation and Tissue Regeneration

One of the important actions of PRP is its ability to stimulate collagen formation and promote organized tissue regeneration. [REDACTED]

[REDACTED]

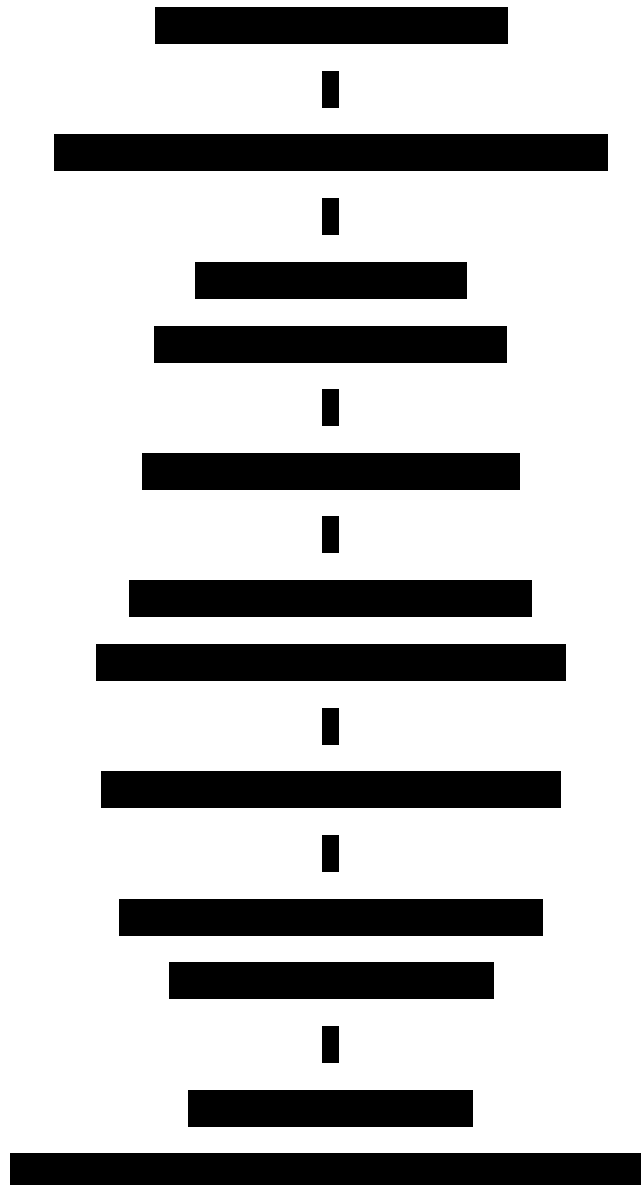


Figure 15: Flowchart of Collagen Formation and Tissue Regeneration with PRP

Anti-inflammatory and Analgesic Effects

PRP also demonstrates important anti-inflammatory and analgesic effects that are highly relevant in post-tonsillectomy care. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

These actions make PRP not only a healing enhancer but also a useful supportive tool in reducing postoperative morbidity (7).

Biological Effects of PRP in Wound Healing

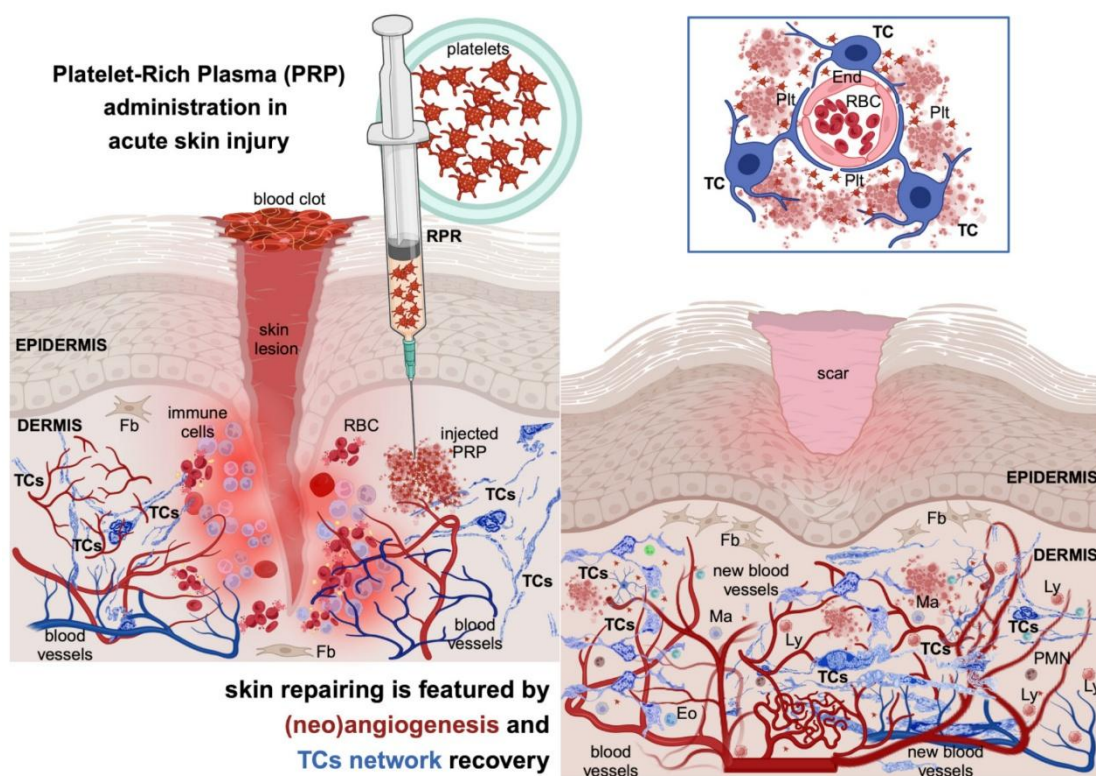


Figure 16: Mechanism of PRP in Wound Healing

Cellular Proliferation

Cellular proliferation is a fundamental biological process in wound healing, and platelet-rich plasma significantly enhances this phase by stimulating the growth and activity of various cell types. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Improves resistance to infection

Epithelialization

Epithelialization is the process by which the wound surface is covered by new epithelial cells, restoring the integrity of the mucosal lining. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] The improved epithelial barrier contributes to restoration of normal mucosal function and overall recovery (8).

Tissue Remodelling

Tissue remodelling represents the final phase of wound healing, where the newly formed tissue undergoes maturation and reorganization to regain strength and function. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] By supporting this phase, PRP not only accelerates healing but also improves the quality of the final outcome (90).

Safety and Advantages of PRP

Autologous Nature

Platelet-rich plasma is derived from the patient's own blood, making it an autologous biological product with high safety and compatibility. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

- Enhances patient safety and acceptance

Minimal Risk of Infection or Allergy

One of the important advantages of platelet-rich plasma is its minimal risk of infection and allergic reactions. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Cost-effectiveness and Feasibility

[illegible]

- ## Application of PRP in Otorhinolaryngology

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Its autologous nature further supports its safety and acceptance in a wide range of clinical scenarios (88).

Role in Mucosal Healing

Mucosal healing is a critical aspect of recovery in many ENT procedures, and PRP plays a significant role in accelerating this process. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] By promoting organized and faster mucosal regeneration, PRP helps restore normal tissue integrity and function more efficiently (8).

Topical PRP in Tonsillectomy

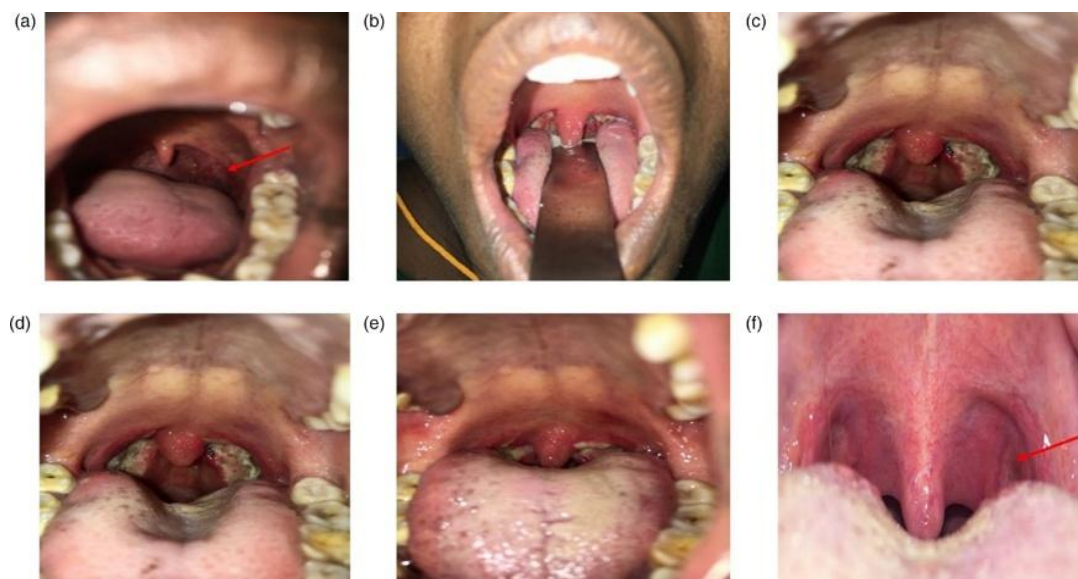


Figure 17: Efficacy of Topical Application of Autologous Platelet-Rich Plasma in Adult Tonsillectomy Patients

Method of Application in Tonsillar Fossa

Topical application of platelet-rich plasma in tonsillectomy involves direct placement of the prepared PRP onto the tonsillar fossa immediately after removal of the tonsils.

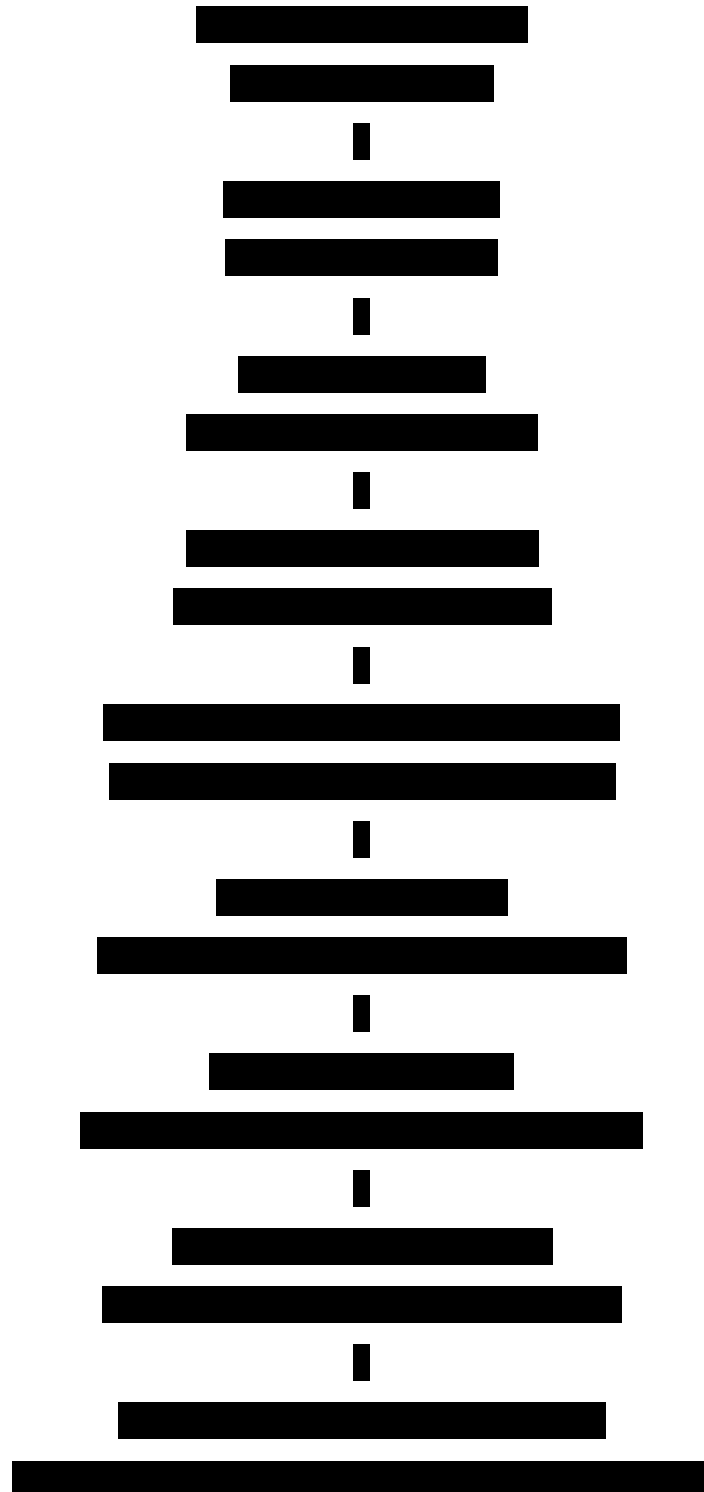


Figure 18: Flowchart for Method of PRP Application in Tonsillar Fossa

Timing and Dosage

The timing and dosage of PRP application are important factors that influence its effectiveness in tonsillectomy. PRP is typically applied intraoperatively immediately after tonsil removal and hemostasis, as this is the optimal period when the wound is fresh and most responsive to regenerative stimuli.

Table 2: Timing and Dosage of PRP in Tonsillectomy:

Parameter	Description	Clinical Significance

Mechanism in Reducing Pain

Topical PRP reduces postoperative pain through a combination of anti-inflammatory, regenerative, and protective mechanisms.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Decreases need for systemic analgesics

Role of PRP in Post-Tonsillectomy Pain Reduction

Anti-inflammatory Action

Platelet-rich plasma plays a significant role in reducing postoperative pain through its anti-inflammatory effects. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

This

localized anti-inflammatory effect is particularly beneficial as it avoids systemic side effects associated with conventional anti-inflammatory drugs (99).

Nerve Ending Modulation

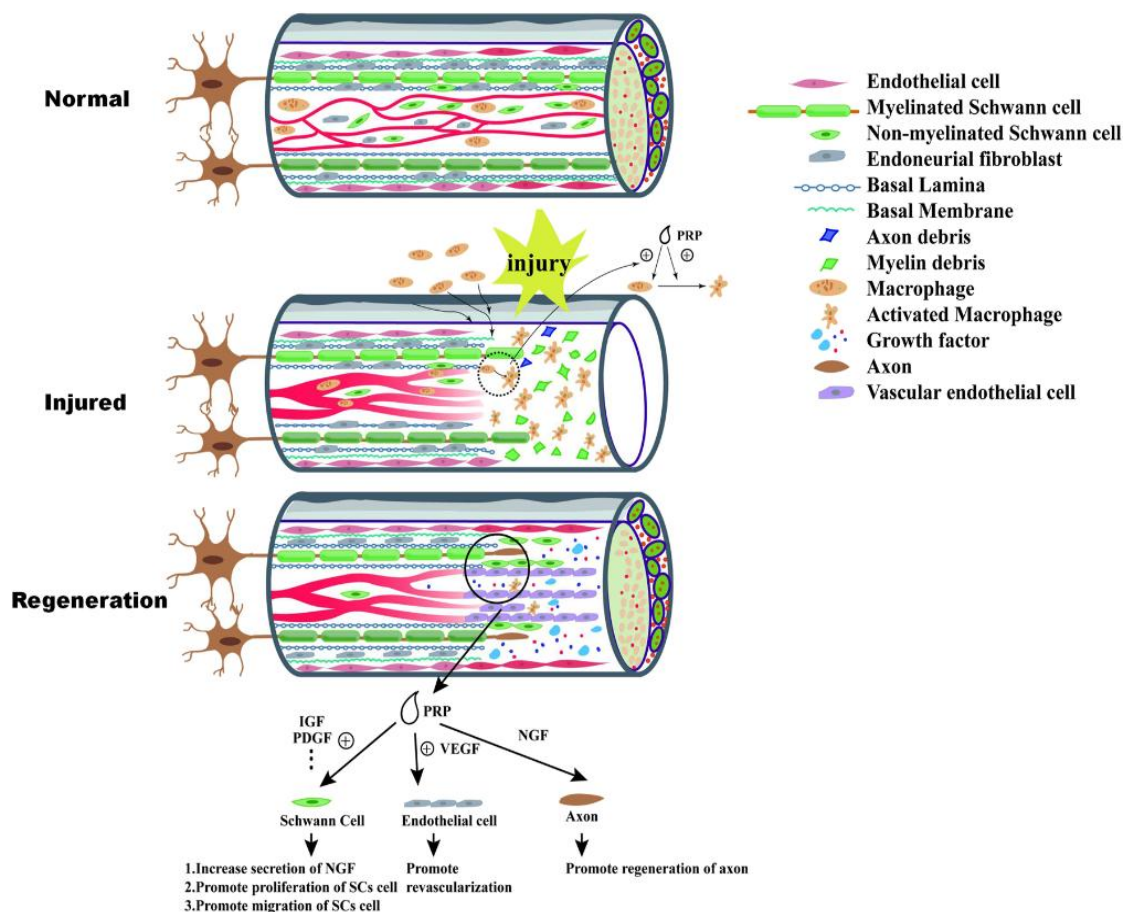


Figure 19: PRP in Nerve Ending Modulation

PRP contributes to pain reduction by modulating the activity and exposure of nerve endings in the tonsillar fossa.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Promotes faster nerve protection

Reduction in Analgesic Requirement

The use of PRP in tonsillectomy has been associated with a reduction in the need for systemic analgesics during the postoperative period. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Supports multimodal pain management

Role of PRP in Enhancing Wound Healing

Accelerated Healing of Tonsillar Bed

Platelet-rich plasma significantly contributes to accelerated healing of the tonsillar bed following tonsillectomy by enhancing the natural regenerative processes. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Leads to faster granulation tissue formation

Reduction in Slough Formation

Slough formation is a normal part of the healing process in the tonsillar fossa, consisting of fibrin, necrotic tissue, and inflammatory debris.

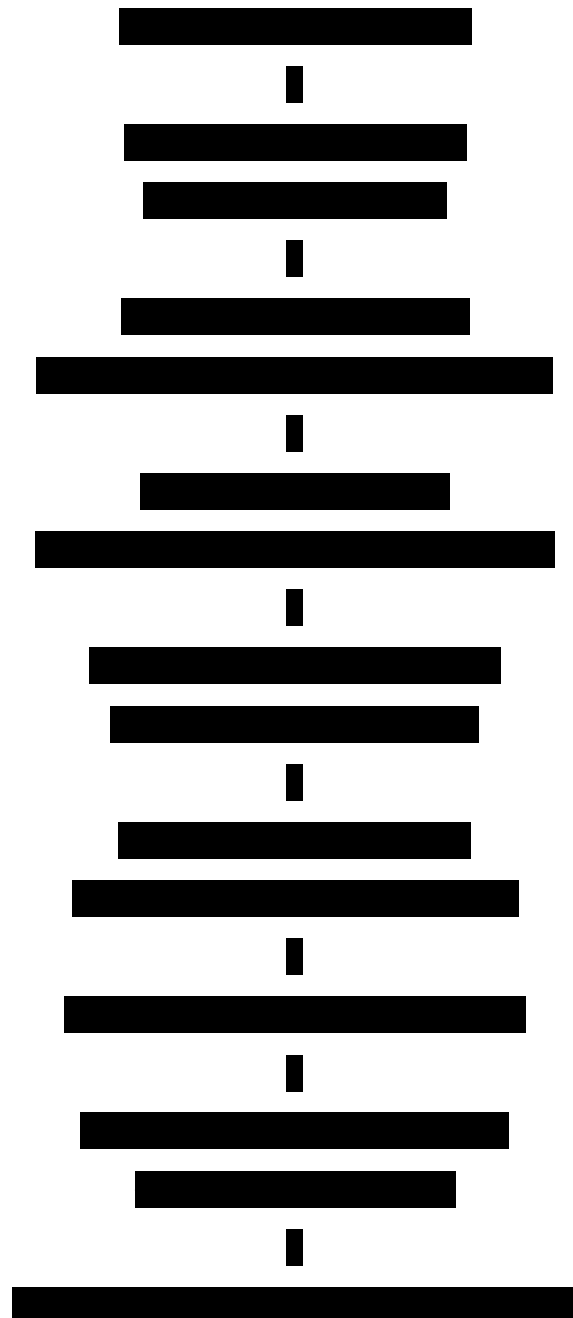


Figure 20: Flow Chart of Reduction in Slough Formation with PRP

Early Epithelialization

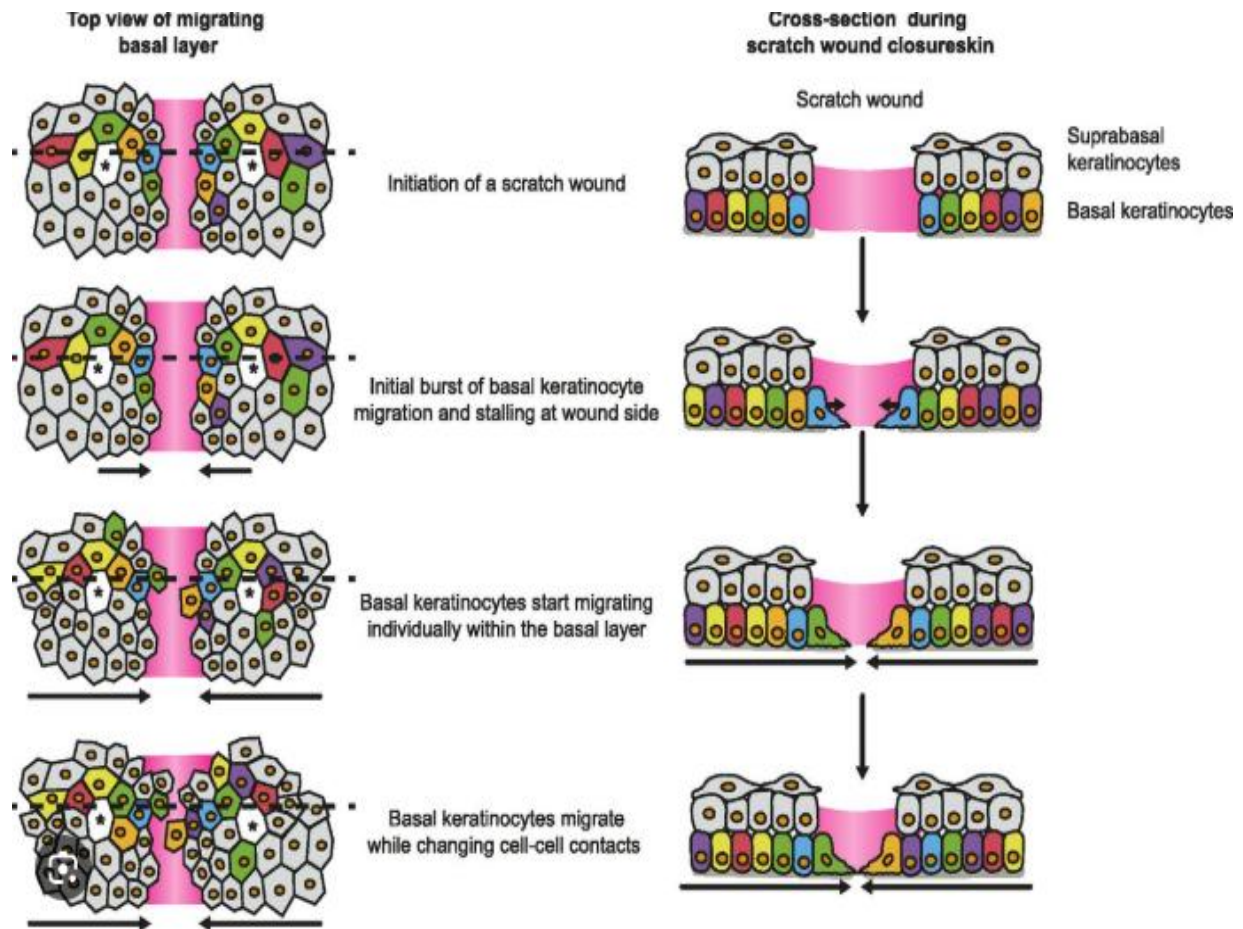


Figure 21: Epithelialization

Early epithelialization is a key factor in successful wound healing, and PRP plays a vital role in accelerating this process. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- Prevents infection and complications

Assessment of Outcomes in Tonsillectomy

Pain Assessment (VAS Score)

Assessment of postoperative pain is an essential component in evaluating outcomes following tonsillectomy. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In tonsillectomy, where pain significantly affects oral intake and recovery, systematic pain assessment is crucial for improving patient outcomes (76).

Healing Assessment (Clinical Evaluation)

Clinical evaluation of wound healing in the tonsillar fossa is another important outcome measure following tonsillectomy. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Clinical evaluation remains the most practical and widely used method for assessing wound recovery in routine practice (97).

Monitoring of Complications

Monitoring of complications is a critical aspect of outcome assessment in tonsillectomy, as it directly reflects the safety and effectiveness of the procedure. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In studies involving PRP, reduction in complication rates is an important parameter in evaluating its effectiveness (64).

Challenges and Limitations of PRP Use

Variability in Preparation Techniques

One of the major challenges associated with platelet-rich plasma use is the variability in preparation techniques, which can significantly influence its quality and clinical

effectiveness. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In tonsillectomy, where consistent results are required to evaluate pain reduction and healing, this variability poses a limitation in establishing standardized clinical benefits (16).

Lack of Standardized Protocol

Another important limitation of PRP use is the absence of a universally accepted standardized protocol for its preparation and application. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Establishing uniform protocols through well-designed studies is necessary to improve its clinical utility (88).

Operator Dependence

The effectiveness of platelet-rich plasma is also influenced by operator dependence, which refers to the variability introduced by the skill and experience of the person preparing and applying PRP. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Lack of training or experience can lead to variability in outcomes and reduce the therapeutic benefits of PRP (105).

Clinical Significance of PRP in Tonsillectomy

Improvement in Patient Comfort

Platelet-rich plasma plays an important role in improving patient comfort following tonsillectomy by addressing key postoperative concerns such as pain, irritation, and delayed healing. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] By providing localized and biological pain relief, PRP enhances overall patient experience without relying heavily on systemic medications (97).

Reduction in Morbidity

The use of PRP in tonsillectomy contributes to a significant reduction in postoperative morbidity by addressing multiple factors that influence recovery. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] By simultaneously targeting multiple pathways, PRP helps in achieving a smoother and safer postoperative course (7).

Potential for Routine Use

Platelet-rich plasma has the potential to become a routine adjunct in tonsillectomy due to its safety, effectiveness, and ease of application. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] With ongoing research and growing clinical experience, PRP has the potential to become a standard component of perioperative care in tonsillectomy (7).

Rationale of the Present Study

Postoperative pain following tonsillectomy remains one of the most significant challenges in ENT practice, affecting patient comfort, oral intake, and overall recovery. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Platelet-rich plasma offers a promising solution by acting directly at the surgical site to reduce inflammation and promote healing, thereby addressing the root causes of pain (106).

RESEARCH STUDIES

Rüzgar S and Tabaru A (2026) showed that intraoperative PRP in tonsillectomy significantly reduced postoperative pain, improved wound healing, and decreased analgesic use. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **(2026)** highlighted PRP's regenerative role in ENT surgeries, including tonsillectomy, showing reduced pain, faster healing, and fewer complications. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **(2025)** discussed multimodal pain management in pediatric tonsillectomy, highlighting conventional analgesics like paracetamol and NSAIDs alongside emerging therapies such as PRP. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (2025) demonstrated that PRP in tonsillectomy significantly reduced postoperative pain and hemorrhage, with faster mucosal healing and earlier recovery.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (2025) described PRP as an effective biologic therapy that enhances wound healing by promoting angiogenesis, collagen synthesis, and cellular proliferation [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (2025) explained that PRP promotes healing through growth factors like PDGF, TGF- β , VEGF, and EGF, enhancing angiogenesis, fibroblast activity, and epithelialization. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (2025) highlighted multimodal approaches for post-tonsillectomy pain in children, noting that while conventional analgesics are effective, adjuncts like PRP show promise in reducing pain and enhancing healing. [REDACTED]

[REDACTED]

[REDACTED] (2025) emphasized modern anesthesia practices focusing on multimodal analgesia to improve postoperative pain control and recovery. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (2025) showed that poor nutritional status delays wound healing and increases complications. [REDACTED]

[REDACTED]

[REDACTED] (2025) demonstrated that PRP in tonsillectomy significantly reduces postoperative pain and bleeding, especially in the first week. It enhances clot formation, promotes healing, and enables faster recovery [REDACTED]

[REDACTED]

[REDACTED] (2025) emphasized that effective postoperative pain control is crucial for patient satisfaction and recovery. [REDACTED]

[REDACTED]

[REDACTED] (2023) showed that coblation tonsillectomy causes less tissue damage and postoperative pain compared to monopolar techniques, leading to faster healing. [REDACTED]

[REDACTED]

[REDACTED] (2021) demonstrated that topical PRP in tonsillectomy significantly reduces postoperative pain and accelerates wound healing. [REDACTED]

██████████ (2021) found that tonsillectomy techniques causing greater thermal injury, like electrocautery, lead to increased pain and delayed healing. ██████████

██

██

██████████ (2021) showed that bupivacaine provides longer-lasting analgesia and better postoperative pain control than lidocaine, reducing analgesic requirements.

██

██

██████████

██████████ (2020) emphasized multimodal analgesia in tonsillectomy, including paracetamol, NSAIDs, and adjuncts to reduce opioid use. Effective pain control improves recovery and reduces complications. ██████████

██

██████████ (2020) demonstrated that PRP enhances wound healing by promoting keratinocyte proliferation, angiogenesis, and collagen deposition. ██████████

██

██

██

██████████ (2019) emphasized that postoperative pain in tonsillectomy significantly affects recovery and requires effective multimodal analgesia. Proper surgical technique and care reduce complications. ██████████

██

██████████

MATERIALS AND METHODS

MATERIALS AND METHODS

Source of Data:

[REDACTED]

Study Design:

[REDACTED]

Study Period:

[REDACTED]

Sample Size:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

TOTAL SAMPLE SIZE = [REDACTED]

Reference article: [REDACTED]

[REDACTED]

[REDACTED]

Sampling Technique: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Inclusion Criteria

[REDACTED]

Exclusion Criteria

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Study Protocol: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Data Collection Procedure

Patient Recruitment and Screening: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Eligibility Assessment: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Informed Consent and Enrollment: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Randomization and Group Allocation: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Surgical Procedure and Intervention: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Postoperative Monitoring: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Assessment of Postoperative Pain: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Assessment of Wound Healing: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Outcome Measures: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Data Recording and Management: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Data Processing and Statistical Analysis: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

RESULTS

RESULTS

Statistical Methods

Descriptive analysis was carried out using mean and standard deviation (SD) for normally distributed quantitative variables and median with interquartile range (IQR) for non-normally distributed quantitative variables. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

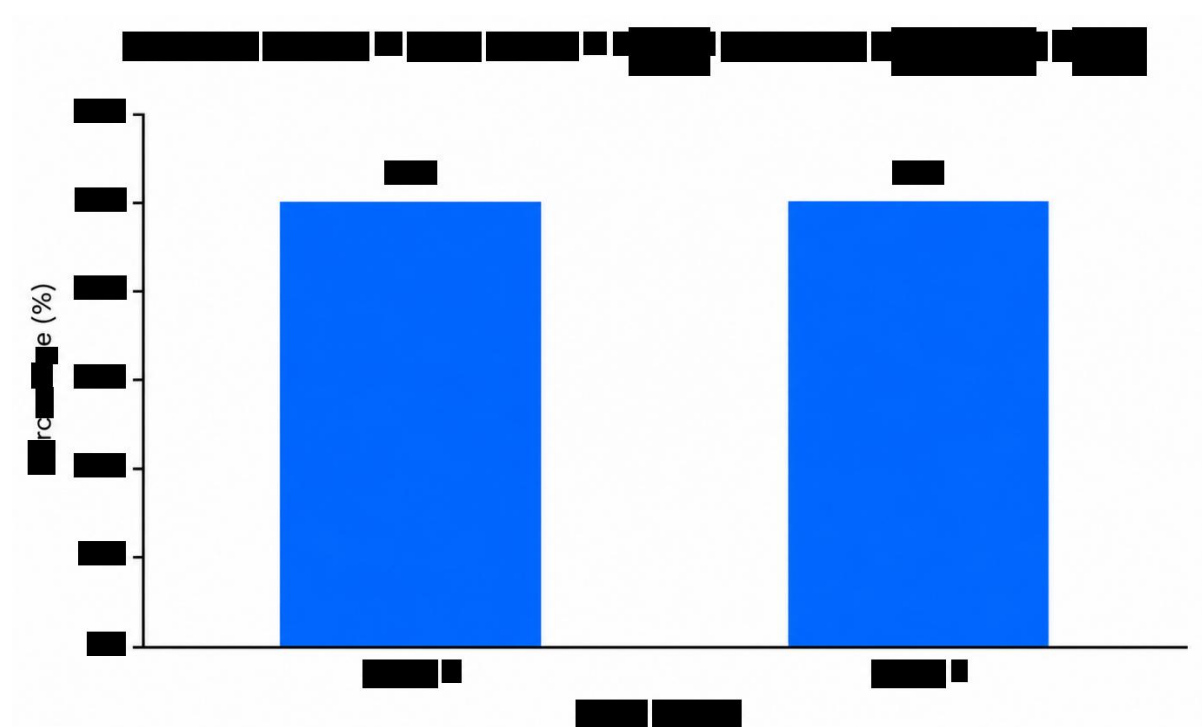
[REDACTED]

1. [REDACTED] Armonk,
NY: IBM Corp.

Table 1: Descriptive Analysis of Study Groups in Patients Undergoing Tonsillectomy (N=60)

Group	Frequency	Percentages
Group C	30	50%
Group P	30	50%

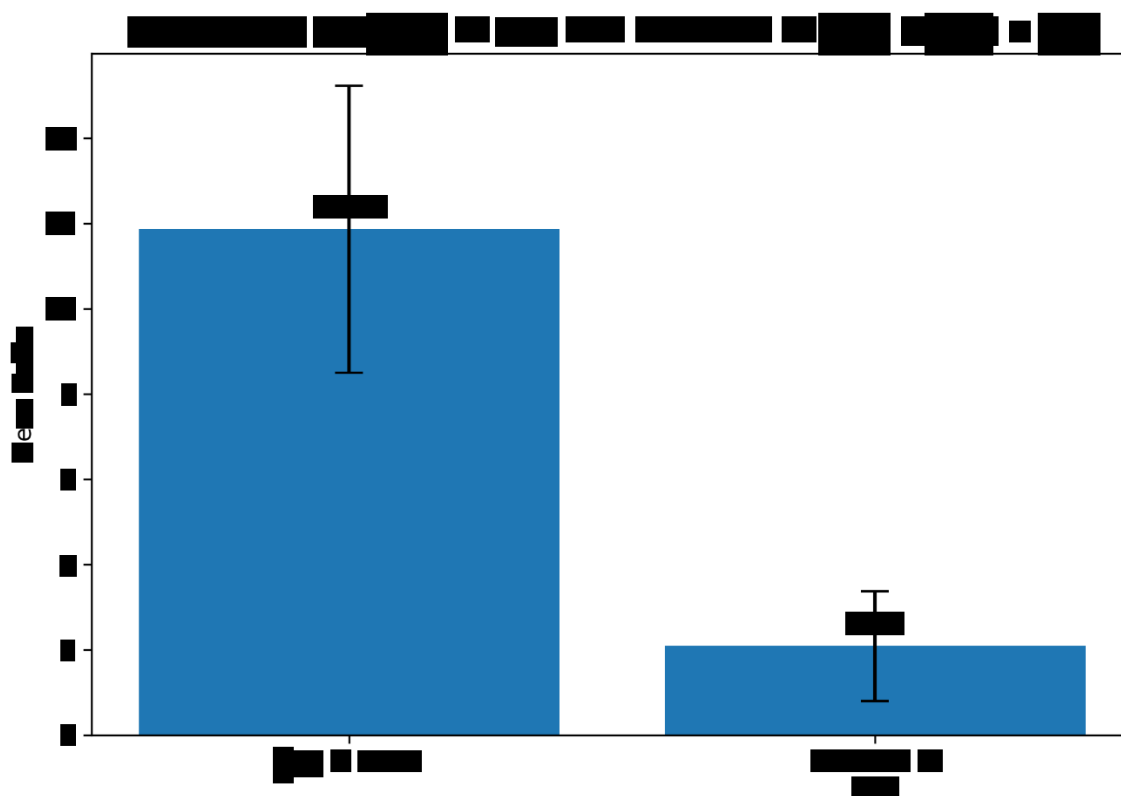
Graph 1: Descriptive Analysis of Study Groups in Patients Undergoing Tonsillectomy (N=60)



Thus, both study groups comprised an equal number of participants, with each group representing 50% of the total study population. This indicates a balanced distribution of subjects between the control group and the topical platelet-rich plasma (PRP) group.

Table 2: Descriptive Analysis of Age and Duration of Pain in the Study Population (N=60)

Parameter	Mean $\pm$ SD	Median	Minimum	Maximum	95% C.I	
					Lower	Upper
Age In Years	██████████	██	██	██	██	██
Duration of Pain	██████████	██	██	██	██	██

Graph 2: Descriptive Analysis of Age and Duration of Pain in the Study Population (N=60)

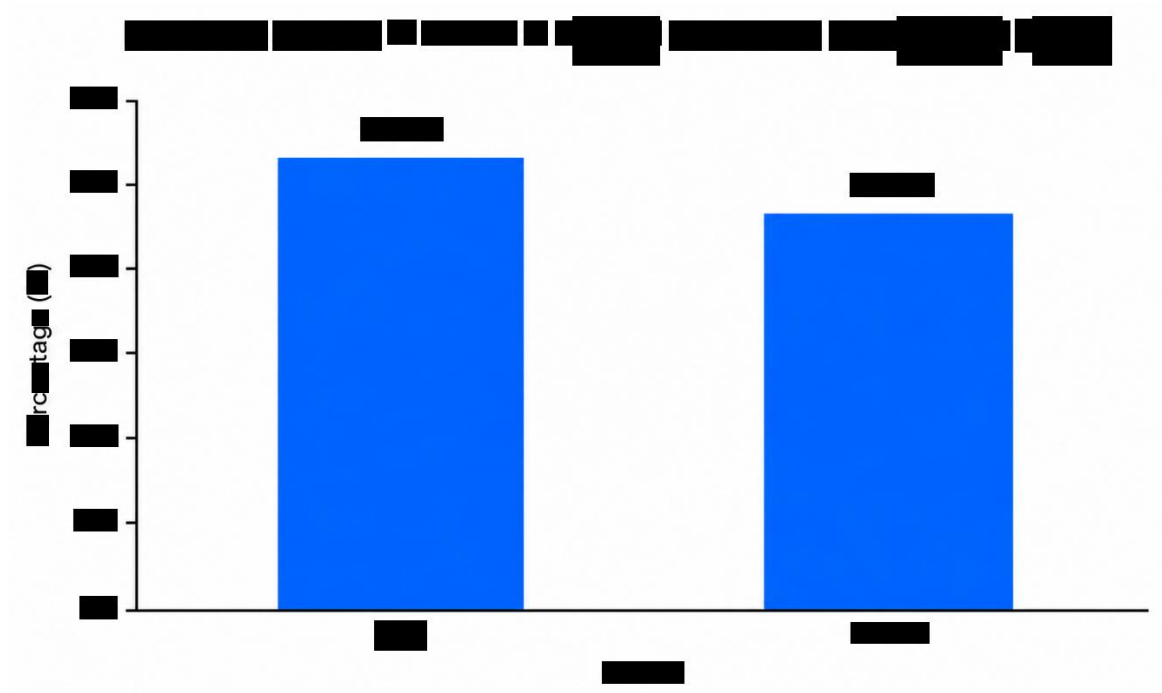
In the present study, the mean age of the study population was ████████ years, with a median age of ███ years. The age of the participants ranged from ████████ years. The █████ confidence interval (CI) for age was ████████ years.

In the present study, the mean duration of pain was ████████ years, with a median duration of ███ years. The duration of pain ranged from ███ years to ████████. █████% confidence

interval (CI) for duration of pain was 1 [REDACTED] years. Thus, the study population had a mean age of [REDACTED] years and a mean duration of pain of [REDACTED] years.

Table 3: Descriptive Analysis of Gender in Patients Undergoing Tonsillectomy (N=60)

Gender	Frequency	Percentages
Male	33	55%
Female	27	45%

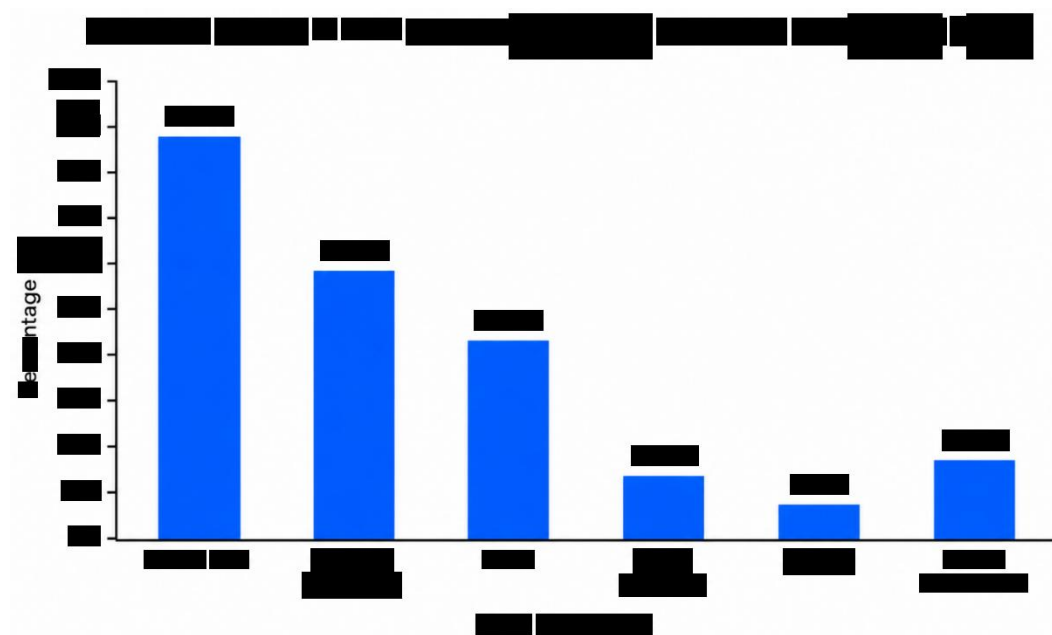
Graph 3: Descriptive Analysis of Gender in Patients Undergoing Tonsillectomy (N=60)

Thus, males constituted a slightly higher proportion of the study population compared to females, accounting for 55% and 45% of the participants, respectively.

Table 4: Descriptive Analysis of Chief Complaints in Patients Undergoing Tonsillectomy (N=60)

Chief Complaints	Frequency	Percentages
Throat Pain	53	88.33
Difficulty swallowing	33	55.00
Fever	33	55.00
Mouth Breathing	10	16.67
Snoring	10	16.67
Nasale Obstruction	10	16.67

Graph 4: Descriptive Analysis of Chief Complaints in Patients Undergoing Tonsillectomy (N=60)



In the present study, throat pain was the most common chief complaint and was reported by 53 patients

Thus, throat pain was the predominant presenting complaint, followed by difficulty swallowing and fever among the study population.

Table 5: Comparison of Age and Duration of Pain Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)

Parameter	Group (Mean± SD)		P value
	Group C (N=30)	Group P (N=30)	
Age in Years	██████████	██████████	██████
Duration of Pain	██████████	██████████	██████

In the present study, the mean duration of pain in Group C was ██████████ years, whereas the mean duration of pain in Group P was ██████████ years. The difference in mean duration of pain between the two groups was not statistically significant ██████████

Table 7: Comparison of Vital Parameters Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)

Vital Parameter	Group (Mean± SD)		P value
	Group C (N=30)	Group P (N=30)	
At 1 Hour			
Pulse Rate			
SBP			
DBP			
At 2 Hours			
Pulse Rate			
SBP			
DBP			
At 4 Hours			
Pulse Rate			
SBP			
DBP			
At 6 Hours			
Pulse Rate			
SBP			
DBP			
At 8 Hours			
Pulse Rate			
SBP			
DBP			
At 12 Hours			
Pulse Rate			
SBP			
DBP			
At 24 Hours			
Pulse Rate			
SBP			
DBP			
At 48 Hours			

Pulse Rate				
SBP				
DBP				
At 7 Days				
Pulse Rate				
SBP				
DBP				

At 4 hours, the mean pulse rate was [REDACTED] bpm in Group C and [REDACTED] bpm in Group P ([REDACTED]). The mean SBP was [REDACTED] mmHg and [REDACTED] mmHg in Groups C and P, [REDACTED] The mean DBP was [REDACTED] mmHg in Group C and [REDACTED] mmHg in Group P ([REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

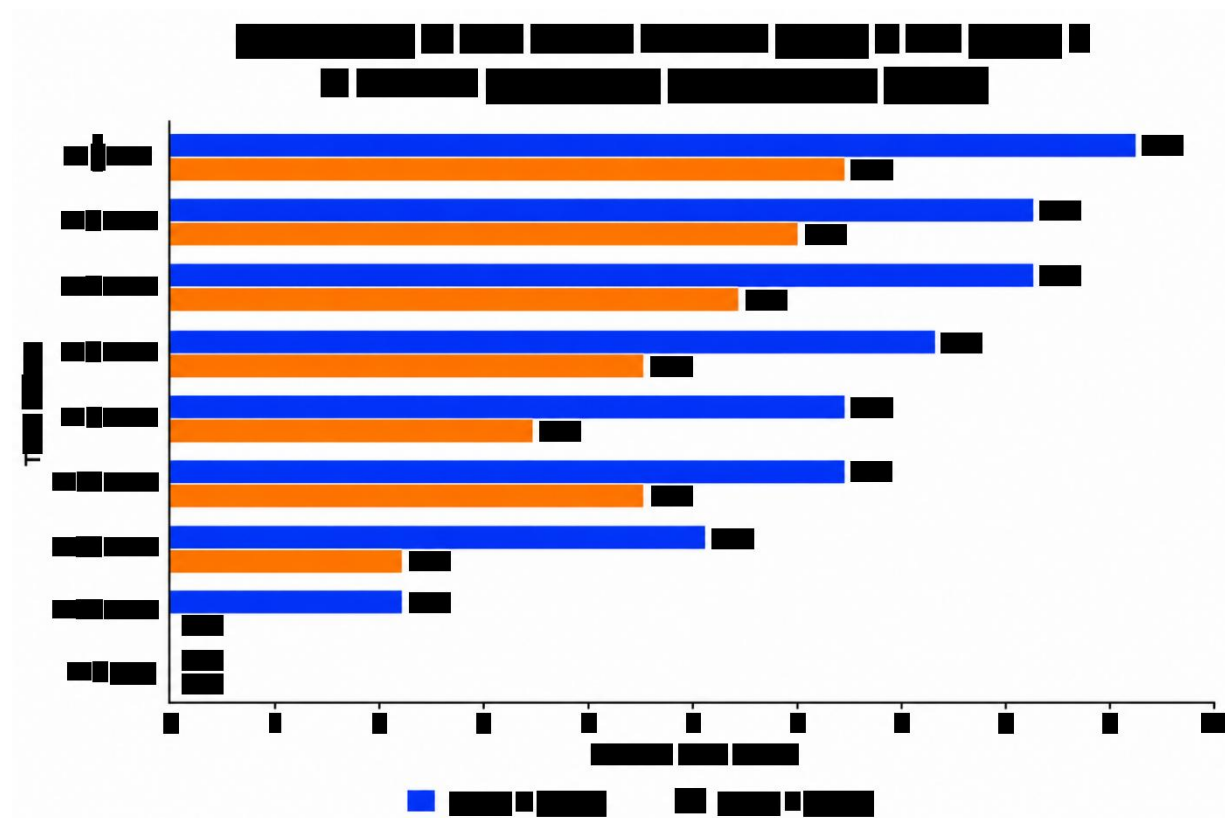
[REDACTED]

Thus, a statistically significant difference between the groups was observed only for DBP at 2 hours [REDACTED] and pulse rate at 8 hours [REDACTED] while all other vital parameters showed no statistically significant difference between Group C and Group P.

Table 8: Comparison of Pain Scores Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)

Pain score	Group Pain score Median (Q1, Q3)		p-value
	Group C (N=30)	Group P (N=30)	
At 1 hour			
At 2 hours			
At 4 hours			
At 6 hours			
At 8 hours			
At 12 hours			
At 24 hours			
At 48 hours			
At 7 days			

Graph 6: Comparison of Pain Scores Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)



In the present study, at 1 hour, the median pain score in Group C was [REDACTED] whereas in Group P it was [REDACTED]. The difference between the groups was statistically significant ($P = [REDACTED]$).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

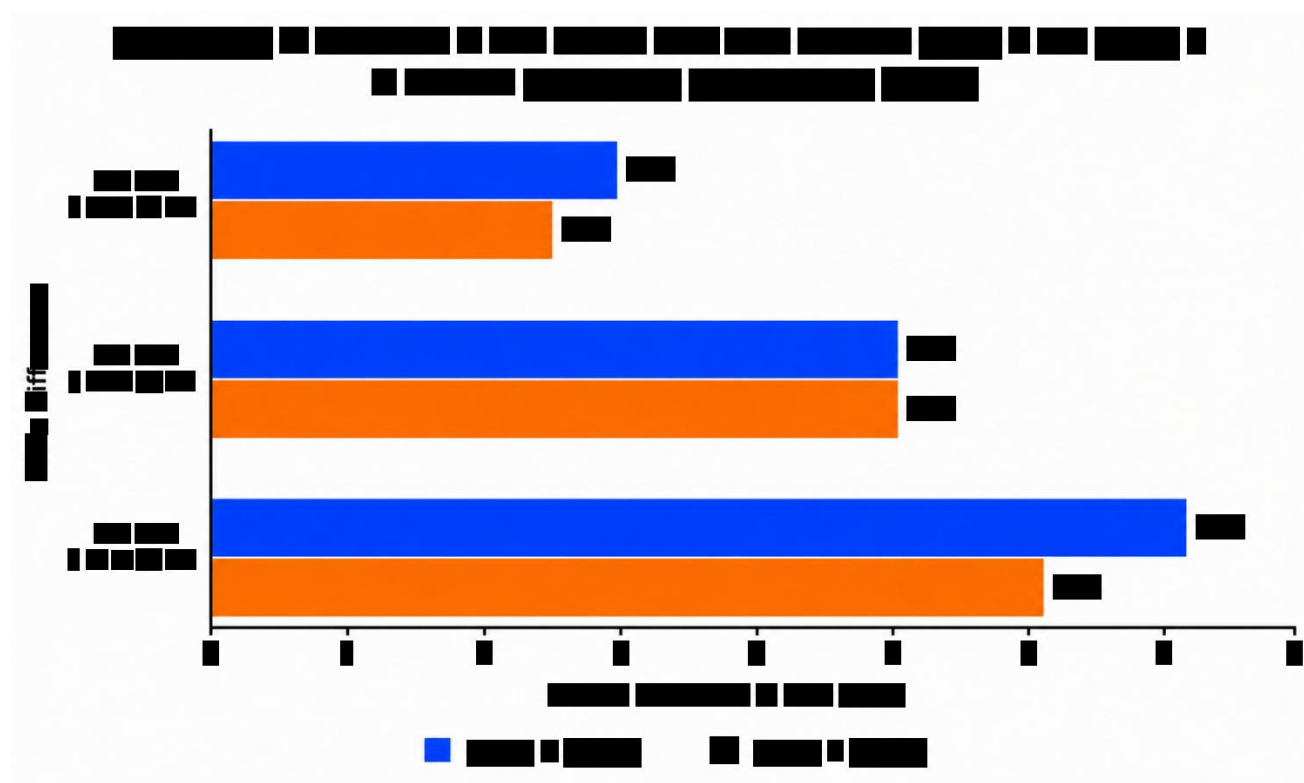
[REDACTED]

Thus, throughout all postoperative assessment periods from [REDACTED], Group P demonstrated significantly lower pain scores compared to Group C.

Table 9: Comparison of Difference in Pain Scores Over Time Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)

Time Difference	Group Difference of Pain score Median (Q1, Q3)		p-value
	Group C (N=30)	Group P (N=30)	
Diff Pain 1 hr to 12 HR			
Diff Pain 1 hr to 24 HR			
Diff Pain 1 hr to 48 HR			

Graph 7: Comparison of Difference in Pain Scores Over Time Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)



[REDACTED]

[REDACTED]

[REDACTED]

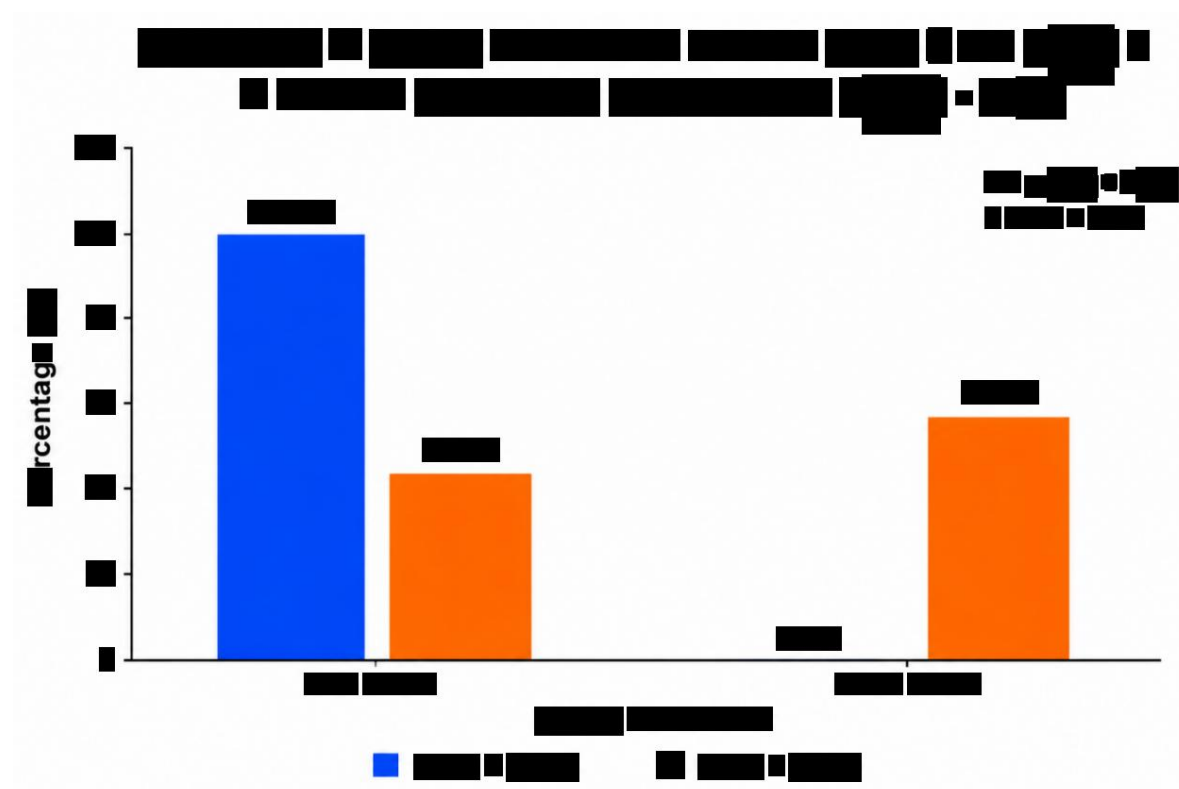
In the present study, the median difference in pain score from [REDACTED] was [REDACTED] [REDACTED] in Group C and [REDACTED] [REDACTED] in Group P. The difference between the groups was statistically significant [REDACTED]

Thus, statistically significant differences between Group C and Group P were observed in the change in pain scores from [REDACTED] hours and from [REDACTED], whereas the difference in pain scores from [REDACTED] hours was not statistically significant.

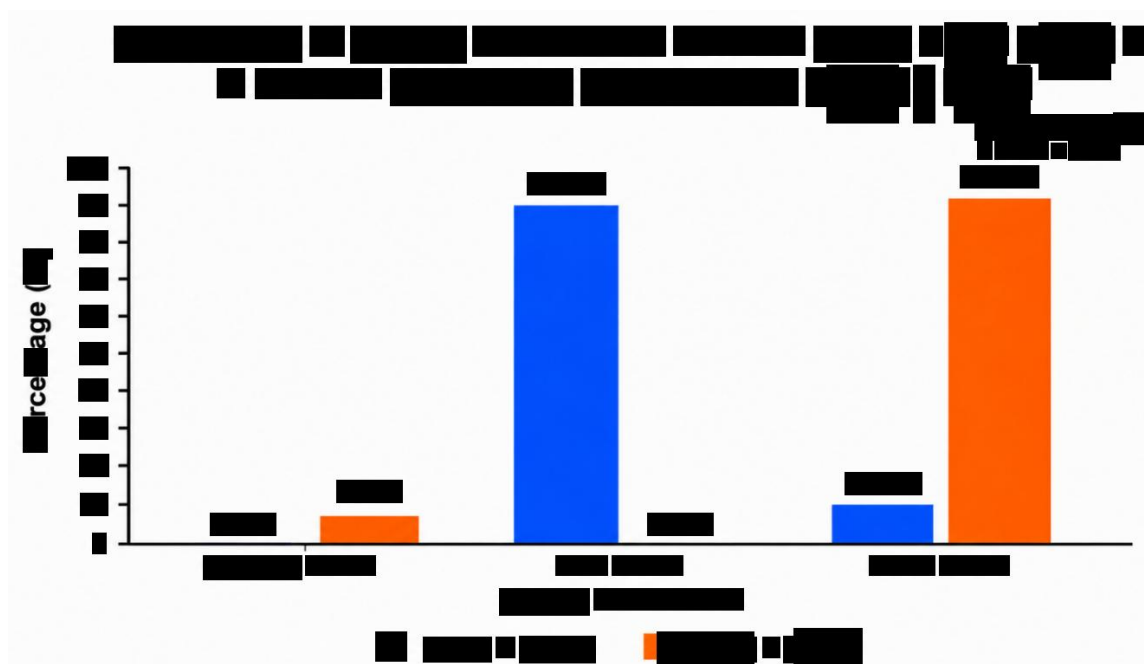
Table 10: Comparison of Healing Assessment Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)

Healing Assessment	Group		Chi square	P value
	Group C (N=30)	Group P (N=30)		
Day 1				
Little Healed				
Partial Healed				
Day 3				
Complete Healed				
Little Healed				
Partial Healed				
Day 7				
Complete Healed				
Partial Healed				

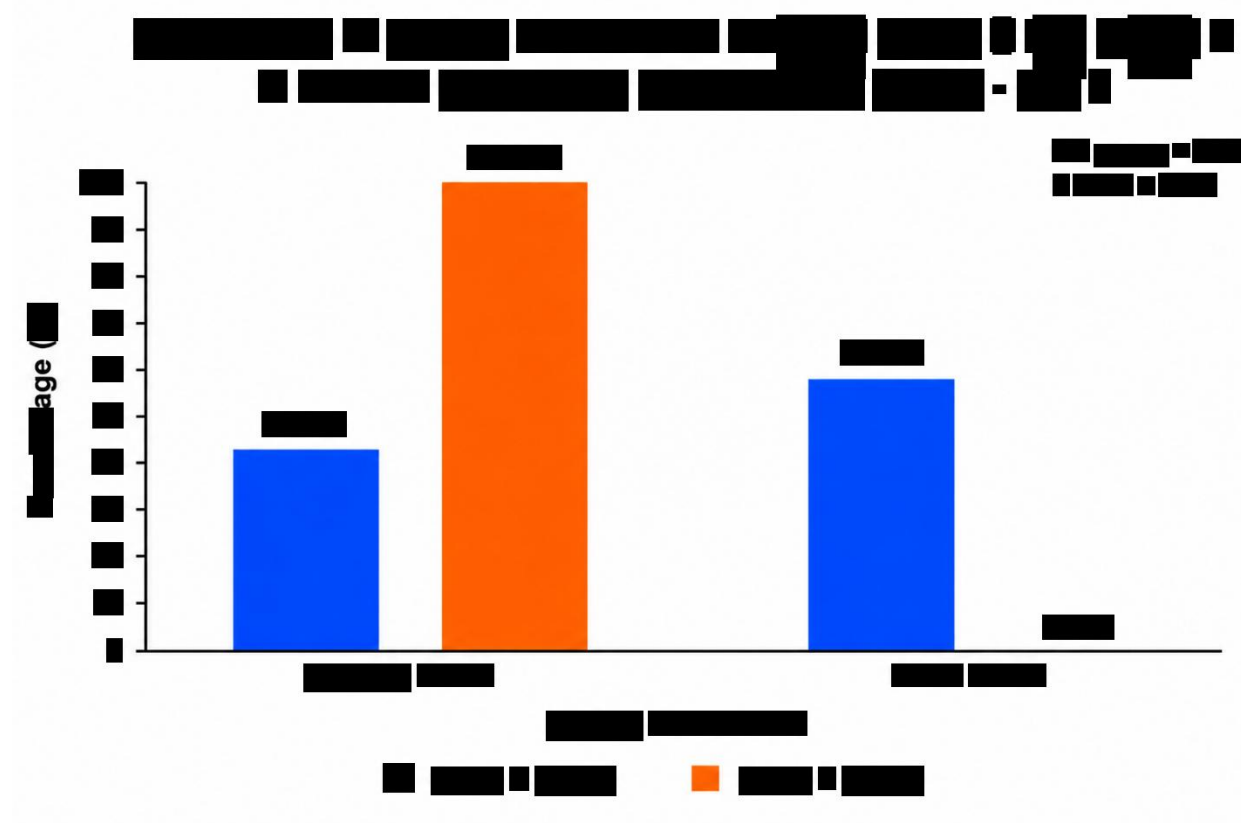
Graph 8: A Comparison of Healing Assessment Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)



Graph 8: B Comparison of Healing Assessment Between Group C and Group P in Patients Undergoing Tonsillectomy (N=60)



Graph 8: C Comparison of Healing Assessment Between Group C and Group P in



In the present study, on Day [REDACTED] patients ([REDACTED] in Group C were classified as Little Healed, whereas in Group P [REDACTED] patients [REDACTED] were Little Healed and [REDACTED] patients [REDACTED] were Partially Healed. The difference in healing assessment between the groups on Day 1 was statistically significant ([REDACTED]).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Thus, healing assessment differed significantly between Group C and Group P on Day 1, Day 3, and Day 7, with statistically significant differences observed at all assessment periods [REDACTED]

[REDACTED]

DISCUSSION

DISCUSSION

Tonsillectomy remains one of the most commonly performed otorhinolaryngological procedures, and postoperative pain and delayed wound healing continue to be major concerns affecting patient recovery. [REDACTED]

[REDACTED] Wherever appropriate, the findings have been compared with previously published randomized and controlled studies evaluating PRP in tonsillectomy patients to determine the consistency and clinical significance of the observed outcomes.

Distribution of Study Groups

In the present study, a total of [REDACTED] patients were included and equally divided into two groups, with Group C comprising [REDACTED] patients and Group P comprising [REDACTED] patients, each representing 50% of the study population. [REDACTED]

Thus, the equal distribution in the present study is consistent with directly comparable PRP tonsillectomy trials and supports unbiased intergroup comparison of pain and wound-healing outcomes.

[illegible]

1. *Journal of the American Medical Association*, 2000; 283: 2689-2694.

Gender Distribution in the Study Population

In the present study, out of [REDACTED] participants, [REDACTED] were males and [REDACTED] were females, demonstrating a slight male predominance. [REDACTED]

[REDACTED] also demonstrated comparable sex distribution between PRP-treated and control patients in their randomized controlled trial (8).

Distribution of Chief Complaints in the Study Population

In the present study, throat pain was the most common presenting complaint, reported by [REDACTED] patients [REDACTED] followed by difficulty swallowing in [REDACTED] patients ([REDACTED] and fever in [REDACTED] patients ([REDACTED] Less frequent complaints included nasal obstruction [REDACTED] mouth breathing [REDACTED] and snoring [REDACTED] These findings are consistent with the clinical presentation of chronic and recurrent tonsillar disease, which commonly manifests with throat

[REDACTED]

[REDACTED]

[REDACTED]) also investigated PRP in patients undergoing tonsillectomy for chronic tonsillar pathology (8).

Comparison of Age and Duration of Pain Between Groups

In the present study, the mean age was comparable between Group C and Group P, with Group C having a mean age [REDACTED] years and Group P having a mean age of [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] also compared PRP-treated tonsillectomy patients with control patients and ensured comparable baseline characteristics before evaluating postoperative pain and wound healing (7,8,107).

Comparison of Gender Distribution Between Groups

In the present study, the gender distribution was comparable between the two study groups. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] also demonstrated comparable sex distribution between intervention and control groups in their randomized controlled trial (8).

Comparison of Vital Parameters Between Groups

In the present study, postoperative vital parameters remained largely comparable between Group C and Group P throughout the follow-up period. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] However, the absence of consistent differences in hemodynamic parameters across other time points indicates that topical PRP application does not adversely affect cardiovascular stability.

Comparison of Postoperative Pain Scores Between Groups

Postoperative pain was significantly lower in the PRP group compared to the control group at all assessment intervals in the present study. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] also found significantly lower pain scores and faster recovery in patients receiving intraoperative PRP (8).

Comparison of Difference in Pain Scores Over Time Between Groups

The present study demonstrated a significantly greater reduction in postoperative pain over time among patients receiving topical PRP. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] also observed significantly accelerated pain reduction and superior postoperative recovery in the PRP group compared with controls (8).

Comparison of Healing Assessment Between Groups

The present study demonstrated significantly enhanced wound healing in patients receiving topical PRP following tonsillectomy. On postoperative Day █ all patients in Group C showed only little healing █ whereas █ of patients in Group P had already achieved partial healing █ By Day █ healing progression was markedly superior in

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█ also reported significantly faster wound healing and earlier tissue recovery in patients receiving intraoperative PRP (8).

Strengths of the Study

1. The study employed a randomized clinical trial design, minimizing selection bias and improving the validity of the findings.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

10. Findings contribute to the limited available literature on the use of PRP in tonsillectomy.

Limitations of the Study

1. The sample size was relatively small ([REDACTED]), which may limit the generalizability of the findings.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

10. Cost-effectiveness analysis of PRP application was not performed.

CONCLUSION

CONCLUSION

The present randomized clinical trial demonstrated that topical application of Platelet-Rich Plasma (PRP) following tonsillectomy significantly improved postoperative outcomes when compared with conventional management. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED] The results support the incorporation of topical PRP as a promising biological modality for enhancing postoperative outcomes in patients undergoing tonsillectomy.

SUMMARY

SUMMARY

The present randomized clinical trial was conducted to evaluate the effectiveness of topical Platelet-Rich Plasma (PRP) in enhancing wound healing and reducing postoperative pain following tonsillectomy. [REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

Overall, the findings of the present study demonstrate that topical Platelet-Rich Plasma is a safe and effective adjunct following tonsillectomy, resulting in significantly reduced postoperative pain, enhanced wound healing, and improved recovery without clinically significant adverse effects.

BIBLIOGRAPHY

BIBLIOGRAPHY

- [illegible]

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107. Nanditha S, Gopalakrishnan S, Karthikeyan P, Singh Bakshi S. Efficacy of topical application of autologous platelet-rich plasma in adult tonsillectomy patients: a randomised control study. *J Laryngol Otol.* 2021;135(6):539-544.

ANNEXURES

ANNEXURES-I

ANNEXURES-II

MASTERCHART