

**TO COMPARE AND EVALUATE THE
OCHSENBEIN - LEUBKE FLAP WITH
TRAPEZOIDAL FLAP IN APICOECTOMY**

**DISSERTATION SUBMITTED TO
BABU BANARASI DAS UNIVERSITY LUCKNOW, UTTAR PRADESH**



**In the partial fulfillment of the requirements for the degree Of
MASTER OF DENTAL SURGERY
IN
ORAL AND MAXILLOFACIAL SURGERY**

**By
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**BABU BANARASI DAS COLLEGE OF DENTAL SCIENCES
BATCH: 2022-2025**



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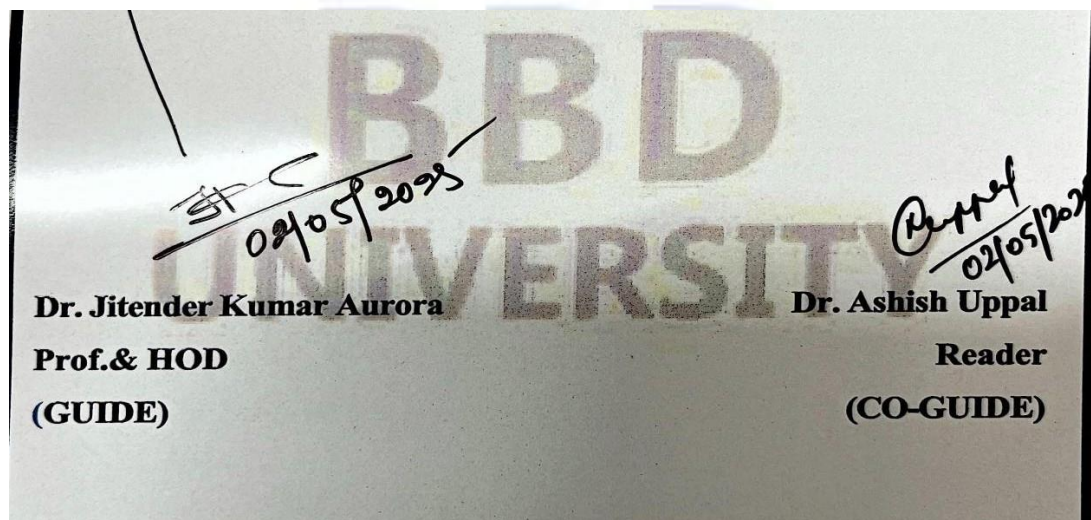
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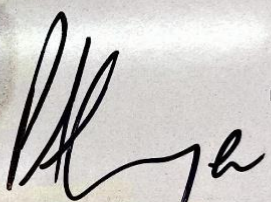
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LIST OF ABBREVIATIONS

S.NO.	ABBREVIATED FORM	FULL FORM
1.	%	PERCENTAGE
2.	OLF	OSCHEINBEIN LEUBKE FLAP
3.	TZF	TRAPEZOIDAL FLAP
4.	ASA	AMERICAN SOCIETY OF ANESTHESIOLOGISTS
5.	LA	LOCAL ANESTHESIA
6.	GM	GINGIVAL MARGIN

Background of the Study: Periapical surgery is important in managing persistent periapical infections unresponsive to conventional treatment. Flap design plays a key role in surgical success, affecting access, healing, and aesthetics. Traditional full-thickness flaps like the trapezoidal flap offer excellent access but risk damaging marginal gingiva, causing recession and attachment loss. To minimize such complications, limited mucoperiosteal designs like the Ochsenbein-Luebke (OL) flap were developed, preserving marginal tissues and enhancing periodontal outcomes. This study compares the clinical effectiveness of the trapezoidal and OL flaps in periapical surgery, evaluating parameters such as probing depth, plaque index, bleeding scores, surgical time, and patient satisfaction.

Study Design: This is a prospective study involving 16 patients who underwent apicoectomy for the removal of periapical lesions. The patients were divided into two groups: those who were treated using Ochsenbein-Leubke flap (n=8) and those who were treated using trapezoidal flap (n=8).

Materials and Method: A clinical study was conducted on patients requiring periapical surgery, randomized into two groups based on flap design: Group 1 (traditional trapezoidal full-thickness mucoperiosteal flap) and Group 2 (Ochsenbein-Luebke submarginal scalloped flap). Baseline demographics, including age and gender, were comparable. Clinical parameters such as probing depth, plaque index, bleeding index, gingival recession, surgical time, aesthetic satisfaction, and postoperative discomfort were evaluated preoperatively and at 1, 3, and 6 months post-operatively. Standardized surgical protocols minimized operator variability.

Results: The study results reveal that although both groups started with similar periodontal conditions, significant differences emerged postoperatively. At 1 month and 3 months, the trapezoidal flap group (Group 1) exhibited significantly greater probing depths ($p<0.05$), higher plaque accumulation ($p<0.05$), and increased bleeding on probing ($p<0.05$) compared to the Ochsenbein-Luebke flap group (Group 2), likely due to disruption of the marginal tissues during surgery. In contrast, Group 2 maintained better periodontal stability with lower plaque and bleeding scores, reflecting superior healing and less inflammation. Surgical time was also significantly shorter in Group 2 ($p<0.05$), and patients reported less postoperative discomfort and greater aesthetic satisfaction, highlighting the OL flap's advantage in preserving gingival architecture and promoting faster recovery.

Conclusion:. This study confirms that the Ochsenbein-Luebke flap offers better periodontal outcomes, shorter surgical times, and higher patient satisfaction compared to the trapezoidal flap, particularly when preserving aesthetics and periodontal health is critical. However, its use depends on having sufficient attached gingiva, making proper case selection and surgical technique crucial. Overall, when anatomical conditions are favourable, the OL flap emerges as the preferred choice for achieving effective healing with optimal aesthetic and periodontal preservation.

Keywords: Periapical surgery, Ochsenbein-Luebke flap, Trapezoidal flap, Flap design, Periodontal health, Gingival recession, Probing depth, Surgical outcomes, Aesthetic preservation, Apicoectomy, Oral surgery, Patient satisfaction.

INTRODUCTION

Soft Tissue flaps play a vital role in a wide range of dental procedures, serving as a key technique for enhancing access and visibility during surgical interventions. By definition, these flaps involve the surgical detachment of a portion of mucoperiosteal tissue from the underlying bone, creating a more favourable environment for the execution of various surgical procedure. The design and application of these flaps adhere to several fundamental principles that are crucial for ensuring successful outcomes.

When a flap is raised, there are certain basic principles that must be considered.

In order to maintain a sufficient blood supply, one of the important factors in flap design is to maintain a base that is wider than the flap's free end. For the flap to mend and be viable overall, this vascularity is essential. Regional anatomy is the second aspect of flap design that needs careful thought. When creating incisions, one should carefully consider the position of blood vessels and nerve supplies. These incisions should be made over normal anatomic structures¹. A further technique that reduces damage to nearby anatomical components and improves surgical precision is to make incisions at right angles to the underlying bone. It is equally crucial that the flap's size be greater than the expected underlying defect in order to provide adequate tissue coverage and lower the possibility of post op complications. Closure of the incision is the third factor to be taken into consideration. In order to cover all surgically exposed areas, the flap should be replaced after the treatment. This will reduce any accidental bone loss¹.

Vertical or oblique releasing incisions are typically initiated from the buccal vestibule, extending either mesially or distally to the interdental papilla. This strategic placement not only aids in creating tension-free flaps but also facilitates optimal exposure of the surgical site. Various flap designs have been developed for specific procedures, including third molar extractions, canine exposure, periodontal surgeries, dental implant placements, endodontic treatments, and repairs of oroantral communications. Each of these applications requires a well planned approach in terms of flap design, reflecting the unique anatomical and procedural considerations associated with the procedure.

The word "flap" comes from the Dutch word "flappe," which dates back to the 16th century and refers to a surgical flap. A flap is a piece of soft tissue (mucosa, periosteum, occasionally bone) that is partially detached and raised or moved to provide access to underlying structures (bone, root tips, cysts, implants, etc.). Visual access allows the surgeon to clearly view the entire surgical area, while manipulative access enables the surgeon to carry out surgical procedures with ease and precision².

The choice of flap design can directly impact the likelihood of complications such as wound dehiscence, gingival recession, and scarring, making it imperative for dental surgeons to carefully consider their approach.

A well-executed flap design minimizes aesthetic complications while providing adequate access to the surgical site. This careful planning helps reduce intra-operative complications and promotes better post-operative healing, which is essential for patient satisfaction and long-term outcomes.

Full mucoperiosteal flaps and restricted mucoperiosteal flaps are the two primary categories into which the authors Mangalgi et al. divided the flap designs. Each has unique benefits and drawbacks.

Conventional Flaps:

- Triangular Flap {one vertical releasing incision}
- Trapezoidal Flap {two vertical releasing incision and broader base}
- Rectangular Flap {two vertical releasing incision}
- Horizontal Flap {no vertical releasing incision}

Papilla preservation Flaps:

- Submarginal Curved Flap (Semilunar)
- Submarginal Scalloped Flap (Oschienein-Leubke)

{a}TRIANGULAR FLAP:

This kind of surgical flap consists of a triangle flap made up of a releasing vertical incision and a horizontal incision that extends at least one tooth mesially and distally to the affected area. The mesial portion of the flap is often where the releasing incision is made. The apical part of the tooth is not sufficiently accessible by this flap procedure, which primarily exposes the tooth's margins.

The triangular flap is primarily recommended for the treatment of issues in the cervical and mid-root regions, including resections of very short roots and cases of cervical root resorptions and perforations⁴.

This flap design's primary benefits include easy adjustment of the incision margins and minimum disruption of the blood supply to the mobilised tissues.

Recession may occur following the healing process, as is the case with all intrasulcular horizontal incisions.

{b} Trapezoidal and rectangular flaps

With a second vertical releasing incision, the triangle flap is extended into the rectangular and trapezoidal flaps. In endodontic surgery, rectangular flaps are the most commonly utilised flaps. Excellent access to the apical region is offered by both flaps. For tension-free retraction, the releasing incision may be expanded apically if necessary.

The degree of divergence of the releasing incisions distinguishes the trapezoidal flap from the rectangular flap.

{c} submarginal curved [semilunar]

A semilunar flap is created by making a horizontal incision in the alveolar mucosa that is either straight or curved and reaches all the way to the bone.

This flap design's sole benefit is that there will not be any recession because the marginal tissue is unaltered.

Access to the surgical site will be restricted using a semilunar flap. Furthermore, the wound cannot be closed over sound bone structure because the incision was made over the bony defect. Additionally, the alveolar mucosa has a high concentration of muscle attachments and elastic fibres, both of which strain on the edges of the surgical wounds that have been reapproximated⁴. In addition to the difficulty of suturing, the flap will be under constant tension, which can lead to inadequate healing, gap formation, and poor alignment of the wound borders.

Scarring and secondary healing will occur if the incision line dehisces.

Furthermore, a maximum number of blood vessels will be severed by making a curved, horizontal incision.

{d} Modified semilunar flap

A straight or scalloped horizontal incision perpendicular to the bone in attached gingiva is made with vertical releasing incisions to create the Ochsenbein-Luebke

flap, also known as the modified semilunar flap. The releasing incisions extend into the alveolar mucosa and are made perpendicular to the bone, one tooth on each side of the tooth that needs to be treated.

Benefits include: (1) easier suturing and flap alignment.

(2) Usually, initial closure is accomplished.

(3) There is no disruption of the epithelial attachment.

(4) Current periodontal issues might not be a contributing cause.

drawbacks that need to be taken into account.

The alveolar mucosa will be cut or the epithelial attachment will be disrupted if the zone of connected gingiva is small. A soft-tissue fenestration or dehiscence may result from a reduced blood supply in the area under the incision if there is a bone fenestration or dehiscence. Both flap healing and periodontal support would be jeopardised by a mucogingival involvement⁵.

Most types of surgery require soft tissue damage as a required side effect, which serves as the catalyst for the healing process to start. Soft tissue healing is typified by repair in which scar tissue replaces the damaged area, whereas bone can recover by regeneration of tissue that is identical to its prior shape.

Wounding, inflammation, proliferation, and remodelling are the four general phases into which the events that make up epidermal healing can be divided.

Through the activation of many cascades, such as the kinin cascade, tissue complement system, and coagulation cascade, tissue injury starts the inflammatory phase.

These actions cause a precisely arranged series of cells to enter the injured location and start proliferating. This marks the beginning of the phase of proliferation. The early cellular response is populated by macrophages and inflammatory cells, while endothelial cells emerge later in the healing process⁶.

The oral tissues have a very high capability for healing. Serious postoperative consequences such tissue necrosis, nerve damage, severe bleeding, or infections are extremely rare. It is possible to anticipate equitable soft tissue recovery when broad guidelines are adhered to. Following periodontal surgery, recession is a common aftereffect. There has not been any research done on its scope or variations in recession location. Through a variety of invasive techniques, periodontal surgery aims to modify, cure, and restore diseased gingival tissues and crestal bone, eliminating specific, non-retainable areas.

The surgical treatment of a tooth that has a periapical or peri-radicular lesion that cannot be fixed by an orthograde endodontic method is known as apical surgery. When traditional endodontic retreatment is impractical or carries therapeutic risks, apical surgery is frequently seen as the last option to save a tooth.

Apicoectomy, also name for root-resection, is the surgical removal of a tooth's root tip along with the surrounding tissues.

"A bold act, which removes the entire cause of disease and which will lead to a permanent cure which may not be the best in the end, but the most humane⁷," is how J. Farrar characterised and defined the apicectomy technique in 1884.

Given the significance of flap design in apicoectomies, our current study focuses on comparing two specific flap designs: the Oschienbein-Leubke flap and the trapezoidal flap. By examining the outcomes of these two approaches in patients who have undergone periapical surgeries, we aim to determine which flap design offers superior advantages in terms of healing, complication rates, and overall patient satisfaction. This comparative analysis is essential for refining surgical approaches and improving therapeutic outcomes in the management of periapical lesions.

AIMS AND OBJECTIVES

AIMS

To compare and evaluate the Ochsenbein - Leubke flap with Trapezoidal flap in Apicoectomy.

OBJECTIVES

The objectives of the study are to:

- 1] To know the gender wise incidence of periapical pathologies among males and females.
- 2] To compare the complete duration of surgery with OL and TZ flap for access to peri-radicular region.
- 3] To assess and compare the probing depth at the surgical site preoperatively and at defined postoperative intervals for both flap designs.
- 4] To evaluate the level of the gingival margin postoperatively to determine soft tissue stability and healing in each group.
- 5] To monitor and compare the plaque index in patients treated with each flap technique as a measure of oral hygiene maintenance and its influence on healing.
- 6] To evaluate and compare the bleeding index postoperatively for both flap designs as an indicator of soft tissue inflammation.

REVIEW OF LITERATURE

Luebke R, Glick D et al (1964)⁸ in their review article outlined the indications and contraindications for endodontic surgery, emphasizing a thorough evaluation before intervention. The authors highlighted the ongoing influence of their criteria on modern practices, ensuring patient-centered decision-making. While advancements in techniques and materials improve procedures, they cautioned against the overuse of surgical endodontic therapy. Given the high success rates of conventional treatments, routine surgery—particularly for anterior pulpless teeth—is often unjustified unless for economic or expedient reasons.

Summers L (1975)⁹ in their review article gives an overview and guidance on Oral surgery in general dental practice, Apicoectomy. The author state that Apicoectomy is a vital procedure for treating periapical infections when root canal therapy fails. It involves removing the infected root apex, sealing it with biocompatible materials, and preserving the tooth, especially in complex cases. It also aids in diagnosing periapical lesions. Success depends on patient selection, advances in microsurgery, and proper postoperative care, including oral hygiene and follow-ups, to prevent reinfection and ensure long-term oral health.

Vreeland D, Tidwell E (1982)⁵ in their review article on current flap designs for periapical surgery highlights their impact on surgical access, visibility, healing, and patient comfort. The triangular flap provides good access but may cause discomfort, while the rectangular flap offers stability but requires more tissue reflection. The semilunar flap minimizes gingival trauma but limits access, and the Luebke-Ochsenbein flap preserves the gingival margin but may cause scarring. The split/full-thickness flap has fewer drawbacks, as research suggests it does not cause gingival recession and helps maintain gingival attachment. Further studies are needed to assess changes in crown length and attached gingiva after surgery.

Mitchell and MacLennan(1983)¹⁰ the authors describe a novel flap design aimed at improving surgical access and healing outcomes in apicoectomy procedures. The study utilized clinical cases to evaluate the effectiveness of a modified flap technique, which involved a combination of vertical and submarginal incisions to enhance

visibility while preserving periodontal support. This article detailed the surgical approach, emphasizing minimal trauma to surrounding tissues and careful flap repositioning. Results demonstrated improved healing with reduced postoperative complications such as gingival recession and scarring. The authors concluded that the modified flap offered superior access to the apical region and promoted better esthetic and functional outcomes compared to traditional flap designs, making it a valuable option for endodontic surgery.

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Lubow R, Blake E et al (1984)¹ conducted a case report study introduced a simplified endodontic flap design to improve surgical outcomes, featuring a full-thickness dissection with straight-line incisions and identifiable landmarks. This design preserves facial keratinized tissue, protects interproximal tissues, and promotes rapid healing with aesthetic results. Compared to traditional flaps, it offers better tissue preservation while addressing limitations like reduced access, bleeding, and scarring. The study concluded that this flap design represents a significant advancement in endodontic surgery, aligning with modern goals of minimizing gingival recession. Further research is needed to evaluate its long-term effectiveness across different patient populations.

Ulf M. E. Wikesjö.et al(1992)^{11a} a review article explores the critical role of early healing events—such as blood clot formation, inflammation, and epithelial migration—in periodontal wound healing and regeneration. The authors reviewed experimental studies and clinical observations to evaluate the biological processes involved. They found that rapid blood clot stabilization and controlled inflammatory responses are essential for guiding new connective tissue attachment and bone regeneration. Disruption of these early events, such as clot dislodgment or excessive inflammation, was shown to negatively affect healing outcomes. The review concludes that managing the wound environment during the initial days post-surgery is crucial for successful periodontal repair and that surgical techniques and materials must be designed to protect these early healing processes to optimize regenerative outcomes.

Chindia and Valderhaug (1995)¹² the authors aimed to compare the periodontal outcomes associated with two different flap designs used during periapical surgeries. The selection of patients requiring apicoectomy, who were then divided into two groups, involved 20 patients aged between 16 and 24 years, based on the flap design employed: trapezoidal and semilunar. Periodontal parameters such as probing depth, gingival recession, and healing were assessed postoperatively. The results indicated that the trapezoidal flap provided better surgical access and more predictable healing, with fewer incidences of gingival recession and scarring. In contrast, the semilunar flap, while less invasive, showed limitations in access and occasionally resulted in healing complications. The study concluded that the trapezoidal flap design offers superior periodontal outcomes in periapical surgical procedures, making it a preferable choice in clinical practice.

Wong et al. (1996)⁶ conducted a comprehensive literature-based review to describe the integrated cellular and molecular events involved in oral soft tissue healing, including hemostasis, inflammation, proliferation, and remodeling. Although the study did not involve direct experimentation or a specific patient sample, it highlighted that successful healing depends on preserving tissue architecture, vascular integrity, and minimizing surgical trauma. Based on these principles, flap designs like the Ochsenbein-Luebke (OL) flap are considered superior due to their ability to preserve the marginal gingiva and maintain better blood supply, which promotes faster healing, reduces inflammation, and results in better esthetic outcomes. In contrast, more extensive flaps like the trapezoidal flap may disrupt vascular supply, increase inflammation, and lead to delayed healing. The review concludes that surgical techniques aligned with natural healing biology such as the OL flap are more favourable for optimal periodontal and esthetic results.

Jansson L, Sandstedt P et al (1997)¹³ conducted a study on 59 patients examined the relationship between apical and marginal periodontal healing after periapical surgery. Radiographic and clinical assessments were conducted at surgery and one year later. After one year, 85% of cases showed successful or uncertain healing, but teeth in the surgical area experienced significant attachment loss. Unsuccessful healing cases had a mean attachment loss of 0.85 mm, compared to 0.15 mm in successful cases. The study concluded that apical and marginal healing are significantly correlated,

suggesting that persistent endodontic infections may contribute to marginal attachment loss, though further research is needed.

Velvar P (2002)¹⁴ conducted a study on 20 healthy patients evaluated the papilla base incision for periapical surgery. This technique, involving a split-thickness incision at the papilla base and a full-thickness flap apically, aimed to preserve interdental papillae. After root-end resection and microsurgical suturing, complete wound closure was achieved in all cases, with most patients experiencing rapid healing. Except for four cases of delayed healing, no significant recession or space formation was observed. The study concluded that in patients with healthy periodontal conditions, the papilla base incision enables predictable, recession-free healing, with most incisions becoming invisible after one month.

Chnadler.N. and Koshy.S (2002)¹⁵ conducted a study on 356 patients evaluated 8 to 10 years after treatment the success reported was directly depended on the pre-operative status of the pulp and periapical tissues. The criteria were the contours, width and structure of the periodontal ligament space were normal or the periodontal contours were widened mainly around an excess of filling materials. Other standards for success were the level of the root filling, which was considered adequate when there was no lumen apical to the filling and no voids in the apical part. They concluded that a disproportionate amount of apical surgery was based on the 'diagnosis of cysts'. The rationale for performing an apicoectomy has under.

Mushtaq I, Malik A (2003)¹⁶ conducted a study comparing the Trapezoidal and Ochsenbein-Luebke (O-L) flaps in 120 patients undergoing apicectomy for anterior periapical lesions found that surgery took longer with the Trapezoidal flap due to the need to reflect interdental papilla and attached gingiva. Flap tearing was also more common in this group, mainly during reflection. The O-L flap provided better visibility, less bleeding, easier handling, quicker suturing, and superior cosmetic outcomes without gingival recession. The study concluded that the O-L flap offers distinct advantages over the Trapezoidal flap, making it a more efficient option for endodontic surgery.

Velvart, Ebner.Z et al (2003)¹⁷the authors conducted a comparative study on 12 patients to evaluate the healing of the interdental papilla after two different flap techniques in periapical surgery. They involved performing apical surgeries on patients using either the traditional sulcular full-thickness flap or the papilla base flap, with the latter designed to preserve the interdental papilla and minimize esthetic compromise. Clinical evaluation of healing was carried out using standardized criteria, focusing on parameters such as papilla integrity, scarring, and patient satisfaction. The results showed that the papilla base flap consistently resulted in superior papillary healing, with less recession and better preservation of soft tissue architecture compared to the sulcular full-thickness flap. The study concluded that the papilla base flap is a more effective technique in terms of esthetic and functional soft tissue outcomes, particularly in the anterior region where papilla preservation is crucial.

Friedman S, Mor C(2004)¹⁸ in their review article state that Endodontic therapy is crucial for preserving teeth, with high success rates for both healing and function. Teeth without apical periodontitis stay healthy in 92–98% of cases, while those with the condition heal in 74–86% and remain functional in 91–97%. Apical surgery has a lower but still favorable healing rate (37–85%) and a functional success rate of 86–92%. Since both nonsurgical and surgical treatments offer good long-term outcomes, they should be considered when the tooth has a good restorative and periodontal prognosis.

Wadhwani and Garg (2004)¹⁹ evaluated the healing of soft tissues following the use of different flap designs in periapical surgery. The research included a clinical comparison of various commonly used flap techniques, such as the triangular flap and envelope flap, performed on patients requiring surgical intervention for periapical lesions. This article involved the assessing postoperative healing over a defined period, with parameters such as tissue inflammation, wound dehiscence, and rate of mucosal closure being recorded. The result demonstrated that certain flap designs, particularly those preserving vascular supply and minimizing tissue trauma, led to more favorable healing outcomes. The conclusion emphasized that the choice of flap design significantly influences soft tissue healing post-periapical surgery, and careful selection can enhance both functional and esthetic outcomes.

Velvart.p, Peters.c (2004)²⁰ in their review article highlights the critical role of careful soft tissue handling in achieving optimal healing and esthetic outcomes in periapical surgery. It discusses flap design, incision techniques, and tissue retraction strategies that minimize trauma and preserve blood supply. The authors highlight the use of microsurgical principles, including the papilla base incision and microsurgical instruments, to enhance precision, reduce scarring, and promote primary wound healing. The conclusion of the article highlights that while microsurgery enhances precision and visibility in periapical surgical procedures, achieving optimal soft tissue healing and aesthetic outcomes requires more than magnification alone. The papilla base flap is considered the most accurate and effective flap design in endodontic microsurgery. It provides excellent access while preserving interdental papilla integrity, promoting virtually recession-free healing and superior aesthetic results.

Suresh N (2005)² In this reviewed article, a newer classification system for periapical surgical flaps based on design, anatomical preservation, and surgical objectives. The paper reviewed various flap designs such as the triangular, rectangular, trapezoidal, semilunar, and the Ochsenbein-Luebke (OL) flap, discussing their indications, advantages, and limitations. Although the study was descriptive and based on literature review rather than experimental comparison, it emphasized that the Ochsenbein-Luebke (OL) flap is superior in cases where periodontal preservation and esthetics are critical. The OL flap preserves marginal gingiva and interdental papilla, minimizing postoperative recession and enhancing healing outcomes. In contrast, broader flaps like the trapezoidal flap, while offering greater access, may cause more gingival trauma and result in greater probing depth post-surgery. The conclusion highlighted that proper flap selection to the surgical need, with a preference for the OL flap when periodontal and esthetic factors are important leads to better overall clinical success.

Penarroch M , Garcia B, et al(2005)²¹conducted a study on 60 patients undergoing periapical surgery found that pain and swelling peaked on the second postoperative day. While 14.6% experienced maximum pain, most reported mild or no pain. Swelling was moderate in two-thirds of patients. Pain was higher in mandibular anterior teeth and with trapezoidal incisions, while inflammation increased with longer surgeries and multiple treated teeth. The study concluded that periapical

surgery causes minimal pain and moderate swelling, with severity influenced by surgical duration and the number of treated teeth.

V Peter , I Christine et al (2006)⁴ in their review article on flap designs and wound closure in endodontic surgery highlights techniques to maintain attachment levels and prevent postoperative recession. Successful outcomes depend on proper root-end preparation, sealing, and careful soft tissue management for esthetic healing. Various incision types are evaluated, emphasizing atraumatic procedures, nonirritating sutures, and precise suturing techniques. Microsurgical approaches, combined with magnification and ultrasonic root-end preparation, improve surgical success by minimizing trauma and enhancing healing. Proper technique leads to better soft tissue healing and improved overall outcomes in periapical surgery.

von Arx et al. (2007)²² conducted a *Prospective Clinical Study of Three Incision Techniques which* investigates the effects of different flap designs on periodontal healing after apical surgery. In this prospective study, three commonly used incision techniques were compared: the traditional triangular flap, the rectangular flap, and the papilla base flap. A total of 40 patients undergoing apical surgery were included, and clinical periodontal parameters such as probing depth, clinical attachment level, and gingival recession were recorded before surgery and six months postoperatively. The results showed that while all techniques led to some minor changes in periodontal parameters, the papilla base flap demonstrated significantly less gingival recession and better preservation of interdental tissues compared to the other two flaps. The study concluded that the papilla base flap is the most favourable technique in terms of periodontal health and aesthetic outcomes following apical surgery.

Suleiman S (2007)²³ conducted a study comparing three flap designs in periapical surgery evaluated postoperative healing in 45 patients. The experimental straight mucogingival flap showed superior results in reducing edema, soft tissue discoloration, and wound closure compared to the intrasulcular triangular and Luebke-Ochsenbein flaps. Both the experimental and Luebke-Ochsenbein flaps led to less gingival recession than the intrasulcular flap, but scarring was most significant in the Luebke-Ochsenbein group. The study concluded that the experimental flap

promotes faster, recession-free healing and could serve as a better alternative for periapical surgery.

Von Arx, E. Giovanni (2008)²⁴ in their review article *"Incision Techniques and Flap Designs for Apical Surgery in the Anterior Maxilla"* several flap and incision techniques are evaluated for their effectiveness in preserving soft tissue and achieving optimal aesthetic outcomes. The main flap designs discussed include the mucoperiosteal flap with sulcular incision, the submarginal (Ochsenbein–Luebke) flap, the papilla-sparing flap, and the papilla base flap. The authors conclude that meticulous preoperative planning and technique selection are essential to optimize surgical access, ensure adequate visibility, and promote favourable soft tissue healing outcomes. The papilla base flap is considered the most preferable, especially in the anterior maxilla, due to its ability to preserve the interdental papilla and minimize gingival recession. This technique promotes healing by primary intention and provides excellent aesthetic results, making it ideal for use in visible areas where soft tissue preservation is critical.

Deschner J & Wolff S et al (2009)²⁵ established a prospective case series to evaluate the impact of intrasulcular incisions on periodontal structures in 35 patients over 10 months. Measurements of probing depth and crown length showed no significant attachment loss, with only a small percentage of sites losing ≥ 2 mm of attachment. Gingival recession increased slightly by 0.2–0.4 mm. The study concluded that intrasulcular incisions without vertical extensions pose minimal risk to attachment loss or gingival recession.

GRANDI.C, PACIFICI.L(2009)²⁶ in their comprehensive review article the authors analyzed the various access flap designs utilized in oral surgical procedures, assessing their suitability based on specific clinical scenarios. The authors evaluated each flap type—such as sulcular, triangular, rectangular, semilunar, and scalloped submarginal flaps—against ideal surgical criteria, including adequate access, preservation of vascular supply, minimal trauma, and esthetic outcomes. They emphasize that no single flap design is universally optimal; instead, the choice should be tailored to individual cases, considering factors like anatomical structures, esthetic demands, and the extent of surgical access required. The review concludes by presenting a decision-

making framework to guide clinicians in selecting the most appropriate flap design, aiming to enhance surgical efficacy and patient outcomes.

Fabbro.M,Taschieri.M et al(2009)²⁷ conducted a randomized clinical study to compared the postoperative quality of life in patients undergoing periradicular surgery with either a traditional full sulcular incision or a papilla-based incision. The study included patients who required periapical surgery and were randomly assigned to one of the two incision groups. Standardized surgical protocols under a surgical microscope were followed, and postoperative outcomes were assessed using pain scores, swelling, and functional limitations over the first postoperative week. The results showed that patients who received the papilla-based incision experienced significantly less pain and swelling in the early postoperative period and reported a faster return to normal activities compared to those with the full sulcular incision. The conclusion of the study emphasized that the papilla-based incision technique is more acceptable from the patient's perspective due to improved postoperative comfort and better quality of life outcomes.

Kreisler et al. (2009)²⁸ conducted a study on 98 teeth in healthy patients, (50 women and 31 men; mean age 44.6 ± 13.2 years) were included. The authors investigated the clinical outcomes of a modified marginal sulcular incision compared to the traditional full sulcular approach. The study involved patients undergoing periapical surgery on anterior teeth, where the modified technique aimed to preserve interdental papillae and minimize soft tissue trauma. Standardized surgical procedures were followed, and postoperative parameters such as soft tissue healing, gingival recession, and patient discomfort were evaluated over a follow-up period. The results indicated that the modified incision technique provided superior soft tissue healing, reduced incidence of gingival recession, and resulted in better preservation of papillary architecture. The study concluded that the modified marginal sulcular incision technique is a clinically effective and advantageous approach in endodontic surgery, promoting more favorable aesthetic and functional outcomes.

A.Alp, Bloud.c et al (2010)²⁹ conducted a study on 132 periapical surgeries in 114 patients assessed success rates, lesion histology, and affected teeth. At 18 months, the success rate was 90%, failure was 6%, and 4% were uncertain. Periapical surgery is a last resort after failed endodontic treatment, requiring strict protocols, ultrasonic

tools, and magnification for optimal outcomes. Recurrence typically occurs within 7 months, emphasizing the need for careful follow-up. Re-intervention has lower success rates, and after a second failure, root amputation or extraction is necessary, impacting prosthetic planning. Informed consent is crucial.

AHMED.V, RASTOGLI.S et al(2012)³⁰ conducted a study on 20 patients requiring periapical surgery were randomly assigned to two groups: one treated with the Ocshenbein-Leubke flap (OLF) and the other with the trapezoidal flap (TZF). The study assessed parameters such as flap reflection time, surgical accessibility, duration of surgery, postoperative pain, and healing outcomes. Results indicated that the OLF group experienced significantly shorter flap reflection times and overall surgical durations compared to the TZF group. Additionally, patients in the OLF group reported less postoperative pain. While both flaps provided adequate surgical access, the OLF demonstrated advantages in terms of efficiency and patient comfort. The study concluded that the Ocshenbein-Leubke flap is more accurate and preferable for periapical surgeries, particularly in cases involving anterior teeth or where esthetic outcomes are a priority, due to its ability to minimize gingival recession and postoperative discomfort.

Dimora, Cena et al (2016)³¹ conducted a study on 60 patients undergoing apicoectomy with periapical osteotomy compared the impact of gingival flap and semilunar flap designs on post-surgical quality of life. Patients rated their symptoms over seven days using a questionnaire. While the semilunar flap caused more difficulty in mouth opening, chewing, and speaking in the first two days, the gingival flap resulted in significantly more pain and higher analgesic use by day three. Despite differences in postoperative discomfort, both techniques had a high incidence of symptoms, with no significant differences in patient demographics or diagnosis.

JAMES.S et al(2019)³² This systematic review and meta-analysis aimed to compare the effects of full sulcular flap (FSF) and papilla-sparing flap (PSF) techniques on periodontal outcomes after peri-radicular surgery. The authors systematically searched multiple databases and selected studies that assessed parameters like probing depth, gingival recession, papilla height, and clinical attachment loss. The analysis revealed that while both flap designs maintained good healing, the papilla-sparing

flap showed statistically better results in preserving probing depth and reducing clinical attachment loss. However, there were no significant differences between the two groups concerning gingival recession and papilla height. The study concluded that the papilla-sparing flap could be preferred over the full sulcular flap in cases where periodontal tissue preservation is critical, highlighting the importance of flap design in achieving optimal surgical and aesthetic outcomes.

Mangalgi A, Shah K et al (2019)³ conducted a study on 20 patients compared the Ochsenbein-Luebke (OL) and Trapezoidal (TZ) flaps in periapical surgery. Though OL flap has limitations in areas with minimal attached gingiva, it was found superior to TZ flap in terms of flap reflection time, accessibility, surgery duration, and postoperative pain. Scarring occurred in both groups, while gingival recession was noted only in the TZ group. Both flaps provided reliable outcomes, but OL flap was preferred, especially in cases with extensive crown and bridge work, as it prevents exposure of restorative margins and postoperative recession.

AlFotawi (2020)³³ conducted a comprehensive review of various flap designs used in dentoalveolar procedures, analyzing their clinical applications, anatomical considerations, and outcomes. The review evaluated envelope, triangular, trapezoidal, and semilunar flaps based on surgical access, preservation of blood supply, ease of closure, healing potential, and complication rates. Findings showed that while envelope flaps were less invasive and offered greater postoperative comfort, they provided limited access to deeper structures. Triangular and trapezoidal flaps allowed better visibility but required more tissue manipulation, whereas semilunar flaps, though conservative, had a higher risk of wound dehiscence and scarring. The study emphasized that flap selection should be based on surgical goals, anatomical site, and patient-specific factors to optimize healing and outcomes.

Verma J, Ahuja V (2021)⁷ in their review article discussed the theoretical and clinical aspects of apicoectomy, also known as root resection, which involves removing the root apex as part of periradicular surgery. This procedure is performed when conventional root canal treatment fails to eliminate infection. It consists of three key steps: surgical removal of infected tissue, root-end resection, and retrograde filling to seal the canal. The authors concluded that apicoectomy is an essential

procedure for managing cases unresponsive to standard treatment and plays a crucial role in pediatric endodontics, particularly for treating traumatic injuries in young permanent teeth.

Sumangali A, Tiwari R et al (2021)³⁴ conducted a study analyzed online data on regenerative procedures in endodontic surgery for patients with periapical pathologies, comparing outcomes between those who underwent regenerative surgery and those who did not. Meta-analysis showed that regenerative methods significantly improved healing, with autologous platelet concentrates and collagen membranes yielding better results than expanded polytetrafluoroethylene alone. The authors concluded that using regenerative materials in apicoectomy enhances healing, and combining materials offers superior outcomes. They emphasized the need for larger randomized controlled trials to further evaluate the benefits of different regenerative materials in endodontic surgery.

Rajkhan W, Alrashedi N, et al (2021)³⁵ in their review article highlighted the impact of flap selection on the success of periapical surgeries. It discussed various commonly used flap designs, their advantages, disadvantages, indications, and contraindications. Studies showed that full mucoperiosteal flaps resulted in minimal crestal bone loss, while triangular and rectangular flaps promoted favourable healing without altering crestal bone height. The authors concluded that flap designs minimizing damage to root-attached tissues lead to better clinical success and improved surgical outcomes.

Setzer. F, Kratchman S (2022)³⁶ a review article discussed advancements in endodontic surgery, particularly the shift from traditional apicoectomy to modern endodontic microsurgery. This evolution incorporates high magnification, ultrasonic root-end preparation, and biocompatible filling materials. Technologies like cone-beam computed tomography (CBCT), piezoelectric surgery, and dental operating microscopes have enhanced precision in procedures such as root-end surgery, crown and root resections, and surgical perforation repair. While nonsurgical retreatment remains the preferred approach for failed root canal cases, modern microsurgery offers a minimally invasive and predictable alternative for preserving natural teeth.

MATERIALS AND METHODS

ELIGIBILITY CRITERIA:

Before the trial started, the ethics committee received ethical clearance. Based on specific current inclusion and exclusion criteria, the patients were chosen.

INCLUSION:

- 1] “Patients with periapical lesion associated with maxillary teeth.”
- 2] Patients under ASA1 category.
- 3] “Patients in the age group between 18 and 40 years.”

EXCLUSION:

- 1] patients with periapical lesions that are restricted to the upper and lower jaw's posterior teeth.
- 2] Individuals with any systemic illness.
- 3] Individuals who already have periodontal disease.

MATERIALS AND ARMAMENTARIUM:

- 1) Diagnostic Instruments and Materials:
 - Mouth Mirror Used for indirect vision, retraction, and illumination of the surgical site.
 - Periodontal Probe Used to measure probing depth pre- and post-operatively.
 - Explorer/Probe Helps in examining tooth surfaces for caries, restorations, and anatomical features.
 - Radiographic Films / Digital Radiography (RVG) Essential for pre-operative assessment and post-operative follow-up of the periapical area.

II. Surgical Instruments

- Scalpel Handle with Blade (No. 15C or 15) Used for precise incision making in soft tissues. The 15C blade is particularly suited for curved incisions like the Ochsenbein-Luebke flap.
- Periosteal Elevator (e.g., Molt No. 9) Used for flap reflection and tissue retraction without tearing the flap.
- Tissue Forceps (e.g., Adson, College) Used to hold and manipulate soft tissues during surgery.
- Hemostats Used to control bleeding and grasp soft tissues or small vessels.
- Bone Curettes (e.g., Lucas, Molt) Used to remove granulation tissue or cystic contents from the periapical area.
- Surgical Burs (Round and Tapered Carbide Burs) Used for bone removal and root-end resection during apicoectomy.
- High-Speed Handpiece with Straight and Contra-angle Attachments For cutting bone and root apex precisely.
- Root-End Preparation Instruments (e.g., Micro-mirrors, Ultrasonic Tips) Used to prepare and inspect the resected root surface for retrograde filling.

III. Suturing Materials

- Sutures (e.g., 4-0 or 5-0 Silk or Vicryl) Used to secure the flap in place post-surgery; absorbable or non-absorbable depending on preference.”
- Needle Holder Used to hold and guide the suture needle during suturing.”
- Scissors (Suture Scissors) For suture removal.

ARMAMENTARIUM



METHODOLOGY

(a) STUDY DESIGN:

This is a prospective study, involving 16 patients who underwent apicoectomy for the removal of periapical lesions. The patients were divided into two groups: those who were treated using Oschienbein-Leubke flap (n=8) and those who were treated using trapezoidal flap (n=8).

(b) METHOD OF COLLECTION OF DATA:

In this investigation, patients who had visited the department of oral and maxillofacial surgery BBDCODS at our institution were included. 16 patients, fell into the ASA 1 criteria and had periapical pathologies related to non-vital maxillary anterior teeth that needed periapical surgery, were chosen and divided into two equal groups: group 1 (Ochsenbein Luebke Flap; OL) and group 2 Trapezoidal flap (TZ). All of the participants in this study were free of periodontal disease. Patient will be subjected to detailed history, clinical examination and investigations as needed. All the procedures will be done under local anesthesia.

A thorough preoperative evaluation was performed, which included a CBC with clotting profile, digital picture, and IOPA radiograph. Informed written consent was taken from all the patient included in the study.

Equal no. of patients were assigned to the 2 groups [8 each].

The surgical procedure were :

A conventional trapezoidal flap was raised in group I, where a full thickness flap was developed by making two vertical releasing incisions at the line angles of the neighbouring teeth and a horizontal intra-sulcular incision.

According to OL's instructions, group II was receive a horizontal scalloped incision on the connected gingiva that follows the shape of the marginal gingiva above the free gingival groove. Two releasing incisions was made at the endpoints of the horizontal incision. The mucoperiosteal flap was raised to its maximal thickness.

PARAMETER ASSESSED

Patients for surgery were selected irrespective of sex, religion or socio-economic status. The parameters assessed are:

1) From the start of the incision to the final suture placement, the total time spent on the procedure was recorded.

The surgical site was assessed at 1st month, 3rd month and 6th month for quality of healing.

2) The distance between the gingival edge and the apical part of the gingival sulcus is known as the probing depth.

SCORE 0: 1-3 mm (Healthy)

SCORE 1: 4-5 mm (Early gum disease)

SCORE 2: 6-7 mm (Moderate gum disease)

SCORE 3: more than 8mm (Advanced gum disease)

2] “PLAQUE INDEX: (Modified Mombelli et al.1987)”

“SCORE 0: No plaque”

“SCORE 1: Plaque only detected with probe.”

“SCORE 2: Plaque visible by naked eyes.”

“SCORE 3: Abundant Plaque.”

3] “BLEEDING INDEX(Modified Mombelli et al.1987)”

“SCORE 0: No bleeding”

“SCORE 1: Isolated bleeding spots.”

“SCORE 2: Confluent blood line”.

“SCORE 3: Profuse bleeding.”

4] GINGIVAL RECESSION: The measurement between the gingival margin and the cemento-enamel junction.

SCORE 0: ABSENT

SCORE1: PRESENT

STATISTICAL ANALYSIS

The data for the present study was entered in the Microsoft Excel 2007 and analyzed using the SPSS statistical software 23.0 Version. The descriptive statistics included mean, standard deviation frequency and percentage. The level of the significance for the present study was fixed at 5%.

The intergroup comparison was done using the independent t tests The Shapiro–Wilk test was used to investigate the distribution of the data and Levene’s test to explore the homogeneity of the variables.

Mean

$$\bar{X} = \frac{\sum X}{N}$$

Where:

$\bar{X}$ = the data set mean

$\sum$ = the sum of

X = the scores in the distribution

N = the number of scores in the distribution

Range

$$range = X_{highest} - X_{lowest}$$

Where:

X_{highes} = largest score

X_{lowest} = smallest score

Variance

$$SD^2 = \frac{\sum (X - \bar{X})^2}{N}$$

The simplified variance formula

$$SD^2 = \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}$$

Where:

SD^2 = the variance

$\sum$ = the sum of

X = the obtained score

$\bar{X}$ = the mean score of the data

N = the number of scores

Standard Deviation (N)

$$SD = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

The simplified standard deviation formula

$$SD = \sqrt{\frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N}}$$

Where:

SD = the standard deviation

$\sum$ = the sum of

X = the obtained score

$\bar{X}$ = the mean score of the data

N = the number of scores

Independent t-test

Independent t Test can be used to determine if two sets of data are significantly different from each other, and is most commonly applied when the test statistic would follow a normal distribution. The independent samples t -test is used when two

separate sets of independent and identically distributed samples are obtained, one from each of the two populations being compared

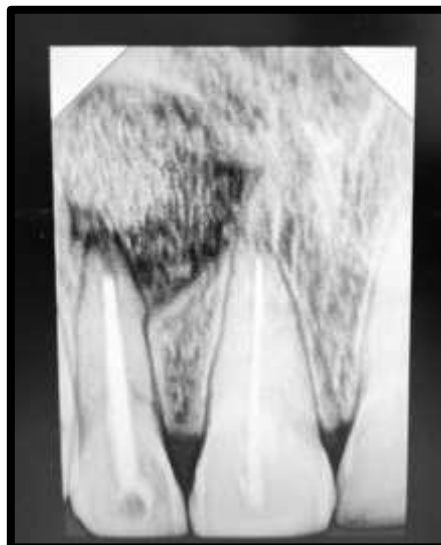
$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}\right)\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Where X1 =Mean of the first Group, X2 =Mean of the Second Group

PHOTOGRAPHS

GROUP- 1[TRAPEZOIDAL FLAP]

PRE-OPERATIVE PHOTOGRAPH



INTRA-OPERATIVE PHOTOGRAPHS



POST-OPERATIVE PHOTOGRAPHS



1ST MONTH



3RD MONTH



6TH MONTH

GROUP-2[OSCHEINBEIN LEUBKE FLAP

PRE-OPERATIVE PHOTOGRAPHS



INTRA-OPERATIVE PHOTOGRAPHS



POST-OPERATIVE PHOTOGRAPHS



1ST MONTH



3RD MONTH



6TH MONTH

OBSERVATIONS AND RESULT

The present study was conducted in the department of oral and maxillofacial surgery, Babu Banarasi Das college of dental sciences, with an aim to compare and evaluate the Oscheinbein Leubke flap and Trapezoidal Flap in Apicoectomy. A total of 16 patients were equally assigned randomly into two groups (Oscheinbein Leubke Flap and Trapezoidal Flap) based on inclusion and exclusion criteria for two groups (group 1) those who were treated using Oschenbein-Leubke flap (n=8) and (group 2) those who were treated using trapezoidal flap (n=8). All surgical procedures were carried out by a single surgeon using the same protocol. Assessment of operation time, probing depth, plaque index, bleeding index and gingival recession was evaluated based on the evaluation criteria. The results are tabulated as follows:

TABLE: 1 GENDER DISTRIBUTION AMONG STUDY SUBJECTS

	Female	Male
Group 1	05(62.5%)	03(37.5%)
Group 2	03(37.5%)	05(62.5%)

Group -1 : Trapezoidal Flap , Group 2: Oscheinbein Leubke Flap

In this study, the gender distribution among the subjects was analyzed for two different groups. **Group 1**, which underwent the Trapezoidal Flap procedure, consisted of 62.5% females (5 subjects) and 37.5% males (3 subjects). On the other hand, **Group 2**, which received the Oscheinbein Leubke Flap procedure, had a higher proportion of males, with 62.5% (5 subjects) being male and 37.5% (3 subjects) being female.

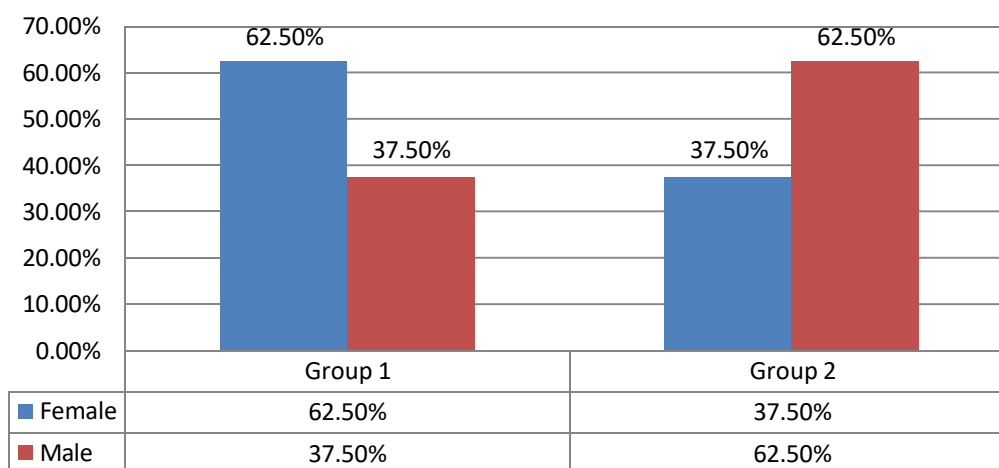


TABLE: 2 MEAN AGE AMONG STUDY SUBJECTS

	Mean	Std Dev	Std Error
Group 1	26.750	6.497	2.297
Group 2	24.500	3.251	1.149

Group -1 : Trapezoidal Flap , Group 2: Oscheinbein Leubke Flap

The mean age of study subjects was calculated for both groups. **Group 1**, which underwent the Trapezoidal Flap procedure, had a mean age of 26.75 years, with a standard deviation of 6.497 and a standard error of 2.297. In comparison, **Group 2**, which received the Oscheinbein Leubke Flap procedure, had a lower mean age of 24.5 years, with a standard deviation of 3.251 and a standard error of 1.149. These results indicate that the participants in Group 1 were, on average, slightly older than those in Group 2, with Group 2 having a more consistent age range, as reflected by the smaller standard deviation.

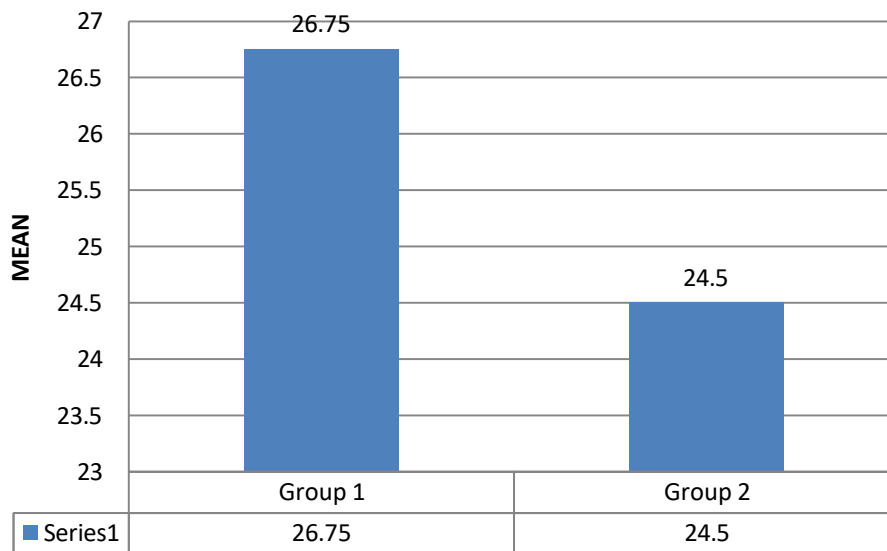


TABLE: 3 INTERGROUP COMPARISON OF PROBING DEPTH BETWEEN THE GROUPS

		Mean	Std Dev	Std Error	P value	Significance
Baseline	Group 1	0.375	0.517	0.182	0.818	Non-Significant
	Group 2	0.250	0.462	0.163		
1Month	Group 1	0.875	0.640	0.226	0.019	Significant
	Group 2	0.375	0.517	0.182		
3 Month	Group 1	0.250	0.462	0.163	0.012	Significant
	Group 2	0.000	0.000	0.000		
6 Month	Group 1	0.000	0.000	0.000	1.000	Non-Significant
	Group 2	0.000	0.000	0.000		

Group -1 : Trapezoidal Flap , Group 2: Oscheinbein Leubke Flap , Independent t test with p value less than 0.05 is significant

Score 0: 1-3 Mm. Score 1: 4-5 Mm, Score 2: 6-7 Mm. Score 3: More Than 8mm

The intergroup comparison of probing depth between Group 1 (Trapezoidal Flap) and Group 2 (Oscheinbein Leubke Flap) was conducted at multiple time points (baseline, 1 month, 3 months, and 6 months).

At **baseline**, Group 1 had a mean probing depth of 0.375 mm (SD = 0.517, SE = 0.182) and Group 2 had a mean of 0.250 mm (SD = 0.462, SE = 0.163). The p-value of 0.818 indicated no significant difference between the groups at this time point.

At **1 month**, Group 1 exhibited a mean probing depth of 0.875 mm (SD = 0.640, SE = 0.226), while Group 2 had a mean probing depth of 0.375 mm (SD = 0.517, SE = 0.182). The p-value of 0.019 indicated a statistically significant difference between the groups, with Group 1 having a greater probing depth.

At **3 months**, Group 1 showed a mean probing depth of 0.250 mm (SD = 0.462, SE = 0.163), while Group 2 had no probing depth (0.000 mm). The p-value of 0.012 indicated a significant difference, with Group 1 showing a measurable probing depth compared to Group 2, where no probing depth was recorded.

At **6 months**, both groups had a probing depth of 0.000 mm (SD = 0.000), and the p-value of 1.000 indicated no significant difference between the groups at this time point.

In summary, significant differences in probing depth were observed at 1 month and 3 months, with Group 1 having a greater probing depth than Group 2. However, by the 6-month follow-up, both groups had the same probing depth, indicating that the differences observed earlier had resolved.

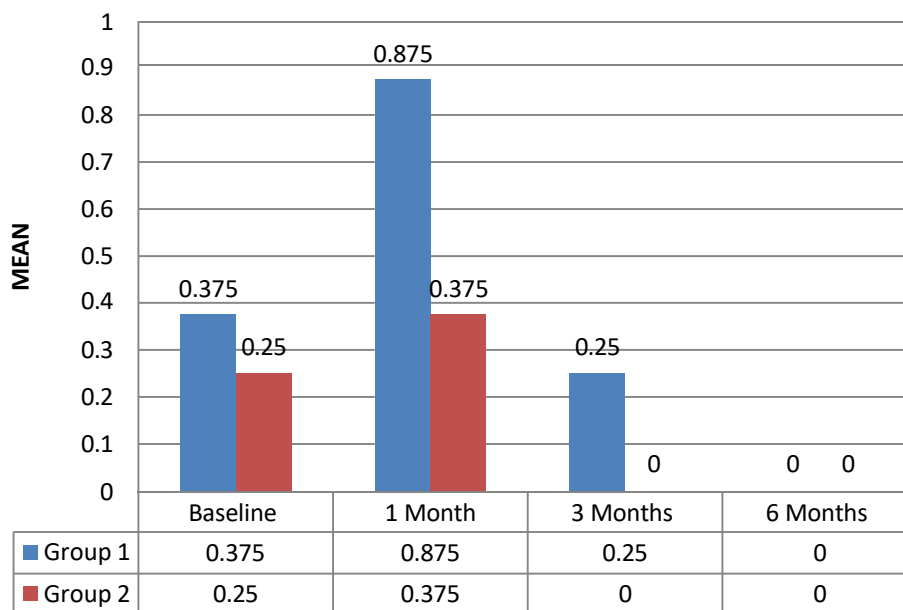


**TABLE: 4 INTERGROUP COMPARISON OF PLAQUE SCORES BETWEEN
THE GROUPS**

		Mean	Std Dev	Std Error	P value	Significance
1 Month	Group 1	1.375	0.517	0.182	0.041	Significant
	Group 2	0.750	0.707	0.250		
3 Month	Group 1	0.375	0.517	0.182	0.049	Significant
	Group 2	0.000	0.000	0.000		
6 Month	Group 1	0.125	0.353	0.125	0.100	Non- Significant
	Group 2	0.000	0.000	0.000		

Group -1 : Trapezoidal Flap , Group 2: Oscheinbein Leubke Flap, Score 0: No Plaque
 Score 1: Plaque Only Detected With Probe. Score 2: Plaque Visible By Naked Eyes.
 Score 3: Abundant Plaque. **Independent t test with p value less than 0.05 is significant**

The intergroup comparison of plaque scores between Group 1 (Trapezoidal Flap) and Group 2 (Oscheinbein Leubke Flap) was assessed at 1 month, 3 months, and 6 months.

At **1 month**, Group 1 had a mean plaque score of 1.375 (SD = 0.517, SE = 0.182), while Group 2 had a mean plaque score of 0.750 (SD = 0.707, SE = 0.250). The p-value of 0.041 indicated a statistically significant difference, with Group 1 exhibiting a higher plaque score than Group 2.

At **3 months**, Group 1 showed a mean plaque score of 0.375 (SD = 0.517, SE = 0.182), whereas Group 2 had no plaque (mean = 0.000). The p-value of 0.049 indicated a significant difference, with Group 1 having a measurable plaque score compared to Group 2, which had no plaque.

At **6 months**, Group 1 had a mean plaque score of 0.125 (SD = 0.353, SE = 0.125), and Group 2 had no plaque (mean = 0.000). The p-value of 0.100, however, indicated no significant difference between the groups at this time point.

In summary, significant differences in plaque scores were found at 1 month and 3 months, with Group 1 showing higher plaque scores compared to Group 2. However,

by 6 months, the difference in plaque scores was no longer statistically significant, indicating that the plaque accumulation was similar between the groups at this later follow-up.

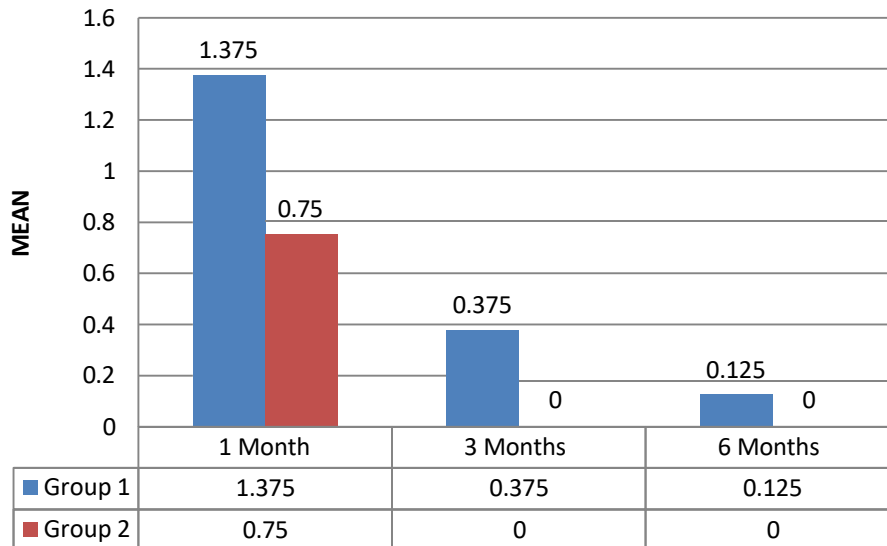


**TABLE: 5 INTERGROUP COMPARISON OF BLEEDING SCORES
BETWEEN THE GROUPS**

		Mean	Std Dev	Std Error	P value	Significance
1 Month	Group 1	1.250	0.707	0.250	0.013	Significant
	Group 2	0.375	0.517	0.182		
3 Month	Group 1	0.375	0.517	0.182	0.049	Significant
	Group 2	0.000	0.000	0.000		
6 Month	Group 1	0.000	0.000	0.000	1.000	Non- Significant
	Group 2	0.000	0.000	0.000		

Group -1 : Trapezoidal Flap , Group 2: Oscheibein Leubke Flap, Score 0: No Bleeding, Score 1: Isolated Bleeding Spots., Score 2: Confluent Blood Line., Score 3: Profuse Bleeding Independent t test with p value less than 0.05 is significant

The intergroup comparison of bleeding scores between Group 1 (Trapezoidal Flap) and Group 2 (Oscheibein Leubke Flap) was analyzed at 1 month, 3 months, and 6 months.

At **1 month**, Group 1 had a mean bleeding score of 1.250 (SD = 0.707, SE = 0.250), while Group 2 had a mean of 0.375 (SD = 0.517, SE = 0.182). The p-value of 0.013 indicated a statistically significant difference, with Group 1 showing higher bleeding scores than Group 2.

At **3 months**, Group 1 had a mean bleeding score of 0.375 (SD = 0.517, SE = 0.182), while Group 2 had a score of 0.000 (SD = 0.000, SE = 0.000). The p-value of 0.049 indicated a significant difference, with Group 1 still demonstrating bleeding, whereas Group 2 had no bleeding.

At **6 months**, both groups had a mean bleeding score of 0.000 (SD = 0.000, SE = 0.000), and the p-value of 1.000 indicated no significant difference between the groups at this time point.

In summary, significant differences in bleeding scores were observed at 1 month and 3 months, with Group 1 showing higher bleeding scores compared to Group 2. However, by 6 months, bleeding was absent in both groups, and no significant difference was found.

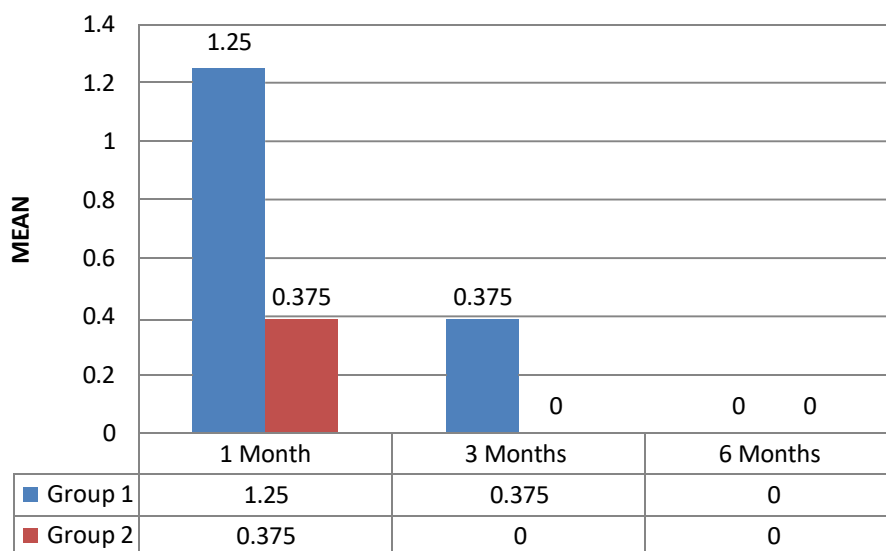


TABLE: 6 INTERGROUP COMPARISON OF GINGIVAL RECESSION SCORES BETWEEN THE GROUPS.

		Mean	Std Dev	Std Error	P value	Significance
1 Month	Group 1	0.000	0.000	0.000	1.000	Non- Significant
	Group 2	0.000	0.000	0.000		
3 Month	Group 1	0.000	0.000	0.000	1.000	Non- Significant
	Group 2	0.000	0.000	0.000		
6 Month	Group 1	0.000	0.000	0.000	1.000	Non- Significant
	Group 2	0.000	0.000	0.000		

Group -1 : Trapezoidal Flap , Group 2: Oscheinbein Leubke Flap Independent t test with p value less than 0.05 is significant

The intergroup comparison of gingival recession scores between Group 1 (Trapezoidal Flap) and Group 2 (Oscheinbein Leubke Flap) was analyzed at 1 month, 3 months, and 6 months.

At **1 month**, both Group 1 and Group 2 had a mean gingival recession score of 0.000 (SD = 0.000, SE = 0.000). The p-value of 1.000 indicated no significant difference between the groups.

At **3 months**, again both Group 1 and Group 2 had a mean score of 0.000 (SD = 0.000, SE = 0.000), with a p-value of 1.000, showing no significant difference between the groups.

At **6 months**, both groups maintained a mean score of 0.000 (SD = 0.000, SE = 0.000), and the p-value of 1.000 indicated no significant difference between the groups.

In summary, there were no significant differences in gingival recession scores between Group 1 and Group 2 at any time point (1 month, 3 months, or 6 months). Both groups demonstrated no gingival recession throughout the study period.

TABLE: 7 INTERGROUP COMPARISON OF DURATION OF SURGERY BETWEEN THE GROUPS (IN MINUTES)

	Mean	Std Dev	Std Error	P value	Significance
Group 1	85.250	7.741	2.736	0.001	Significant
Group 2	61.625	6.738	2.382		

Group -1 : Trapezoidal Flap , Group 2: Oscheinbein Leubke Flap Independent t test with p value less than 0.05 significant

The intergroup comparison of the duration of surgery between Group 1 (Trapezoidal Flap) and Group 2 (Oscheinbein Leubke Flap) was analyzed.

Group 1 (Trapezoidal Flap) had a mean duration of surgery of **85.25 minutes** (SD = 7.741, SE = 2.736), while Group 2 (Oscheinbein Leubke Flap) had a mean duration of **61.63 minutes** (SD = 6.738, SE = 2.382). The p-value for the comparison was **0.001**, which is less than the significance level of 0.05, indicating that the difference in surgery duration between the two groups is statistically significant.

In conclusion, the surgery duration was significantly longer in Group 1 (Trapezoidal Flap) compared to Group 2 (Oscheinbein Leubke Flap).

DISCUSSION

Periapical surgery is an important aspect of oral and maxillofacial surgical practice aimed not only at eradicating periapical pathoses but also at preserving the periodontal condition and aesthetic harmony of the dentoalveolar structures. A fundamental step in periapical surgery is the selection of an appropriate flap design, which significantly influences the surgical outcome, including access to the surgical field, healing, and the long-term health of the periodontium. Historically, various flap designs have been proposed and utilized, each having distinct advantages and drawbacks. Among the full-thickness mucoperiosteal flaps, the triangular, trapezoidal, and rectangular flaps are commonly used. Limited mucoperiosteal flaps include the semilunar and the submarginal scalloped Ochsenbein-Luebke (OL) flap¹⁰. The trapezoidal flap, consisting of a horizontal sulcular incision combined with two vertical releasing incisions, is favoured for its excellence in terms of access and visibility during surgery. It allows broad exposure and manipulation of the surgical site, which is critical for complete lesion removal and root-end procedures. However, despite its advantages in access and exposure, the trapezoidal flap often disrupts the continuity of marginal gingiva and interdental papilla, leading to complications such as gingival recession, increased probing depths, and altered gingival architecture postoperatively. The reflection of the entire marginal gingiva and interdental papillae, subjects the tissue to trauma, and the subsequent repositioning may not always ensure perfect anatomical re-adaptation, resulting in aesthetic and functional compromise¹⁷.

On the other hand, the Ochsenbein-Luebke flap, first described in 1969, introduces a scalloped submarginal incision placed approximately 3-5 mm apical to the free gingival margin within the attached gingiva, sparing the marginal tissues and interdental papillae. This design offers sufficient access to the surgical field while significantly minimizing trauma to the periodontium, thereby preserving the integrity of the gingival margin and reducing the risk of postoperative gingival recession. Although the OL flap requires an adequate width of attached gingiva for its application and is technique-sensitive, it has been consistently associated with superior periodontal outcomes compared to the conventional trapezoidal flap¹⁶.

In our study, we specifically compared the clinical outcomes of the Ochsenbein-Luebke flap and the trapezoidal flap in root end surgical procedure by evaluating probing depth, bleeding index, plaque index, and gingival recession postoperatively. Our findings clearly indicate the superiority of the OL flap across all measured parameters.

Probing depth is an important parameter reflecting the health of the gingival margin. In our study, the baseline probing depths between the two groups were not significantly different. However, at the 1-month the p-value of 0.019 indicated a statistically significant difference between the groups, with Group 1 having a greater probing depth. and at the 3-month follow-ups the p-value of 0.012 indicated a significant difference with Group 1 showing a measurable probing depth compared to Group 2, where no probing depth was recorded. At **6 months**, both groups had a p-value of 1.000 indicated no significant difference between the groups at this point of time. So, Group 1 exhibited greater probing depths compared to Group 2, suggesting that the trapezoidal flap, due to disruption of the marginal gingival tissues, might compromise the periodontal ligament integrity temporarily. The probing depth around teeth treated using the OL flap showed minimal changes postoperatively, suggesting that preservation of the marginal gingiva and interdental papillae helps maintain the pre-surgical attachment levels.

This finding is consistent with the observations of previous studies that the effect of incision designs on probing depth and clinical attachment loss was reported by two out of five subjects (von Arx et al. 2007). Similarly (Sargolzaie N. et al 2013) where full-thickness flaps, especially those involving sulcular incisions, were associated with greater probing depths due to the disruption of the marginal gingiva and supporting structures⁴⁴.

The plaque index is another important factor influencing periodontal health post-surgery. At the 1-month and 3-month post op follow ups, Group 1 showed higher plaque scores compared to Group 2, and the differences were statistically significant. The higher plaque accumulation in the trapezoidal flap group could be attributed to the alteration of the gingival contour, making plaque control more challenging. These findings resonate with the observations made by Suleiman et al 2007, who reported increased plaque retention in cases where marginal tissues were disturbed during flap

reflection²³. By 6 months, the difference in plaque scores was no longer significant, indicating that with time and proper oral hygiene maintenance, both groups could achieve similar plaque control.

The bleeding index was also notably lower in the OL flap group. Bleeding on probing is an indicator of gingival inflammation, and lower scores imply healthier periodontal conditions post-surgery. In the trapezoidal flap group, manipulation of the marginal gingiva and exposure of the interdental papillae resulted in greater inflammation, contributing to higher bleeding scores during the postoperative evaluations. Similar trends (Scabbi.A et al 2001 and Trombelli.L et al 2003) have been documented where minimal manipulation of the marginal tissues led to less postoperative inflammation and faster healing^{38,39}.

Since gingival recession is a significant aesthetic and functional concern after periapical operations, it was one of the most important factors evaluated in our study. In addition to causing aesthetic issues, recession—which is the apical displacement of the gingival edge exposing the root surface—also puts the impacted teeth at risk for sensitivity and root caries. It is interesting to note that in our study, Group 1 and Group 2 did not significantly differ in their gingival recession scores at any time point—one, three, or six months—and the p-value of 1.000 suggested that there was no significant difference between the groups. This might be explained by both groups' careful flap handling and cautious surgical approach.

However, compared to other incision procedures, trapezoidal flaps theoretically still carry a higher risk of recession since they show the biggest alterations in GM, which translates into more GM recession and attachment loss. Excessive forces to the marginal tissues during flap elevation, exposure of marginal (bone) tissues for 45 to 90 minutes with potential tissue dehydration, and bone remodelling during healing could all be contributing factors to the increased recession and attachment loss for the intrasulcular incision (Levin et al. 1977, Harrison & Jurosky 1991)³⁷. It has been suggested that micro blades with a width of no more than 2.5 mm be used for the incision (Velvart & Peters 2005).

Suleiman et al. 2007, who emphasized that full-thickness sulcular incisions often lead to greater gingival recession due to the direct trauma to the marginal tissues and the exposure of crestal bone during surgery as compared to oscheinbein leubke flap²³.

Moreover, in terms of patient-reported outcomes such as pain and aesthetic satisfaction, patients treated with the OL flap reported less postoperative discomfort and a higher degree of satisfaction with the aesthetic results. This aligns with findings from studies by Shah et al. and Suleiman et al., where minimal manipulation of the marginal tissues and preservation of papillae correlated with reduced postoperative pain and better aesthetic perception²³.

It is also important to recognize that while the OL flap has numerous advantages, it has some limitations as well. It cannot be used in regions where the width of attached gingiva is insufficient, particularly in the mandibular anterior or posterior segments. In such cases, conventional flap designs may still be necessary to achieve adequate access and complete lesion removal.

Our findings support the growing body of evidence advocating for the use of the OL flap in suitable cases, especially in aesthetically critical areas. The OL flap not only provides sufficient access for effective surgical management of periapical pathology but also ensures better preservation of periodontal health and aesthetics. While both OL and trapezoidal flaps are considered reliable for periapical surgeries, the OL flap, with its minimal impact on probing depth, bleeding, plaque accumulation, and gingival recession, presents itself as a superior alternative when the clinical conditions permit.

The mean age among the study subjects was comparable between the two groups, with Group 1 (Trapezoidal Flap) having a mean age of 26.75 years and Group 2 (Ochsenbein-Luebke Flap) having a mean age of 24.5 years. Gender distribution was also balanced across the groups, thus eliminating demographic bias in the outcomes.

The duration of surgery was significantly longer in the trapezoidal flap group compared to the Ochsenbein-Luebke flap group. Group 1 had a mean surgical time of 85.25 minutes, whereas Group 2 had a significantly shorter mean duration of 61.63 minutes. The longer surgical time associated with the trapezoidal flap can be explained by the greater difficulty encountered during flap elevation and re-approximation, particularly because the sulcular incision necessitates careful handling of the delicate marginal tissues. In contrast, the Ochsenbein-Luebke flap, being positioned in the attached gingiva, allowed for easier and quicker reflection and closure.

Overall, the findings of the present study align with the conclusions drawn by Shah et al., where the Ochsenbein-Luebke flap was associated with better periodontal parameters and quicker surgical times compared to the trapezoidal flap. Similarly, Suleiman et al. also emphasized the advantages of submarginal flap designs in promoting faster and more esthetically favourable healing²³.

Although both flaps provided satisfactory access for surgical procedures and ultimately led to successful clinical outcomes, the Ochsenbein-Luebke flap proved to be superior in terms of minimizing postoperative morbidity, preserving periodontal health, and reducing surgical time. However, it is important to note that the use of the Ochsenbein-Luebke flap is limited to areas with an adequate width of attached gingiva, typically in the anterior and premolar regions, and may not be feasible in posterior areas or where attached gingiva is insufficient.

CONCLUSION

This study compared the clinical outcomes of the trapezoidal flap and the Ochsenbein-Luebke (OL) flap in periapical surgery, focusing on periodontal health, surgical efficiency, and patient-centered outcomes.

Our results demonstrated that the OL flap provided superior periodontal preservation compared to the trapezoidal flap. While baseline probing depths were comparable between groups, by 1 and 3 months postoperatively, the trapezoidal flap group exhibited significantly greater probing depths, indicating more periodontal breakdown. In contrast, the OL flap group maintained stable probing depths, highlighting its advantage in preserving periodontal support during the critical healing period. By six months, probing depths between groups were comparable, suggesting that long-term healing ultimately balanced, but the OL flap offered distinct early-phase benefits.

Plaque accumulation was higher in the trapezoidal flap group at 1 and 3 months. The disruption of natural gingival contours in this group likely impaired effective plaque removal. Although plaque scores evened out by six months with improved oral hygiene practices, the initial advantage observed with the OL flap underscores the role of flap design in early plaque control.

The bleeding index similarly favoured the OL flap group, with lower scores at 1 and 3 months, suggesting less postoperative gingival inflammation. This can be attributed to the OL flap's preservation of marginal tissues and reduced surgical trauma³⁷.

Surgical time was notably shorter with the OL flap, reducing overall operative duration and potentially minimizing patient morbidity. This efficiency is attributable to easier flap elevation and less delicate tissue management when operating within the attached gingiva⁴.

Patient-reported outcomes aligned with clinical findings. Individuals treated with the OL flap reported less postoperative discomfort and were more satisfied with the aesthetic results. The maintenance of gingival contours and reduced soft tissue trauma contributed to these favorable subjective experiences.

However, the OL flap has limitations. It requires a sufficient width of attached gingiva and is better suited for anterior and premolar regions. In areas lacking adequate keratinized tissue, conventional flaps like the trapezoidal flap remain necessary to achieve proper surgical access and healing⁶.

In conclusion, the Ochsenbein-Luebke flap offers significant clinical advantages over the trapezoidal flap in periapical surgery. It promotes better periodontal preservation, facilitates plaque control, reduces postoperative inflammation, shortens surgical time, and improves patient satisfaction. Whenever anatomical conditions allow, particularly in aesthetic regions, the OL flap should be the preferred choice for periapical interventions. Nevertheless, careful clinical judgment must guide flap selection to balance surgical access with soft tissue preservation.

Future studies with larger sample sizes, longer follow-up periods, and histological analysis would further validate the long-term periodontal benefits of submarginal flap designs in endodontic surgery.

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BABU BANARASI DAS UNIVERSITY
BBD City, Faizabad Road, Lucknow – 226028 (INDIA)

Dr. Lakshmi Bala

Professor and Head, Deptt of Biochemistry and
 Member-Secretary, Institutional Ethics Committee (IEC) of BBD University, Lucknow

Communication of the Decision of the VIIIth Institutional Ethics Committee Meeting

IEC Code: 18

BBDU/MDS/18/2024

Date: 07/03/2024

Title of the Project: Comparative Evaluation of Oscheinsbein Leubke And Trapezoidal Flap In Apicoectomy

Principal Investigator: Dr. SHIWANGI KUMARI

Department: Department of Oral and
 Maxillofacial Surgery

Name and Address of the Institution: BBD University, Lucknow

Type of Submission: New, MDS Dissertation proposal

Dear Dr. Shiwangi Kumari

The meeting of the Institutional Ethics Committee (IEC) was held on 06-02-2024 in Conference room, First Floor, BBDCODS, BBD University, Lucknow. Following members were present:

- | | | |
|---|---|------------------|
| 1 | Dr. Chandishwar Nath
Rtd. Chief Scientist, CDRI, Lucknow. | Chairman |
| 2 | Dr. JS Srivastava,
Rtd. Chief Scientist, CDRI, Lucknow. | Member |
| 3 | Dr. Manodeep Sen,
Professor, Department of Microbiology, RMLIMS, Lucknow | Member |
| 4 | Dr. Shaleen Chandra, Professor & Dean, Dental Sciences, Atal Bihari
Vajpai Medical University (ABVM University), Lucknow | Member |
| 5 | Dr. Manuka Khanna,
Professor, Deptt. of Political Science, Lucknow University, Lucknow | Member |
| 6 | Mr Abhishek Chaudhary, Advocate, Lucknow | Member |
| 7 | Dr. Puneet Ahuja, Professor of Oral Pathology and Principal, BBD
College of Dental Sciences, BBD University, Lucknow | Member |
| 8 | Dr. Lakshmi Bala, Professor & Head, Department of Biochemistry,
BBD College of Dental Sciences, BBD University, Lucknow | Member-Secretary |

The committee reviewed and discussed your submitted documents of the research proposal in the meeting. Following comments were suggested and communicated.



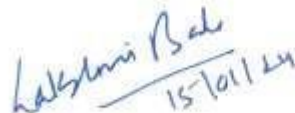
BABU BANARASI DAS COLLEGE OF DENTAL SCIENCES
(Faculty of BBD University, Lucknow)

INSTITUTIONAL RESEARCH COMMITTEE APPROVAL

The project titled **"Comparative Evaluation Of OscheinbeinLeubke And Trapezoidal Flap In Apicoectomy."** submitted by **Dr. SHIWANGI KUMARI** Postgraduate student in the **Department of Oral and Maxillofacial Surgery** for the Thesis Dissertation as part of MDS Curriculum for the academic year 2022-2025 with the accompanying proforma was reviewed by the Institutional Research Committee in its meeting held on **16th October, 2023** at BBDCODS.

The Committee has granted approval on the scientific content of the project. The proposal may now be reviewed by the Institutional Ethics Committee for granting ethical approval.


(Prof. Dr. Puneet Ahuja)
 Chairperson (IRC)
 Principal
 BBD College of Dental Sciences
 BBD University, Lucknow


(Dr. Lakshmi Bala)
 Co-Chairperson (IRC)
 HOD Biochemistry
 BBD College of Dental Sciences
 BBD University, Lucknow.

Babu Banarasi Das College of Dental Sciences
(Babu Banarasi Das University)
BBD City, Faizabad Road, Lucknow – 227105 (INDIA)

PARTICIPANT INFORMATION DOCUMENT

1. Study Title

Comparative evaluation of Ochsenbein leubke and Trapezoidal flap in Apicoectomy

2. Invitation Paragraph

You are being invited to take part in a research/trial study. Before you decide it is important for you to understand why the research/study is being done and what it will involve. Please take time to read the following information carefully and discuss it with friends, relatives and your treating physician/family doctor if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

3. What is the purpose of the study?

To study the relative comparisons of Ochsenbein leubke flap and Trapezoidal flap in Apicoectomy.

4. Why have I been chosen?

You have been chosen for the study as you are fulfilling the required criteria for the study.

5. Do I have to take part?

Your participation in the research is entirely voluntary. If you do, you will be given this information sheet to keep and will be asked to sign a consent form. During the study you are still free to withdraw at any time and without giving a reason.

6. What will happen to me if I take part?

You will have to come multiple times before and after surgery for follow up as and when required.

7. What do I have to do?

There will be certain changes made in the dietary intake with few other precautionary measures and you will be expected to follow that.

8. What is the procedure that is being tested?

Comparative evaluation of Ochsenbein leubke flap and Trapezoidal flap in Apicoectomy.

9. What are the interventions for the study?

Apicoectomy will be done in patient to correct periapical pathology by either ochsenbein leubke flap or trapezoidal flap.

10. What are the side effects of taking part?

Although there are no reports of serious side effects of the procedure but the participants may have

minimum side effects of the drugs like nausea and post operative vomiting. If anything happens during the procedure we have skilled personnel and specialized equipments to manage any emergency.

If the participants suffers any other symptoms postoperatively, the guardian should immediately talk to the doctor.

11. What are the possible disadvantages and risks of taking part?

There are no disadvantages of taking part in the study, there can be minimum side effects of the drugs.

12. What are the possible benefits of taking part?

To remove the periapical pathology and the infection will be healed.

13. What if new information becomes available?

If additional information becomes available during the course of the research you will need to tell the patient about this. States:

-Sometimes during the course of a research project, new information becomes available about the research being studied. If this happens, your researcher will tell you about it and discuss with you whether you want to continue in the study. If you decide to withdraw, your researcher/investigator will make arrangements for your withdrawal. If you decide to continue in the study, you may be asked to sign an updated consent form.

14. What happens when the research study stops?

Nothing will happen to the participants.

15. What if something goes wrong?

the problem/complain will be handled by HOD or the IRC. If something serious happen the institute will take care of the problem.

16. Will my taking part in this study be kept confidential?

Yes, it will be kept confidential.

17. What will happen to the results of the research study?

18. Who is organizing the research?

the research is being done in the department of Oral and Maxillofacial Surgery, BBDCODS. The research is self funded. The participants will have to pay for procedural charges as given by the institution.

19. Will the results of the study be made available after study is over?

Yes

20. Who has reviewed the study?

The HOD and the members of IRC/ IEC of the institution have reviewed and approved the study.

21. Contact for further information

Page 2 of 5

Dr. SHIWANGI KUMARI

Department of Oral & Maxillofacial Surgery.

Babu Banarasi College of Dental Sciences.

Lucknow-226028

Mob: 8789993844

Dr. Laxmi Bala

Member Secretary of Ethics Committee of the Institution

Babu Banarasi College of Dental Sciences.

Lucknow

Email: bbdcods.iec@gmail.com

Signature of PI.....

Name.....

Date.....

**बाबू बनारसी दास कॉलेज ऑफ डेंटल साइंसेज
(बाबू बनारसी दास विश्वविद्यालय)
बीबीडी सिटी, फैजाबाद रोड, लखनऊ – 227105 (भारत)**

1. अध्ययन शीर्षक

एपिकोएक्टोमी में ओस्वेनबेन ल्यूबके और ट्रैपेज़ॉइडल फ्लैप का तुलनात्मक मूल्यांकन

2. आमंत्रण पैराग्राफ

आपको एक शोध अध्ययन में भाग लेने के लिए आमंत्रित किया जा रहा है। निर्णय लेने से पहले आपके लिए यह समझना महत्वपूर्ण है कि शोध क्यों किया जा रहा है और इसमें क्या शामिल होगा। कृपया निम्नलिखित जानकारी को ध्यान से पढ़ने के लिए समय निकालें और यदि आप चाहें तो मित्रों, रिश्तेदारों और अपने इलाज करने वाले चिकित्सक/पारिवारिक चिकित्सक के साथ इस पर चर्चा करें। हमसे पृष्ठ कि क्या कुछ ऐसा है जो स्पष्ट नहीं है या यदि आप अधिक जानकारी चाहते हैं।

3. अध्ययन का उद्देश्य क्या है?

एपिकोएक्टोमी में ओस्वेनबीन ल्यूबके फ्लैप और ट्रैपेज़ॉइडल फ्लैप की सापेक्ष तुलना का अध्ययन करना।

4. मुझे क्यों चुना गया है?

आपको चुना जाता है क्योंकि आप अध्ययन के मानदंडों को पूरा करते हैं।

5. क्या मुझे भाग लेना है?

यह आपको तय करना है कि भाग लेना है या नहीं। यदि आप भाग लेने का निर्णय लेते हैं, तो आपको यह सूचना पत्रक रखने के लिए दिया जाएगा और सहमति प्रपत्र पर हस्ताक्षर करने के लिए कहा जाएगा। यदि आप भाग लेने का निर्णय लेते हैं, तब भी आप किसी भी समय और बिना कोई कारण बताए वापस लेने के लिए स्वतंत्र हैं।

6. यदि मैं भाग लेता हूँ तो मेरा क्या होगा?

जरूरत पड़ने पर फॉलो-अप के लिए आपको सर्जरी से पहले और बाद में कई बार आना होगा।

7. मुझे क्या करना होगा?

कुछ अन्य एहतियाती उपायों के साथ आहार सेवन में कुछ बदलाव किए जाएंगे और आपसे इसका पालन करने की अपेक्षा की जाएगी।

8. किस प्रक्रिया का परीक्षण किया जा रहा है?

एपिकोएक्टोमी में ओस्वेनबीन ल्यूबके फ्लैप और ट्रैपेज़ॉइडल फ्लैप का तुलनात्मक मूल्यांकन।

9. अध्ययन के लिए क्या हस्तक्षेप है?

पेरीएपिकल पैथोलॉजी को ठीक करने के लिए रोगी में ओचसेनबीन ल्यूबके फ्लैप या ट्रेपेजॉइडल फ्लैप द्वारा एपिकोएक्टोमी की जाएगी।

10. भाग लेने के दुष्प्रभाव क्या हैं?

हालांकि प्रक्रिया के गंभीर दुष्प्रभावों की कोई रिपोर्ट नहीं है, लेकिन प्रतिभागियों को मतली और पोस्ट ऑपरेटिव उल्टी जैसी दवाओं के न्यूनतम दुष्प्रभाव हो सकते हैं। यदि प्रक्रिया के दौरान कुछ भी होता है तो हमारे पास किसी भी आपात स्थिति को प्रबंधित करने के लिए कुशल कार्मिक और विशेष उपकरण हैं।

यदि प्रतिभागियों को ऑपरेशन के बाद कोई अन्य लक्षण दिखाई देते हैं, तो अभिभावक को तुरंत डॉक्टर से बात करनी चाहिए।

11. भाग लेने के संभावित नुकसान और जोखिम क्या हैं?

अध्ययन में भाग लेने के कोई नुकसान नहीं हैं, दवाओं के न्यूनतम दुष्प्रभाव हो सकते हैं।

12. भाग लेने के संभावित लाभ क्या हैं?

पेरीएपिकल पैथोलॉजी को दूर करने के लिए और संक्रमण ठीक हो जाएगा।

13. क्या होगा यदि नई जानकारी उपलब्ध हो जाती है?

कभी-कभी एक शोध परियोजना के दौरान, अध्ययन किए जा रहे शोध के बारे में नई जानकारी उपलब्ध हो जाती है। यदि ऐसा होता है, तो आपको इसके बारे में सूचित किया जाएगा और अध्ययन में होने वाले परिवर्तनों के बारे में सूचित किया जाएगा। आप अध्ययन के बीच में हटने के लिए स्वतंत्र हैं। यदि आप अध्ययन जारी रखने का निर्णय लेते हैं, तो आपसे एक अद्यतन सहमति फॉर्म पर हस्ताक्षर करने के लिए कहा जा सकता है।

14. जब शोध अध्ययन बंद हो जाता है तो क्या होता है?

यदि अध्ययन निर्धारित समय से पहले समाप्त / बंद हो जाता है, तो इसका कारण रोगियों को समझाया जाएगा।

15. अगर कुछ गलत हो जाए तो क्या होगा?

यदि कोई गंभीर प्रतिकूल घटना होती है, या अध्ययन के दौरान कुछ गलत हो जाता है, तो बीबीडीसीओडीएस ओपीडी में क्षेत्र में विशेषज्ञता रखने वाले डॉक्टरों द्वारा शिकायतों का निपटारा किया जाएगा।

16. क्या इस अध्ययन में मेरे भाग लेने को गोपनीय रखा जाएगा?

आपका नाम, पता या कोई व्यक्तिगत या अन्य जानकारी बीबीडीसीओडी के बाहर साझा नहीं की जाएगी।

17. शोध अध्ययन के परिणामों का क्या होगा?

18. शोध का आयोजन कौन कर रहा है?

यह शोध अध्ययन शैक्षणिक संस्थान (BBDCODS) द्वारा आयोजित किया जाता है।

19. क्या अध्ययन समाप्त होने के बाद अध्ययन के परिणाम उपलब्ध कराए जाएंगे?
यदि रोगी चाहे तो अध्ययन का परिणाम उसे उपलब्ध कराया जाएगा।
20. अध्ययन की समीक्षा किसने की है?
संस्थान के एचओडी/आईआरसी/आईईसी ने अध्ययन की समीक्षा की और उसे मंजूरी दी।
21. अधिक जानकारी के लिए संपर्क करें

डॉ. शिवांगी कुमारी

ओरल और मैक्सिलोफेशियल सर्जरी विभाग।

बाबू बनारसी कॉलेज ऑफ डेंटल साइंसेज।

लखनऊ-226028

मोबा: 8789993844

डॉ लक्ष्मी बाला,

संस्था की आचार समिति के सदस्य सचिव,

पता: बाबू बनारसी दास विश्वविद्यालय, फैजाबाद रोड, आतिफ विहार,

लखनऊ, यूपी। 226028

ईमेल: bbdccds.iec@gmail.com

पं. का नाम -

पता -

ईमेल -

टेलीफोन नंबर। -

पीआई के हस्ताक्षर

नाम

तारीख

प्रतिभागी को सूचना पत्र की एक प्रति और हस्ताक्षरित सहमति प्रपत्र दिया जाएगा।

अध्ययन में भाग लेने के लिए धन्यवाद।

Babu Banarasi Das College of Dental Sciences
(Babu Banarasi Das University)
BBD City, Faizabad Road, Lucknow – 227105 (INDIA)

Consent Form (English)

Title of the Study : COMPARATIVE EVALUATION OF OSCHEINBEIN
 LEUBKE AND TRAPEZOIDAL FLAP IN APICOECTOMY.

Study Number.....

Subject's Full Name.....

Date of Birth/Age

Address of the Subject.....

Phone no. and e-mail address.....

Qualification

Occupation: Student / Self Employed / Service / Housewife/ Other (Please tick as appropriate)

Annual income of the Subject.....

Name and of the nominees(s) and his relation to the subject.....(For the purpose of compensation in case of trial related death).

1. I confirm that I have read and understood the Participant Information Document dated for the above study and have had the opportunity to ask questions. **OR** I have been explained the nature of the study by the Investigator and had the opportunity to ask questions.
2. I understand that my participation in the study is voluntary and given with free will without any duress and that I am free to withdraw at any time, without giving any reason and without my medical care or legal rights being affected.
3. I understand that the sponsor of the project, others working on the Sponsor's behalf, the Ethics Committee and the regulatory authorities will not need my permission to look at my health records both in respect of the current study and any further research that may be conducted in relation to it, even if I withdraw from the trial. However, I understand that my Identity will not be revealed in any information released to third parties or published.
4. I agree not to restrict the use of any data or results that arise from this study provided such a use is only for scientific purpose(s).
5. I permit the use of stored sample (tooth/tissue/blood) for future research. **Yes** [☐]
No [☐]

Not Applicable [☐]

6. I agree to participate in the above study. I have been explained about the complications and side effects, if any, and have fully understood them. I have also read and understood the participant/volunteer's Information document given to me.

Signature (or Thumb impression) of the Subject/Legally Acceptable

Representative:.....

Signatory's Name.....

Date

Signature of the Investigator.....

Date.....

Study Investigator's Name.....

Date.....

Signature of the witness.....

Date.....

Name of the witness.....

Received a signed copy of the PID and duly filled consent form Signature/thumb
impression of the subject or legally

Date.....

Babu Banarasi Das College of Dental Sciences
(Babu Banarasi Das University)
BBD City, Faizabad Road, Lucknow – 227105 (INDIA)

सहमति पत्र

अध्ययन का शीर्षक: िीन-टुकड़ा िकनीक, टी-आकार की िकनीक और पारंपरिक िकनीक का िुलनात्मक अध्ययन: क्षेतिज रूप से प्रभाति तनचले िीसरे दाढ़ (MANDIBULAR THIRD MOLAR) को सजषरी द्वारा हटाने के तलए।

स्टडी नंबर.....

तिर्य का पूरा नाम

जन्म तिथि/आयु

तिर्य का पिा.....

फोन नंबर। और ई-मेल पिा

योग्या

व्यिसाय: छात्र / स्वरोजगार / सेिा / गृहणी / अन्य (कृपया उपयुक्ते के रूप में तटक करें) तिर्य की िातर्षक आय.....

नाम और नामांतकि व्यक्कत (ओं) और तिर्य के साि उसका संबंध (के प्रयोजन के तलए) मुकदमे से संबंतधि मौि के मामले में मुआजा)।

1. मैं पुति करिा हं तक मैंने प्रतिभागी सूचना दस्तािेज तदनांक को पढ़ और समझ तलया है। उपरोक्त अध्ययन के तलए और प्रश्न पूछने का असर तमला है। या मुझे अन्वेर्क द्वारा अध्ययन की प्रकृति के बारे में बिाया गया है और मुझे प्रश्न पूछने का असर तमला है।
2. मैं समझिा हं तक अध्ययन में मेरी भागीदारी स्वैक्किक है और तबना तकसी दबाि के स्विंत्र झि के साि दी गई है और मैं तबना कोई कारण बिाए और अपनी तचतकत्सा देखभाल या कानूनी अतधकारों को प्रभाति तकए तबना तकसी भी समय िापस लेने के तलए स्विंत्र हं।

3. मैं समझा हं तक पररयोजना के प्रायोजक, प्रायोजक की ओर से काम करने वाले अन्य, नैतिका सतमति और तनयामक प्रातधकरणों को विषमान अध्ययन और तकसी भी आगे के शोध के संबंध में मेरे स्वास्थ्य ररकॉडष को देखने के तलए मेरी अनुमति की आश्यकता नहीं होगी। इसके संबंध में आयोजित तकया जा सका है, भले ही मैं परीक्षण से हट जाऊं। हालांतक, मैं समझा हं तक विसरे पक्ष को जारी या प्रकातशि तकसी भी जानकारी में मेरी पहचान प्रकट नहीं की जाएगी।

4. मैं इस अध्ययन से उत्पन्न होने वाले तकसी भी डेटा या पररणामों के उपयोग को प्रतिबंतधि नहीं करने के तलए सहमि हं, बशि ऐसा उपयोग केवल विज्ञातनक उद्देश्यों के तलए हो।

5. मैं भविष्य के शोध के तलए संग्रहीत नमूने (दां/ऊक/रक्त) के उपयोग की अनुमति देता हं।

हाँ []

नहीं []

लागू नहीं []

6. मैं उपरोक्त अध्ययन में भाग लेने के तलए सहमि हं। मुझे जटिलताओं और दुष्प्रभाओं के बारे में समझाया गया है, यतद कोई हो, और उन्हें पूरी िरह से समझ तलया है। मैंने प्रतिभागी/स्वयंसेविक के मुझे तदए गए सूचना दस्तावेज को भी पढ़ और समझ तलया है।

तिर्य/कानूनी रूप से स्वीकायष प्रतितनतध के हस्ताक्षर (या अंगूठे का तनशान):..... हस्ताक्षर/किष का नाम..... िारीख

अन्वेर्क के हस्ताक्षर िारीख.....

अध्ययन अन्वेर्क का नाम िारीख.....

गिह के हस्ताक्षर..... िारीख.....

गिह का नाम

पीआईडी की एक हस्ताक्षरि प्रति और तितधि भरे हुए सहमति फॉर्म तिर्य के हस्ताक्षर/अंगूठे का तनशान या कानूनी रूप से तदनांक.....

स्वीकायष प्रतितनतध



**BABU BANARASI DAS
UNIVERSITY**
[Approved by UGC under Section 2(F) of UGC Act, 1956]

DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

THESIS TOPIC: COMPARISON OF OCHSENBEIN-LUEBK FLAP AND TRAPEZOIDAL FLAP IN APICOECTOMY:

DATE:

STUDENT NAME: SHIWANGI KUMARI

CASE NO.

OPD NO:

PATIENT NAME:

AGE:

SEX:

CONTACT NO:

ADDRESS:

CHIEF COMPLAINT:

PAST MEDICAL HISTORY:

PAST DENTAL HISTORY:

CLINICAL EXAMINATION:

EXTRA-ORAL EXAMINATION:

INTRA-ORAL EXAMINATION:

PRE-OPERATIVE EVALUATION:

PROBING DEPTH:

PRE- OPERATIVE EVALUATION	PROCEDURE					
	OLF			TZF		
	1 MONTH	3 MONTHS	6 MONTHS	1 MONTH	3 MONTHS	6 MONTHS
SCORE 0						
SCORE 1						
SCORE 2						
SCORE 3						

INTRA-OPERATIVE EVALUATION:

DURATION OF PROCEDURE

GROUPS	TIME
OLF	
TZF	

POST-OPERATIVE EVALUATION:

[1] PROBING DEPTH:

POST- OPERATIVE EVALUATION	PROCEDURE					
	OLF			TZF		
	1 MONTH	3 MONTHS	6 MONTHS	1 MONTH	3 MONTHS	6 MONTHS
SCORE 0						
SCORE 1						
SCORE 2						
SCORE 3						

PLAQUE INDEX:

POST- OPERATIVE EVALUATION	PROCEDURE					
	OLF			TZF		
	1 MONTH	3 MONTHS	6 MONTHS	1 MONTH	3 MONTHS	6 MONTHS
SCORE 0						
SCORE 1						
SCORE 2						
SCORE 3						

BLEEDING INDEX:

POST - OPERATIVE EVALUATION	PROCEDURE					
	OLF			TZF		
	1 MONTH	3 MONTHS	6 MONTHS	1 MONTH	3 MONTHS	6 MONTHS
SCORE 0						
SCORE 1						
SCORE 2						
SCORE 3						

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