"OUTCOMES OF COMPLEX FACIAL LACERATIONS USING PREPARED VERSUS CONVENTIONAL SURGICAL DEBRIDEMENT- A RANDOMISED CLINICAL TRIAL"

BY

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Dissertation

Submitted to KLE Academy of Higher Education and Research (KAHER), Belagavi
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MASTER OF DENTAL SURGERY

IN

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(BRANCH III)

Under the Guidance of
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KAHER'S KLE VK INSTITUTE OF DENTAL SCIENCES
BELAGAVI, KARNATAKA

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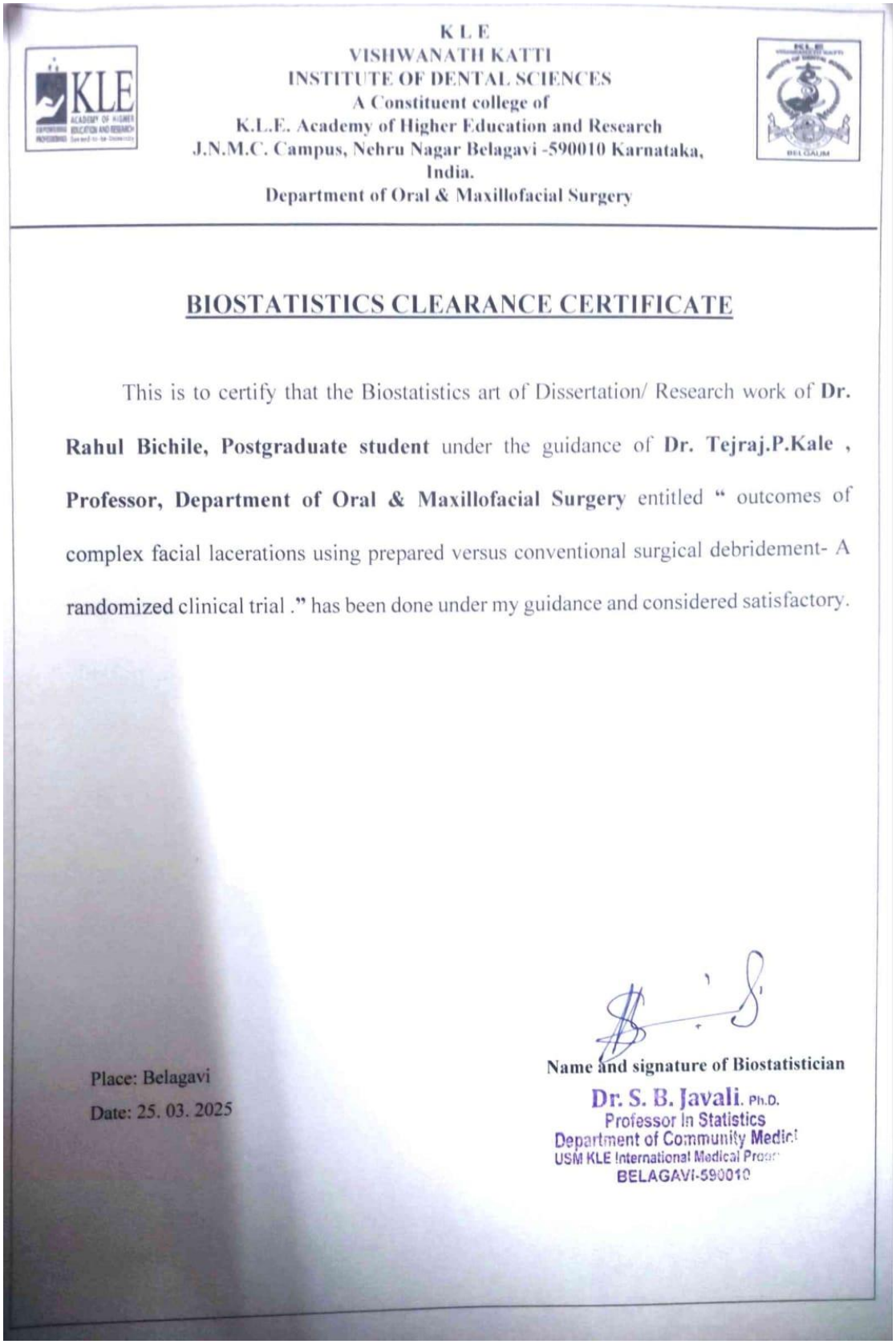

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To

My Parents

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LIST OF ABBREVIATIONS USED IN THE STUDY

CFLs	Complex Facial Lacerations
CSD	Conventional Surgical Debridement
TSD	Tailored Surgical Debridement
PSD	Prepared Surgical Debridement
SCAR	Scar Cosmesis Assessment and Rating
ED	Emergency Department
CTR	Continuous Tension Reduction
RSTLs	Relaxed Skin Tension Lines
GBLC	Geometric Broken-Line Closure
RCT	Randomized Controlled Trial
PROMs	Patient-Reported Outcome Measures
VAS	Visual Analog Scale
POSAS	Patient and Observer Scar Assessment Scale
MCID	Minimum Clinically Important Difference
LET	Lidocaine, Epinephrine, Tetracaine (gel)

ABSTRACT

BACKGROUND:

Complex facial lacerations present a unique challenge in achieving optimal cosmetic outcomes. Surgical debridement plays a critical role in wound management, and recent innovations in prepared surgical debridement may offer superior results compared to conventional techniques. This study aimed to compare the outcomes of prepared versus conventional surgical debridement in complex facial lacerations.

OBJECTIVE:

To evaluate and compare the cosmetic outcomes and complication rates of prepared versus conventional surgical debridement using the SCAR score and Southampton scoring system.

METHODOLOGY

A randomized controlled trial was conducted at KLE Dr. Prabhakar Kore Hospital, K.A.H.E.R, Belagavi. Forty-four patients with complex facial lacerations were randomized into the control group (conventional debridement) and the test group (prepared debridement), with 22 participants in each group. Clinical outcomes were assessed at day 7 and 3 months using validated scoring systems, including scar spread, erythema, dyspigmentation, track marks, hypertrophy/atrophy, and patient-reported outcome measures (PT QUEST).

RESULTS

The test group showed significantly better outcomes in terms of scar spread, track marks, and overall cosmetic improvement at 3 months ($p<0.05$). Improvements in

erythema and dyspigmentation were also greater in the test group, although not statistically significant. The prepared debridement group exhibited a higher percentage of change in scar spread (81.03% vs. 70.21%, p=0.0001) and track marks (86.36% vs. 39.13%, p=0.0001) compared to the control group. Additionally, PT QUEST scores indicated improved patient satisfaction in the test group at 3 months postoperatively.

CONCLUSION

Prepared surgical debridement demonstrated superior cosmetic outcomes and reduced complications compared to conventional debridement in the management of complex facial lacerations. These findings support the adoption of prepared debridement techniques for improved scar quality and patient satisfaction.

KEYWORDS

Complex facial lacerations, prepared surgical debridement, conventional debridement, scar outcomes, cosmetic outcomes, randomized controlled trial, PT QUEST, SCAR score, Southampton scoring system.

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INTRODUCTION

Complex facial lacerations (CFLs) pose significant challenges in emergency medicine and reconstructive surgery due to the intricate anatomy and functional importance of the facial region. The face is highly vascularized and densely innervated, making it prone to severe bleeding, infection, and long-term aesthetic and functional complications when injured.[1] Facial lacerations account for approximately 7–10% of all emergency department visits, with a significant portion requiring surgical intervention.[2] Among these, CFLs, which involve multiple tissue layers, nerve damage, or extensive soft tissue loss, represent a subset that demands precise and individualized management to optimize functional and cosmetic outcomes.[3]

The prevalence of CFLs varies depending on the population, lifestyle, and exposure to trauma. Studies indicate that 30–40% of facial trauma cases involve lacerations, with CFLs comprising approximately 15–20% of these injuries.[4] The leading causes include motor vehicle accidents (40%), falls (25%), sports injuries (15%), interpersonal violence (10%), and occupational hazards (10%).[5] Among pediatric patients, falls account for nearly 50% of CFLs, whereas interpersonal violence is the predominant cause in young adults [6]. In elderly populations, falls remain the primary cause, often leading to severe injuries due to reduced tissue elasticity and slower wound healing.[7]

The mechanisms of injury contribute to the severity of CFLs. Sharp object injuries, such as knife wounds, tend to produce clean lacerations, whereas blunt trauma from road traffic accidents results in irregular, jagged wounds with significant tissue devitalization.[8] Animal and human bites constitute another category, presenting a high risk of infection due to microbial contamination.[9] The severity of

CFLs is influenced by factors such as the force of impact, wound contamination, and associated injuries to vital structures like nerves, blood vessels, and salivary ducts.[4]

CFLs have far-reaching consequences beyond physical disfigurement. They impact function, aesthetics, and psychological well-being, necessitating comprehensive management.

Lacerations involving the lips, eyelids, or nasal structures can impair essential functions such as speech, mastication, vision, and respiration. Studies show that approximately 10–15% of CFL cases involve nerve damage, leading to sensory deficits or motor dysfunction.[1] Facial nerve injuries, particularly affecting the buccal and marginal mandibular branches, can result in asymmetry and difficulty with facial expressions.[10]

Facial scars significantly impact social interactions and self-perception. Poorly managed CFLs may lead to hypertrophic scarring, keloid formation, or contractures, especially in individuals with darker skin tones, who are genetically predisposed to excessive scar formation.[11] Studies indicate that 30–40% of patients with facial scars experience dissatisfaction with their appearance, influencing their quality of life and mental health.[12]

The psychological burden of CFLs is considerable, particularly in cases involving disfigurement. Research suggests that 20–30% of patients with visible facial scars develop anxiety or depression.[13] Young adults and individuals in professions requiring frequent social interactions report higher levels of distress following CFLs.[14] The stigma associated with facial scars can lead to social withdrawal and diminished self-esteem.[15]

The risk of infection in CFLs ranges from 5–15%, depending on the wound mechanism and contamination level.[16] Animal bites and soil-contaminated injuries have higher infection rates due to polymicrobial exposure.[12] Failure to adequately debride necrotic tissue or use appropriate antimicrobial prophylaxis can result in deep-seated infections such as cellulitis or abscess formation.[11]

Surgical debridement is a cornerstone in CFL management, aimed at removing nonviable tissue, reducing bacterial load, and optimizing the wound bed for healing. Two primary approaches are used: conventional surgical debridement (CSD) and tailored surgical debridement (TSD). CSD follows a standardized approach, emphasizing complete excision of devitalized tissue using scalpel or scissors, often without considering individualized wound characteristics.[8] In contrast, TSD adapts the debridement process to the wound's anatomical and functional requirements, preserving viable tissue and minimizing unnecessary excision.[3]

Emerging evidence supports the superiority of TSD over CSD. In a retrospective study, Park et al. (2023) compared 150 patients undergoing either TSD or CSD for CFLs [3]. The study utilized the Scar Cosmesis Assessment and Rating (SCAR) scale, defining a good cosmetic outcome as a score of ≤ 2. Results showed that 84.0% of patients in the TSD group achieved favorable cosmetic outcomes compared to 46.3% in the CSD group. Additionally, complication rates were significantly lower in the TSD group, with fewer instances of facial asymmetry and hypertrophic scarring.

Aesthetic outcomes are critical in CFL management. Studies indicate that patients who undergo TSD report higher satisfaction due to better preservation of natural facial contours and reduced scar prominence.[14] Furthermore, TSD minimizes

the inflammatory response by selectively removing only necrotic tissue, thus accelerating wound healing and reducing postoperative morbidity.[15]

From a functional perspective, TSD reduces nerve damage and preserves muscle integrity. In cases involving perioral or periocular regions, precision in tissue handling prevents deformities such as ectropion (eyelid eversion) or microstomia (reduced oral aperture).[10] Studies suggest that patients treated with TSD regain normal function 15–20% faster than those undergoing CSD.[16]

Complex facial lacerations require meticulous management to achieve optimal functional and aesthetic outcomes. The prevalence of CFLs remains significant, affecting diverse age groups and resulting from various traumatic events. The consequences of CFLs extend beyond physical injury, encompassing functional impairments, aesthetic concerns, and psychological distress. Proper wound management, particularly surgical debridement, plays a crucial role in minimizing complications and promoting favorable healing.

Tailored surgical debridement has emerged as a superior approach compared to conventional methods, offering better cosmetic results, reduced complications, and faster functional recovery. As more evidence supports the advantages of TSD, its integration into clinical practice holds the potential to improve patient satisfaction and overall quality of life following facial trauma. Further research is warranted to establish standardized protocols and refine TSD techniques to enhance its efficacy across diverse patient populations.

AIMS AND OBJECTIVES

Aim

- This study Aimed to assess and compare the outcomes of complex facial lacerations using prepared surgical debridement with conventional surgical debridement.

Objectives:

- To compare the cosmetic outcomes of prepared surgical debridement versus conventional surgical debridement.
- To compare the incidence of complications such as infection and wound dehiscence between the two groups**.**

RESEARCH HYPOTHESIS:

- **Null Hypothesis:** There is no significant difference in the outcomes of complex facial lacerations using prepared surgical debridement against conventional surgical debridement.
- **Alternate Hypothesis:** There is significant difference in the outcomes of complex facial lacerations using prepared surgical debridement against conventional surgical debridement.

REVIEW OF LITERATURE

1. Lee JH et al. (2015)

This research examined facial laceration cases managed in a provincial hospital's emergency department. The authors looked at patient demographics, nature of injury, repair technique, and outcomes. The study highlighted that appropriate and early management greatly minimizes complications and cosmetic outcomes. Blunt trauma was the most common type of injury, and suturing was the key repair technique. The study concluded that early intervention and proper wound closure techniques are critical to preventing infection and scarring. This study highlights the necessity of competent wound assessment and closure within the emergency department and the gaps in regional care that may be addressed by enhanced training and resources.[17]

2. Singer AJ & Dagum AB (2008)

This complete review highlights present trends in the management of acute cutaneous wounds, with emphasis on emergency care. It describes wound evaluation, cleansing, closure, and postoperative care. The authors stress that selecting proper suture material, method of closure, and infection control method are foremost in obtaining the best results. The article also addresses recent developments, such as tissue adhesives and absorbable sutures. Notably, the review highlights the fact that patients usually have a priority for cosmetic results, especially in the case of facial lacerations. This source is extremely useful both for clinicians and researchers as it brings together the core principles alongside developing trends within wound care.[18]

3. Sharma M & Wakure A (2013)

This article discusses some of the methods employed in scar revision surgery, such as Z-plasty, W-plasty, and geometric broken line closures. The authors present a detailed analysis of patient selection, surgical planning, and technique performance to enhance the aesthetics of the scar. It also addresses timing, having the fact that most revisions take place months following the first wound healing. The paper emphasizes that the best outcome comes with a personalized approach—considering scar type, location, and patient expectations. This resource is a hands-on manual for plastic surgeons and dermatologic surgeons seeking to enhance functional and cosmetic results in patients with unattractive or functionally restrictive scars.[19]

4. Otterness K & Singer AJ (2019)

This article gives news in emergency department (ED) laceration management with an eye toward conventional and newer methods. It summarizes developments in wound cleaning, closure material, and pain relief. One particular point of emphasis is on tissue adhesives and newer suture materials with enhanced cosmesis and quicker application times. Infection control is also briefly discussed by the authors, with an eye toward early prophylaxis and wound irrigation. This article is particularly pertinent to emergency physicians because it fills the gap between textbook learning and immediate ED limitations. The article reaffirms the necessity of evidence-based practice in managing lacerations for both functional and cosmetic outcomes.[20]

5. Pereira G & Pereira C (2003)

This brief correspondence presents a straightforward but efficient method of skin edge debridement to facilitate cleaner wounds and better healing. A technique

based on scalpel trimming of wound edges is described by the authors, allowing for closer approximation on closure. The article highlights the fact that inadequate debridement can result in poor healing, infection, and inferior scar formation. Albeit concise, it offers a useful and broadly applicable technique that would be useful in emergency as well as surgical environments. The applicability of the study is in its simplicity and affordability, which render it particularly valuable in low-resource settings or hectic emergency rooms where time and accuracy are paramount.[21]

6. Turner RC (2019)

Turner addresses the surgical treatment of acute lacerations within the practice of general medicine. The article highlights the importance of proper wound evaluation—depth, contamination, and tissue loss—prior to any treatment. It addresses several closure methods such as primary, delayed primary, and secondary intention, and when each should be used. Anesthesia, prevention of infection, and patient education are also covered. By providing a practical and readily accessible guide, this paper empowers general practitioners with the knowledge to manage lacerations effectively, particularly in a resource-challenged or rural setting. It helps to reinforce the notion that early and appropriate treatment will result in improved cosmetic and functional outcomes.[22]

7. Ruwanpura R (2014)

This article explores the mechanics of injury causation and wounding forces, especially in forensic and judicial applications. It discusses how patterns of wounds and tissue damage can be used to reconstruct the sequence of events that led to injury, and thus is applicable in both medical and legal inquiries. The discussion involves the analysis of blunt and sharp force trauma, skin elasticity, and tissue displacement.

Although more directed toward forensic science, the observations are also useful for clinicians evaluating traumatic wounds, especially when establishing the nature or etiology of injury. This book provides a valuable contribution to wound care from a biomechanical perspective by linking biomechanics to clinical interpretation.[23]

8. Min JH et al. (2017)

This research assessed the effectiveness of direct W-plasty performed during emergency department wound debridement in reducing facial scarring. W-plasty is generally applied in elective scar revision, but the study investigated its immediate application at the injury site. Outcomes showed enhanced cosmetic results against routine linear closure methods. The authors reasoned that incorporating W-plasty within the initial phase of wound care can limit future revision requirements. This new perspective underpins an active strategy to scar management, particularly in cosmetically exposed regions such as the face. It urges ED clinicians to embrace surgical methods that emphasize long-term appearance.[24]

9. Chaudhary D et al. (2021)

This review evaluated the utilization of local flaps in covering facial defects, particularly those created by trauma or excision. The authors reviewed different types of flaps—rotation, advancement, and transposition—on the basis of anatomical site, availability of tissue, and size of the defect. According to the research, local flaps yield optimal aesthetic and functional results with less donor site morbidity. There was focus on flap design and careful surgical execution to allow for color and texture matching. The authors concluded that local flaps continue to be a reliable and useful source in facial reconstruction. This article supports the necessity of surgical accuracy and tailored treatment in managing challenging facial injuries.[25]

10. Cho DY et al. (2021)

This review discusses the management of traumatic soft tissue injuries to the face, stressing both initial therapy and reconstructive measures. It presents a sequential approach to the assessment, irrigation, debridement, and closure of a wound. A multidisciplinary approach, using plastic surgery, maxillofacial surgery, and emergency medicine, is favored. Timing of repair, infection prevention, and the use of advanced closure maneuvers such as layered suturing and flap reconstruction are also addressed. The authors emphasize the need to address both function and form in order to achieve optimal results. This thorough overview is especially beneficial for clinicians caring for high-impact facial trauma in emergency as well as operating room environments.[26]

11. Chen et al. (2005)

This article is a complete review of scar management, with equal focus on prevention and treatment. The authors identify the importance of knowing the process of wound healing to avoid aberrant scarring, like hypertrophic scars and keloids. They mention some of the factors that affect scar formation, like genetic predisposition and tension at the wound. Preventive techniques, like appropriate surgical methods and postoperative care, are highlighted to reduce the formation of scars. For management, the article discusses alternatives such as intralesional corticosteroid injections, silicone gel sheeting, and newer therapies directed at molecular mechanisms underlying scarring. The authors promote a multidisciplinary approach that employs surgical and nonsurgical techniques in combination, adapted to each patient's specific requirements. They also emphasize the need for patient education and realistic

expectations in terms of scar outcomes. In general, the article is an informative tool for clinicians seeking to maximize scar care based on evidence-based methods.[27]

12. Shockley et al. (2011)

This article gives a broad overview of three main surgical methods of scar revision: Z-plasty, W-plasty, and geometric broken line closure. Z-plasty is performed by the creation of triangular flaps in order to rotate the direction of the scar, thus lengthening contracted scars and orienting them along natural skin tension lines. W-plasty utilizes a series of small, interlocking triangular excisions to disrupt linear scars, making them less prominent by hiding them in the natural folds of the skin. Geometric broken line closure involves the use of non-repetitive, irregular geometric designs to break up the linear character of scars, hence making them less noticeable. The choice of the correct method, according to the author, depends on the location, direction, and patient's own attributes of the scar. Proper planning and attention during surgery are also pointed out as being paramount for optimal aesthetic results. This article provides a useful source of information for clinicians who are interested in furthering their knowledge and use of scar revision.[28]

13. Marks M et al. (2017)

This review presents key principles and methods for the acute care of facial soft tissue injury with emphasis on aesthetic and functional salvage. The authors emphasize initial and complete wound assessment, anatomic accuracy in repair, and customization of closure methods to the affected facial subunits (e.g., lips, eyelids, nose, ears). They recommend layered closure, careful handling of tissues, and precise realignment of landmarks (e.g., vermillion border, eyelid margin) to avoid late deformity. The article also discusses the care of contaminated wounds, timing of

closure, and use of antibiotics and tetanus prophylaxis. This resource is particularly useful for its focus on closing the gap between emergency care and reconstructive fundamentals, making it applicable to trauma as well as plastic surgeons involved in acute facial wound care.[29]

14. Salam GA. et al (2003)

This paper provides a brief and clear definition of the Z-plasty operation, which is commonly utilized in the treatment of facial laceration and scar revision. Brown enumerates the indications of Z-plasty as lengthening contracted scars, redirecting scars to skin tension lines of nature, and disrupting linear scar lines for improved cosmetic outcome. The paper elucidates the general construction of a Z-plasty — angle selection, flap transposition, and tissue handling — in detailed illustration steps. Complications and traps, such as necrosis and trapdoor, are also given brief mention. Emphasis is placed on accurate surgical planning and therefore constitutes valuable reference material both for general practice practitioners and specialists surgeons engaged in facial scar optimisation and the treatment of post-lacerations.[30]

15. Liu et al. (2017)

Performed a randomized controlled trial comparing the cosmetic results and complication rates of running subcuticular sutures to simple interrupted sutures in the closure of facial surgical wounds. The trial used a split-wound model in 100 patients with a facial excision, which is most commonly done for skin cancer. Each wound was split into two equal parts, with each part having one half closed with simple interrupted sutures and the other half closed with running subcuticular sutures. Scar assessment at three months after surgery was done with the Patient and Observer Scar

Assessment Scale (POSAS) and recording of infection, wound dehiscence, hematoma, and hypertrophic scarring. The outcome revealed no statistically significant difference between the aesthetic results of the two methods. Though the two sutures were both safe and effective, the simple interrupted technique was found to be quicker to use. The authors concluded that either technique can be used appropriately in facial surgery, and the selection of technique may be based on surgeon preference and clinical situation, since neither showed evident aesthetic superiority.[31]

16. Luck et al. (2008)

This study aimed to compare the cosmetic outcomes of absorbable (catgut) and nonabsorbable (nylon) sutures in pediatric facial lacerations. A total of 47 children with facial lacerations were included, with 23 treated using catgut sutures and 24 using nylon sutures. The primary outcomes measured were aesthetic results, complication rates, and parental satisfaction at follow-up visits. The material included clinical assessments and parental evaluations of the scars. The outcomes were not significantly different between the two groups regarding cosmetic results, rates of complications, or parental satisfaction. The research concluded that absorbable catgut sutures yield comparable results to nonabsorbable sutures and are a good alternative for facial laceration repair in children.[32]

17. Holger et al. (2004)

This study aimed to evaluate the cosmetic outcomes of facial lacerations repaired using tissue-adhesive (octylcyanoacrylate), absorbable sutures (rapid-absorbing gut), and nonabsorbable sutures (nylon). A total of 145 patients with facial lacerations were randomly assigned to one of the three repair methods, with follow-up evaluations performed at 9 to 12 months post-repair. The primary outcome was scar

appearance, assessed by two blinded evaluators using a visual analog scale (VAS). Patient satisfaction was also measured using a separate VAS. The study found no significant difference in cosmetic outcomes between the three methods, with maximum differences in scores being well below the minimum clinically important difference (MCID). The authors concluded that tissue-adhesive and absorbable sutures offer comparable cosmetic results to nonabsorbable sutures and could be preferable as they eliminate the need for suture removal.[33]

18. Talwar and Puri(2016)

The study by Talwar and Puri emphasizes how important scar revision procedures (Z-plasty, W-plasty, and V-Y plasty) are for enhancing patients' functional and aesthetic results when they have deformities. In order to alleviate the psychological distress brought on by scars, these surgical techniques successfully realign scars along relaxed skin tension lines (RSTLs), lessen contractures, and reduce visibility. With 60% of patients experiencing excellent improvement and low complication rates (5% for hematoma, infection, or delayed healing), the study shows high efficacy. Notably, the study highlights the growing role of dermatologists in carrying out these procedures, which have historically been performed by plastic surgeons. It also highlights the significance of patient-specific strategies, combining surgical and supplemental therapies (such as steroids and lasers) for the best outcomes. This interdisciplinary approach improves scar management, raising patients' standard of living and self-esteem.[34]

19. Brenner and Perro (2009)

Scar revision procedures have a pivotal place in maximizing functional and aesthetic results after skin cancer reconstruction, as illustrated by Brenner and Perro.

Operations such as Z-plasty, W-plasty, and geometric broken-line closure redirect scars in the direction of relaxed skin tension lines (RSTLs), break down contractures, and enhance camouflage. Adjuvant treatments involving dermabrasion, laser resurfacing, and steroid injections complement effects by treating texture, pigmentation, and fibrosis. The research prioritizes patient-individualized treatment based on scar type, position, and cutaneous characteristics. By adopting appropriate technique choice and timing (usually 6–12 months after initial repair), these procedures achieve high patient satisfaction with reduced complications (e.g., trap-door deformity, hypertrophic scarring). Multimodal treatment using both surgical and nonsurgical modalities is necessary to ensure optimal scar maturation and patient quality of life.[35]

20. Mankowitz SL (2017)

Mankowitz's article points to the changing role of evidence-based laceration management in emergency care, with a focus on innovations that enhance patient comfort and outcomes. The most important findings indicate that delayed closure (beyond the conventional 6–8 hour "golden period") is not associated with increased risk of infection in well-vascularized wounds, whereas comorbidities (e.g., diabetes, immunosuppression) and wound factors (e.g., contamination, depth) are better predictors of complications. The research promotes atraumatic methods such as tissue adhesives, absorbable sutures, and zip closures, which are less painful and eliminate suture removal visits. Topical anesthetics (e.g., LET gel) and occlusive dressings promote healing by keeping the area moist. Antibiotics are limited to high-risk wounds (e.g., bites, contaminated injuries). These innovations move laceration care in the direction of quicker, less painful, and patient-friendly methods without compromising safety and effectiveness.[36]

21. Kitta E, Akimoto M. (2013)

The biomechanics of Z-plasty is investigated by Kitta and Akimoto through computer simulation with ADINA software and compared with earlier laboratory experiments in dogs. They determined that the lengthening action of Z-plasty was proportional to its size but always smaller than geometric expectations, with increasing flap size giving greater lengthening. They also discovered that more Z-plastics in series reduced the percent gain in length. These results are consistent with previous experiments, pointing out the shortcomings of geometric calculations because of the nonlinear properties of human skin. The study justifies computer simulations for forecasting surgical results, providing significant insight for clinical application while stressing the need to consider skin's mechanical properties.[37]

22. Borges AF, Gibson T. (1973)

The historical background of the Z-plasty procedure in plastic surgery is followed by the authors of this article from Borges and Gibson (1973). They point to Horner's 1837 operation for correcting ectropion as the earliest recorded Z-plasty, with Denonvilliers' 1854 case following. Berger's 1904 account of a double transposition flap is recorded as the first "classic" Z-plasty, and McCurdy (1913) first used the term "Z-plastic surgery." Authors dispel misunderstandings in earlier work, most notably about Denonvilliers' contribution, and note the development of the technique regardless of controversy regarding terminology. Their contribution underscores the Z-plasty's continued relevance in scar revision and contracture release, noting its foundational status in reconstructive surgery.[38]

23. Arima J, Dohi T et al. (2019)

Arima et al.'s (2019) study assessed a multimodal treatment protocol for keloids of the anterior chest wall by incorporating surgical removal, tension-reducing Z-plasty, postoperative radiotherapy (18 Gy in 3 fractions), and self-care management of the scars using silicone tape and steroid plaster. Only 10.6% out of 141 patients had recurrence, which was all successfully managed using salvage treatments. The protocol highlighted the reduction of mechanical tension—a major keloidogenic factor—by layered fascial sutures and Z-plastics, with adjuvant radiotherapy for inhibiting fibroblast proliferation. The minimal recurrence rate and few complications (e.g., transient pigmentation) demonstrate the effectiveness of the method. The study emphasizes the need to incorporate surgical, radiotherapeutic, and conservative approaches to keloid treatment.[39]

24. Ogawa R. (2019)

The Ogawa review (2019) thoroughly analyzes surgical methods of scar revision with a focus on individualized approaches depending on the type of scar, location, and patient factors. The major techniques are Z-plasty and W-plasty for tension release and better esthetics, split- and full-thickness grafts for extensive defects, and local flaps (square flap, propeller flap) for contracture release. Advanced techniques such as extended flaps, distant flaps, and perforator-based free flaps are emphasized for intricate reconstructions. The review highlights the need to blend surgical finesse with adjuvant therapies, especially for pathological scars, to maximize functional and cosmetic results. These methods, when chosen wisely, dramatically improve scar maturation and patient quality of life.[40]

25. Kim BJ, Lee SJ. (2019)

The paper reports on a modified Z-plasty method applied to resolve a post-traumatic scar fold in the lateral canthus of a 46-year-old man. The resulting scar from the laceration produced functional and cosmetic problems such as narrowed width of the horizontal orbital fissure and pain with eye opening. Classical Z-plasty was found not to be appropriate because it would have drawbacks such as lacking sufficient lengthening or over-scar. Rather, a variated design was utilized with baggy skin excision and deliberate flap transposition. The technique effectively reduced fissure width from 26 mm to 29 mm and treated the patient's discomfort without any recurrence. Authors emphasize the necessity of tissue elastic nature and delicate design to reach the best outcome, especially in elastic areas such as the periorbital region.[41]

26. Etzkorn JR (2024)

The article discusses advancement flaps, a basic reconstructive surgical technique for the closure of large wounds when primary closure is unfeasible. The flaps consist of sliding overlying tissue into the wound, keeping scarring low through the use of cosmetic subunit incisions. The authors review their indications (e.g., lip, eyelid, or nasal defects), contraindications (e.g., history of smoking, large wounds), and methods, highlighting the significance of blood supply and tension reduction. Certain types of flaps, including V-Y advancements and dorsal nasal flaps, are identified as being extremely versatile. Possible complications such as necrosis and infection are covered, along with measures to avoid them. The article highlights the importance of interprofessional working to achieve maximum results, and therefore it is a useful tool for surgeons, nurses, and multidisciplinary teams that deal with wound reconstruction.[42]

27. Wang D et al(2021)

The research by Wang et al. (2021) investigates the effectiveness of the use of W-plasty with continuous tension reduction (CTR) in enhancing facial scar outcome in Asian patients. W-plasty, a method that divides scars into numerous small triangular segments, increases camouflage of scars since it lines up more closely with relaxed skin tension lines. It has no effect on counteracting skin tension totally, however, and thus can cause spreading of scars. This retrospective study contrasted three groups: straight-line closure with CTR, W-plasty with CTR, and W-plasty alone. Outcomes revealed that the combined W-plasty and CTR method significantly enhanced Vancouver Scar Scale and Visual Analogue Scale scores, and patient satisfaction at 12 months, with few complications, illustrating its superior aesthetic and therapeutic advantages.[43]

28. Askar I. (2003)

The article presents a new surgical method, "double reverse V-Y-plasty," for the treatment of postburn scar contractures, especially in the neck and extremities. The technique includes diamond-shaped incisions at the site of contracture, with broad angles laterally and narrow angles proximally and distally. The lateral edges of the flap are advanced without undermining, and the proximal and distal edges are primarily sutured. The procedure prevents distal flap necrosis, negates the need for dog-ear removal, and can be done with local anesthesia. Nineteen cases exhibited successful results with no flap necrosis, reduced operation time, and shorter hospitalization. The method isWithTagged as safe, convenient, and cosmetically effective and serves as a useful option for novices and complex contractures.[44]

29. Tan O (2006)

The study by Tan et al. presents "double opposing V-Y-Z plasty", a new method combining V-Y plasty and Z plasty to correct severe postburn scar contractures. Used in 21 contractures of 14 patients, mostly of the hand, the technique is a rhomboid flap with 120° and 60° angles supported by Z-plasties on either end. The design prevents distal flap necrosis, reduces recurrence, and provides primary closure without grafts. Outcomes included complete restoration of function, satisfactory scars, and no recurrence after a median follow-up of 7.6 months. The method is also emphasized as being easier and superior to multiple Z-plasties or rhomboid flaps, especially for lengthy contractures.[45]

30. Arasteh E, Yavari M. (2012)

The research work of Arasteh and Yavari reviews the "running Y-V plasty" procedure for the release of linear and cord-like contractures of burn in 44 cases of upper and lower limb. The technique is to construct a series of interdigitating Y-V flaps along the scar without undermining, which allows lengthening up to 100% of the scar. It was found during results that in all patients the contracture was released successfully and there was no recurrence during a follow-up of 6-24 months. Two instances of minor tip necrosis were seen but resolved without complication. The method bypasses skin grafting and undermining of flaps, thus lowering the risk of recurrence and necrosis. The method provides freedom in designing the flaps and maintains anatomical landmarks.[46]

31. El-Wakeel H, Azzam EZ, Zzedan AA (2019)

El-Wakeel et al.'s paper assesses W-plasty revision of wide facial scars transverse to relaxed skin tension lines (RSTLs) in 13 males. With hand-drawn irregular triangular flap patterns (4–6 mm arm lengths, angles 60–90°), the method saw substantial cosmetic recovery, with initial and final pre- and post-operative Visual Analog Scale (VAS) scores declining from 7.8 to 3.3 at follow-up at 6 months. All patients were satisfied (3 excellent, 8 good, 2 acceptable), with no significant complications. The ease of the method and the prevention of anticipated scar patterns (a limitation of traditional W-plasty) were highlighted. Limitations were small sample size and absence of comparison with geometric broken-line closure.[47]

32. Anastasova V et al. (2025)

The Anastasova et al. study assessed Z-plasty for post-burn scar contractures in 95 patients (60 males, 35 females). Single Z-plasty was employed in 61% of patients, and 23% had combined techniques (skin grafts/local flaps). Outcomes indicated successful release of contracture despite minor complications (8 venous congestion cases, 4 epidermolysis cases). Children aged 4-10 years accounted for 30.5% of cases, with contractures occurring twice as often in males. The procedure was most useful for upper limb (52.6%) and neck (11.4%) contractures with reduced hospitalization periods (77.3% <5 days). Although function was enhanced by Z-plasty, the authors pointed out cosmetic disadvantages of having several scars. The study illustrates the versatility of Z-plasty as a single or adjuvant procedure for burn sequelae.[48]

33. Ha JH et al. (2022)

Correction of medial epicanthal folds has developed over the years through different techniques, such as Mustardé's 4-flap procedure, V-W plasty, and redraping of skin (Oh et al., 2007). Although these techniques are intended to increase the palpebral fissure, overcorrection can result in complications such as ectropion, scarring, and abnormal lacrimal lake exposure (Lai et al., 2012). Conventional revision techniques like V-Y advancement (Shin et al., 2012) and reverse skin redraping (Chung et al., 2013) tend to not correct 3D canthal structure or lead to evident nasal scarring. The reverse Z-plasty method (Ha et al., 2022) presents a new solution by relocating skin, muscle, and ligaments with no further excision, providing natural aesthetics with minimal scarring (8.4% ICD lengthening, 97% satisfaction). This approach overcomes deficiencies of previous methods while maintaining ethnic balance, hence being highly relevant to Asian patients.[49]

34. Căiță GA et al. (2024)

Surgical methods of scar revision are intended to enhance the aesthetic appearance of a scar without jeopardizing its functionality. Some typical methods involve elliptical fusiform excision of mature scars (Zou et al., 2023), Z-plasty for contractures (Hundeshagen et al., 2017), and W-plasty for linear scars (Rodgers et al., 2001). Geometric broken-line closure (GBLC) is better camouflage for long scars but demands expert skill (Shockley, 2011). V-Y/Y-V advancement methods correct ectropion or eclabion (Terzigi et al., 2021), while textural irregularities are smoothed by dermabrasion (Alkhawam & Alam, 2009). Tissue expansion is ideal for extensive defects (Mostafapour & Murakami, 2001), although flap-based reconstructions remain fundamental for complex cases (Van Wicklin, 2023). Success varies with scar type,

location, and patient-specific factors, with no method attaining the elimination of scars (Căiță et al., 2024). Ideal results necessitate pairing surgical accuracy with patient expectations and anatomical limitations.[50]

35. Metsavaht LD (2016)

Surgical revision methods of scars seek to enhance both functional and cosmetic results of scars. Some common methods are Z-plasty for contractures (with 60° angles for maximum lengthening), W-plasty for linear scars that are perpendicular to lines of tension, and geometric broken-line closures for better camouflage of long scars (Metsavaht, 2016). V-Y advancement corrects trapdoor deformities and margin distortions, while dermabrasion (best at 6-12 weeks after injury) enhances surface texture in phototypes I-III. Tissue expansion and serial excisions control extensive scars, particularly post-burn cases. Invasive techniques like autologous fat grafting show promise in scar remodeling through adipose-derived stem cells (Garg et al., 2014). Postoperative management prioritizes silicone therapy (gold standard in treating hypertrophic scars), tension relief, and sun protection. Although no method erases scars entirely, judicious selection depending on the characteristics of the scar (maturation, site, tension) and patient considerations maximizes result. Newer guidelines emphasize multimodal approaches incorporating surgical revision with adjuvant treatments such as silicone sheets and intralesional steroids (Monstrey et al., 2014).[51]

MATERIALS AND METHODS

Study Design and Setting

This was an in vivo, randomized control, two-arm parallel group study conducted on patients reporting to the KLE Dr. Prabhakar Kore Hospital, K.A.H.E.R, Belagavi, with facial and neck lacerations. Patients were randomly divided into two groups. Group I undergoing Conventional surgical debridement for laceration repair and Group II undergoing Prepared surgical debridement for laceration repair.

INCLUSION CRITERIA:

- Patients who will be visiting casualty with Facial Laceration will be included.
- Patients with Complex facial lacerations either Grade I or Grade II will be included.

EXCLUSION CRITERIA:

- Patients taking any medication for chronic skin disease.
- Patients who have open fractures at the laceration site and having degloving injuries.
- Facial laceration with superficial or sharp wound edges will be excluded.
- Patients not willing to participate in the study.

Ethical Approval and Consent

Ethical clearance was obtained from the Institutional Ethical Committee prior to initiating the study. Written permission was secured from the Head of the Department of Oral and Maxillofacial Surgery. All participants provided informed consent before inclusion in the study.

Sample Size Estimation

Sample size was calculated using the formula:

$$N = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (p1q1 + p2q2)}{(p1 - p2)^2}$$

Where,

At 95% confidence level, $Z_{1-\alpha/2} = 1.96$

At 80% power $Z_{1-\beta} = 0.85$

p1= A good cosmetic outcome achieving CSD group = 46.3%

p2=A good cosmetic outcome achieving PSD group = 84%

q1=100-p1

q2=100-p2

N=21.3~ 22 in each group

Therefore, the total sample size is **44**

METHODOLOGY:

Randomization and Allocation

A total of 44 patients meeting the inclusion criteria were randomly allocated into two groups using computer-generated random numbers:

- **Group I (Control Group):** Underwent conventional surgical debridement (CSD).
- **Group II (Study Group):** Underwent prepared surgical debridement (PSD).

ARMAMENTARIUM AND MATERIALS:

- Face mask and safety glasses (or a face shield)
- Head caps
- Gowns
- Gloves
- Overhead light source or headlight
- Sterile drapes
- Towels (for wound debridement and suturing)
- Antiseptic solution (e.g., chlorhexidine, povidone-iodine)
- Sterile gauze squares (e.g., 10 cm × 10 cm [4 inch × 4 inch])
- Skin marker pen
- Needle driver 4.5- and 6.0-inch, toothed forceps or tissue hook
- Scalpel blades (#10, #11, #15)
- Scalpel handles
- Iris scissors, straight 4 inch and curved 4 inch
- Suture scissors, 6 inch
- Metzenbaum scissors, curved 6 inch
- Hemostats, straight 6 inch and curved mosquitoes
- Suture material, various sizes and shaped needles
- Skin closure tapes
- Antibiotic ointment

EVALUATION CRITERIA

Patients with Complex facial lacerations will be divided into two groups according to severity, conditions of wound edges, and laceration shapes.

Classification	Description
Grade I	Moderate ragged macerated, and linear
	Macerated or ragged wound edges less than 2 mm from the lacerated line
	Beveled cross section in the lacerated edge
	Mild tissue loss below the epidermal layer in the lacerated edge
Grade II	Severe ragged, macerated, or non-linear†
	Macerated or ragged wound edges greater than 2 mm from the lacerated line
	Moderate to severe tissue loss below the epidermal layer from the lacerated edge
	Partially avulsed segment in wound edge from the lacerated edge
† Lacerations consisting multiple lines defined non-linear	

- Comparison of the Scar Cosmesis Assessment and Rating (SCAR) score between the two groups will be done.
- SCAR scale consists of 6 items scored by the observer and two simple yes/no questions answered by the patient.
- Scores may be provided via direct observation and assessment or through the use of high-quality photographic images.
- Patient responses for associated symptoms may be elicited via either verbal or written responses.

The Scar Cosmesis Assessment and Rating (SCAR) Scale

Clinician Questions:

- **Scar spread**

  0=None/ near invisible

  1=Pencil-thin line

  2=Mild spread, noticeable on close inspection

  3=Moderate spread, obvious scarring

  4=Severe spread

- **Erythema**

  0=None

  1=Light pink, some telangiectasias may be present

2=Red, many telangiectasias may be present

3=Deep red or purple

- **Dyspigmentation (includes hyperpigmentation and hypopigmentation)**

  0=Absent

  1=Present

- **Track marks or suture marks**

  0=Absent

  1=Present

- **Hypertrophy/Atrophy**

  0=None

  1=Mild: palpable, barely visible hypertrophy or atrophy

  2=Moderate: clearly visible hypertrophy or atrophy

  3=Severe: marked hypertrophy or atrophy or keloid formation

- **Overall Impression**

  0=Desirable scar

  1=Undesirable scar

Patient Questions:

- Have you been bothered by any itch from the scar in the past 24 hours?

  0=No

  1=Yes

- Have you been bothered by any pain from the scar in the past 24 hours?

  0=No

  1=Yes

  (Minimum Score for Best Possible Scar: 0

  Maximum Score for Worst Possible Scar: 15)

ASSESSMENT OF COMPLICATIONS:

- Assessment of Complications such as infection and wound dehiscence between the two groups will be done using Southampton scoring system.

SOUTHAMPTON SCORING SYSTEM

Grade	Appearance	Assigned Numerical Score
0	Normal healing	0
I Normal healing with mild bruising or erythema:		1
A	Some bruising	2
B	Considerable bruising	3
C	Mild erythema	4
II Erythema plus other signs of inflammation		5
A	At one point	6
B	Around sutures	7
C	Along wound	8
D	Around wound	9
III Clear or haemoserous discharge:		10
A	At one point only (<2 cm)	11
B	Along wound (>2 cm)	12
C	Large volume	13
D	Prolonged (>3 days)	14
IV Pus:		15
A	At one point only (<2 cm)	16
B	Along wound (>2 cm)	17
V Deep or severe wound infection with or without tissue breakdown; haematoma requiring aspiration		18

INTERVENTION PROCEDURES

Preoperative Preparation

- Patients were positioned comfortably with appropriate lighting and maneuverability ensured.
- Wounds and surrounding skin were cleaned with antiseptic solution (povidone-iodine) and flushed with normal saline.
- Local or regional anesthesia was administered before the procedure.
- Sterile drapes demarcated a sterile field.

Group I: Conventional Surgical Debridement (CSD)

- Conservative debridement was performed without drawing an excisional line.
- Tissue approximation was achieved by removing only visibly necrotic tissue without extending beyond the ragged wound edge.

Group II: Prepared Surgical Debridement (PSD)

- A skin marker was used to outline the wound edges beyond the severely lacerated or avulsed tissue.
- Surgical excision and debridement were performed to remove damaged tissue while ensuring minimal tissue injury.
- Local flap designs were utilized in cases of excessive tension or to preserve facial symmetry.

Closure of Lacerations

- Closure was achieved with 5-0 Ethilon for the cutaneous layer and 3-0 Vicryl for the subcutaneous layer.
- Antibiotic ointment and sterile dressings were applied after closure.

Postoperative Care and Follow-up

- Patients were prescribed appropriate postoperative medications and provided with wound care instructions.
- Follow-up was conducted at 1 week and 3rd month to assess scar cosmesis and wound complications.

OUTCOME MEASURES

Primary Outcome

Scar Cosmesis Assessment and Rating (SCAR) Score:

- Six clinician-assessed parameters: scar spread, erythema, dyspigmentation, track marks, hypertrophy/atrophy, and overall impression.
- Two patient-reported outcomes: presence of pain and itch.

- Scores ranged from 0 (best outcome) to 15 (worst outcome).

Secondary Outcome

Assessment of Complications:

- Complications such as infection and wound dehiscence were evaluated using the **Southampton Scoring System**.

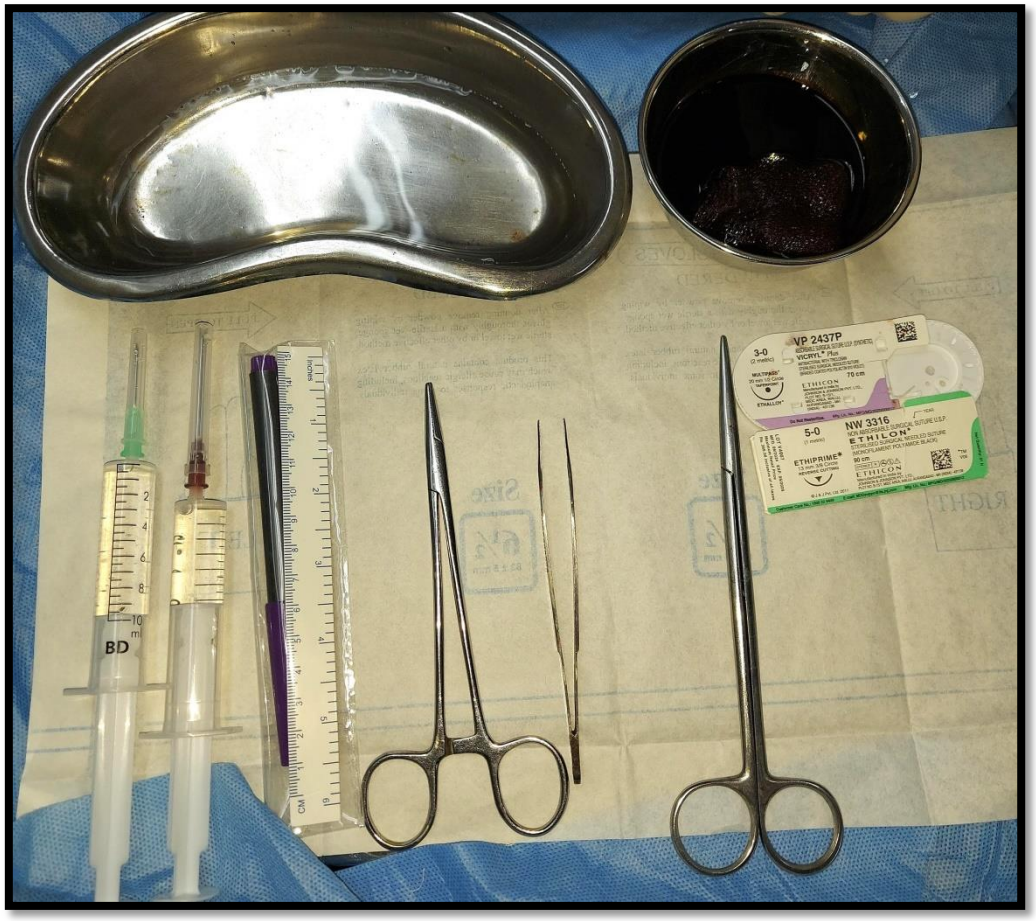


Fig. 1. Armamentarium

STATISTICAL ANALYSIS

- **Descriptive Statistics:** Mean and standard deviation were calculated for demographic details.
- **Between-Group Comparison:** Unpaired t-test or Mann-Whitney U-test was used to compare outcomes between groups.
- **Within-Group Comparison:** Paired t-test or Wilcoxon's sign rank test was used for intragroup comparisons at follow-up.

DURATION AND FUNDING

The study was conducted over a period of more than 1 year. Since the patients were treated at KLE Dr. Prabhakar Kore Hospital, all costs related to treatment were borne by the patients. The cost for statistical analysis, amounting to ₹3000, was funded personally by the principal investigator, Mr. Rahul Bichile.

CLINICAL TRIALS REGISTRY OF INDIA (CTRI) REGISTRATION

CTRI registration was completed following ethical approval from the Institutional Review Board.

Conventional Group

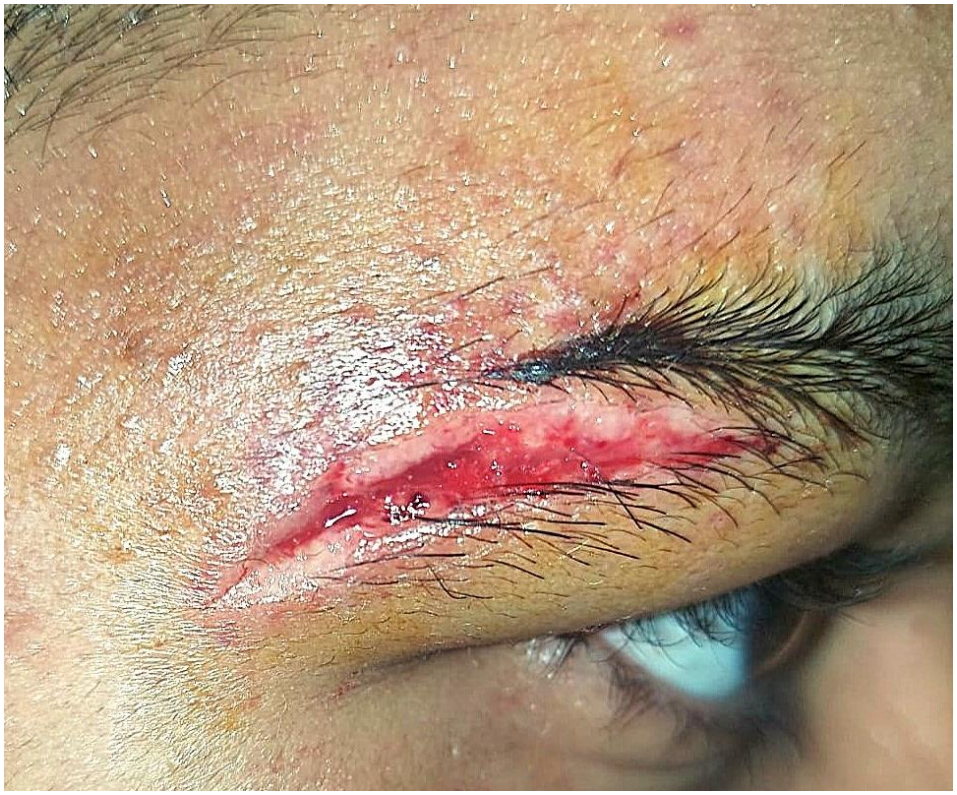


Fig. 2. Showing CLW over right eyebrow region

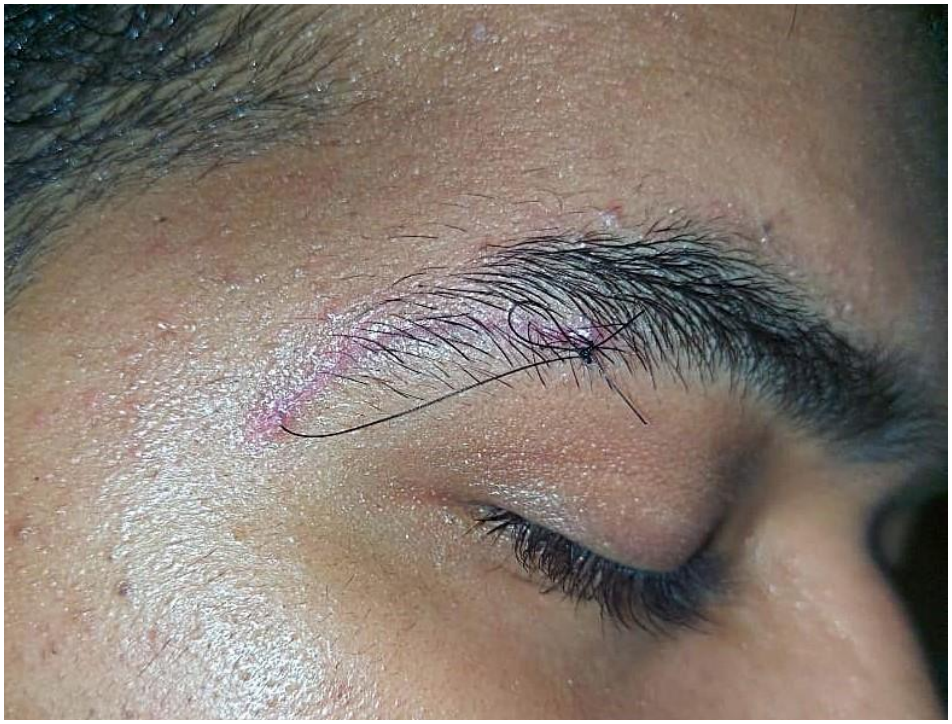


Fig. 3. Showing suturing of CLW (subcuticular) over right eyebrow region

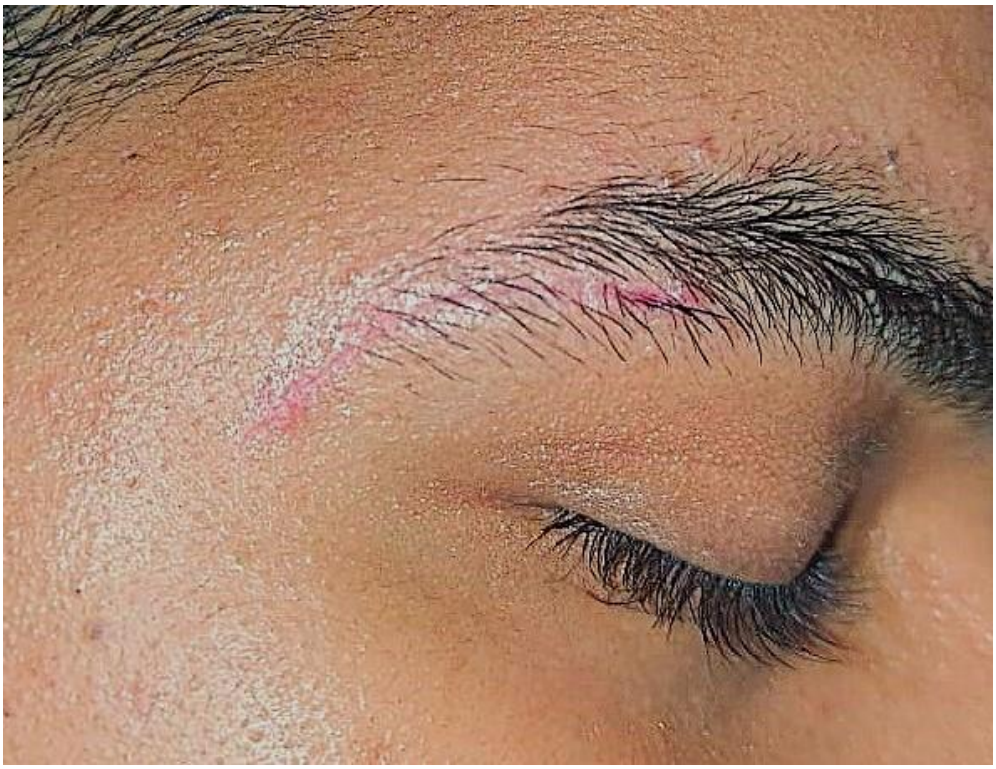


Fig. 4. Showing follow up (post op day 7)

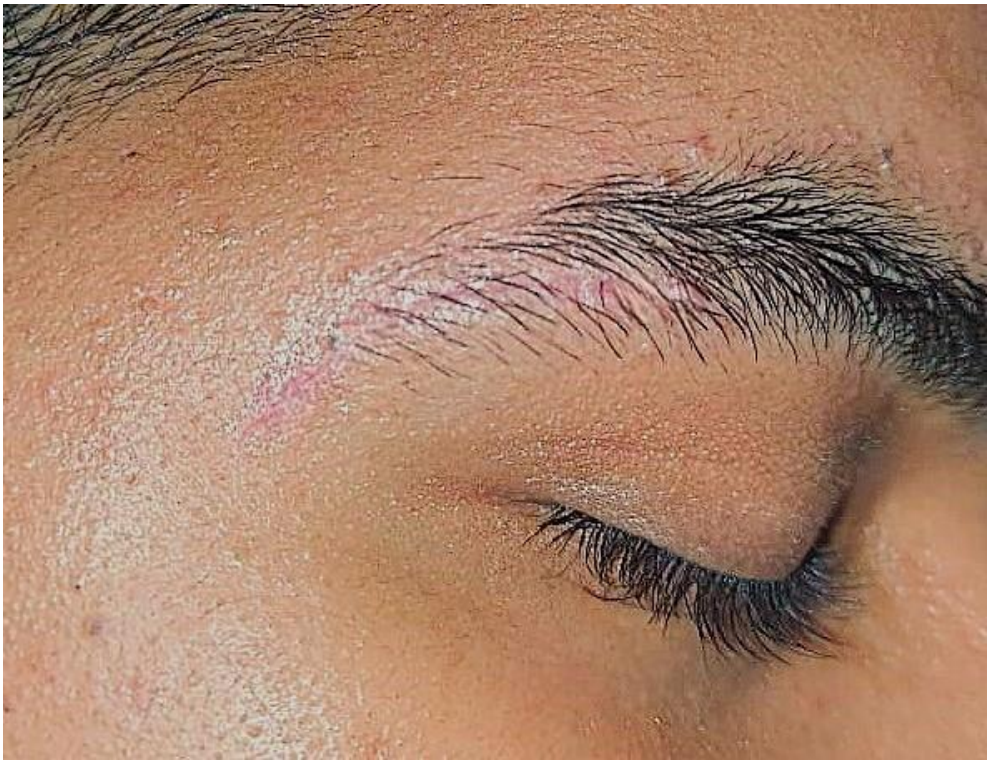


Fig. 5. Showing follow up (post op 3rd month)

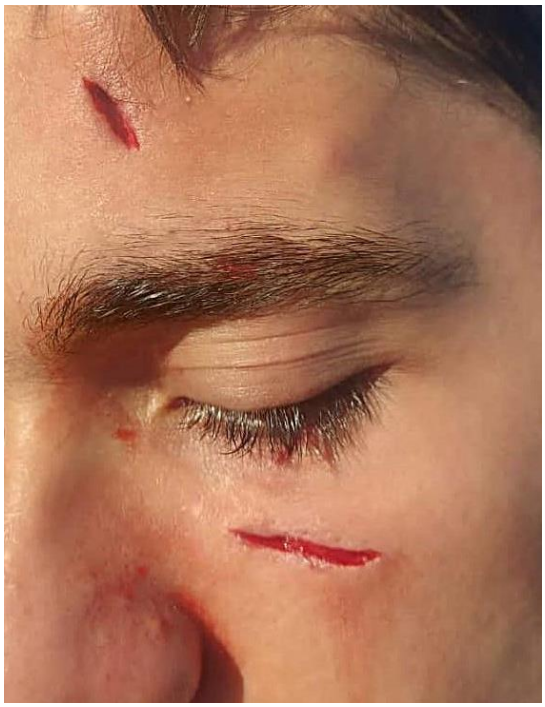


Fig. 6. Showing CLW over left side forehead region and left side infra orbital region

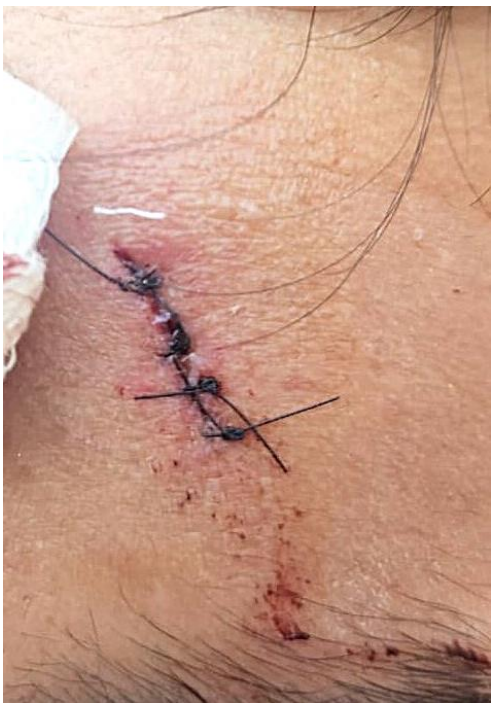


Fig. 7. Showing suturing of CLW (simple interrupted) done over left side forehead region

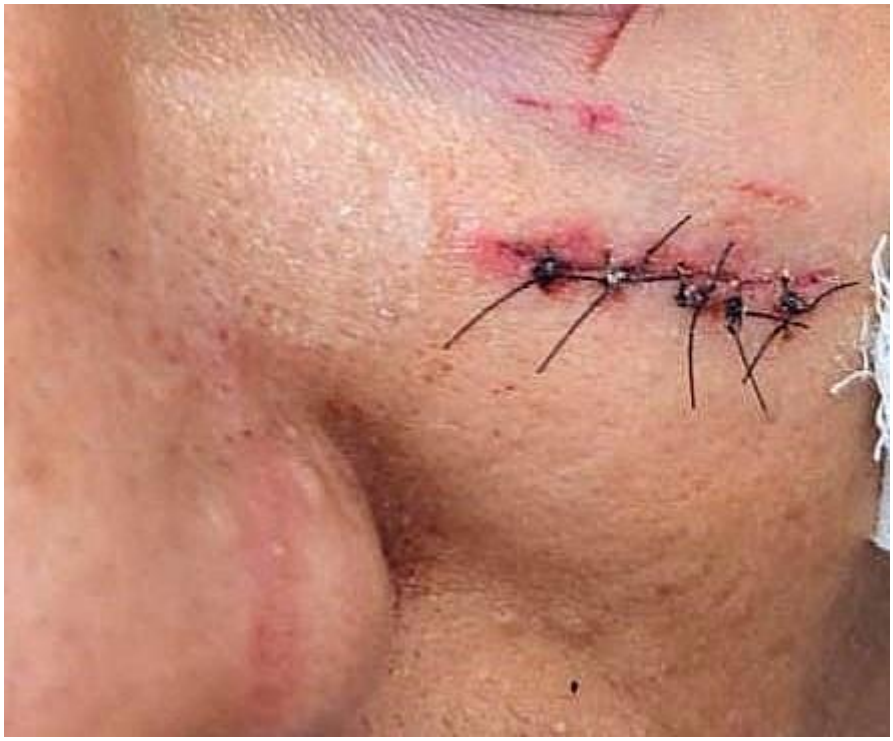


Fig. 8. Showing suturing of CLW (simple interrupted) done over left side infra orbital region

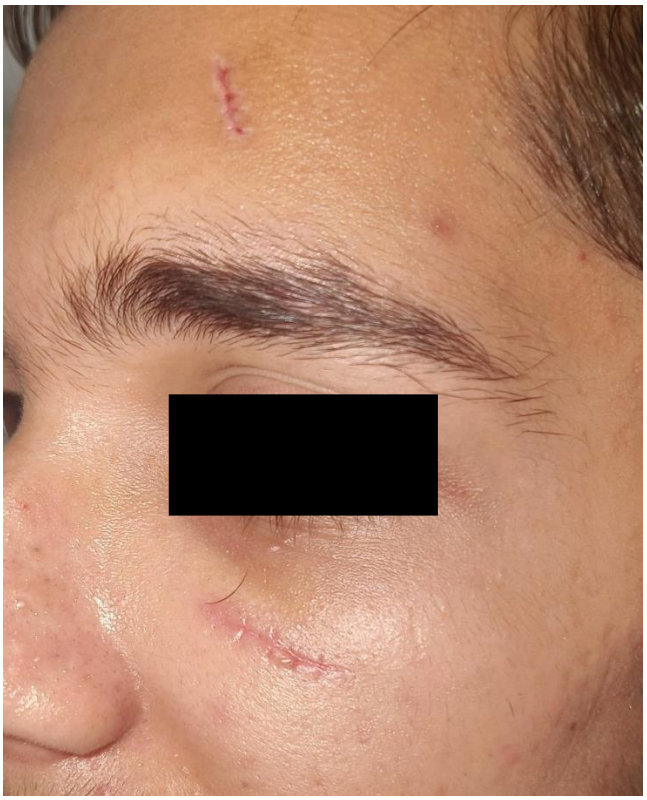


Fig. 9. Showing follow up (post op day 7)

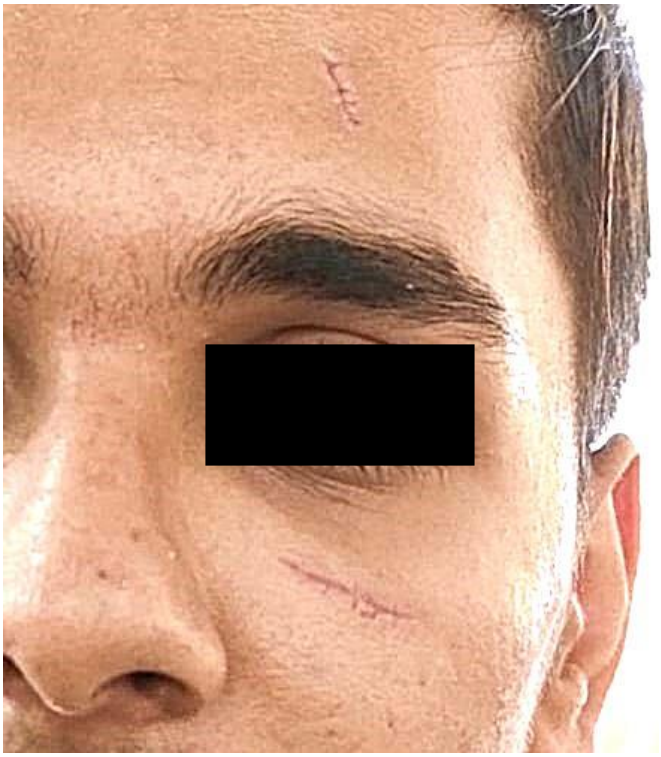


Fig. 10. Showing follow up (post op 3rd month)

PREPARED GROUP

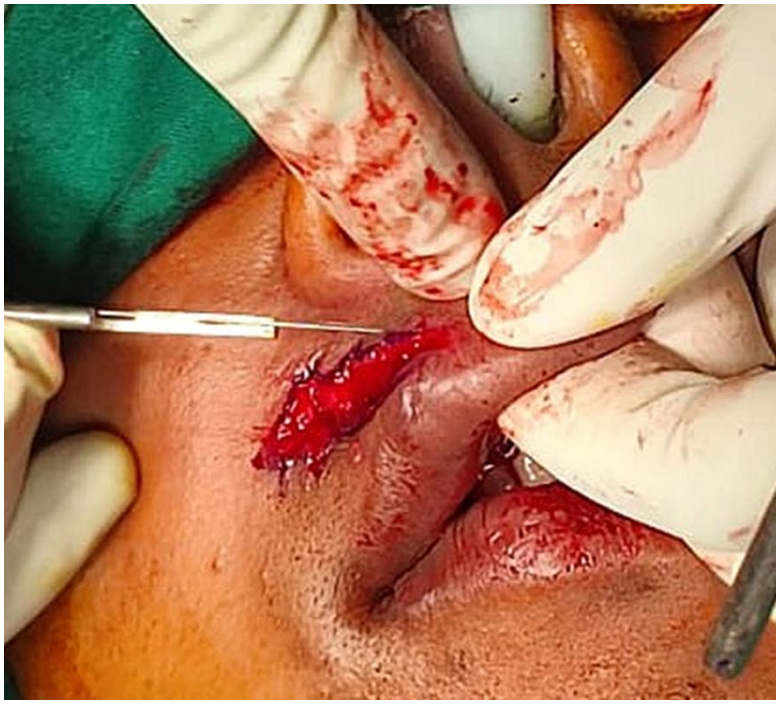


Fig. 11. Showing CLW over right side of upper lip with marking done for V-Y plasty

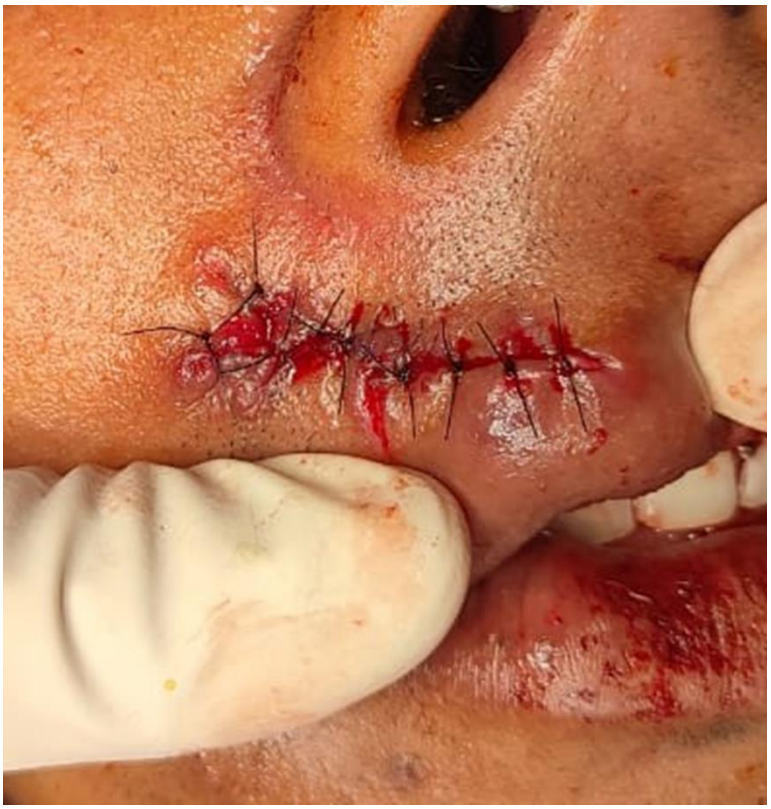


Fig. 12. Showing sutured CLW.

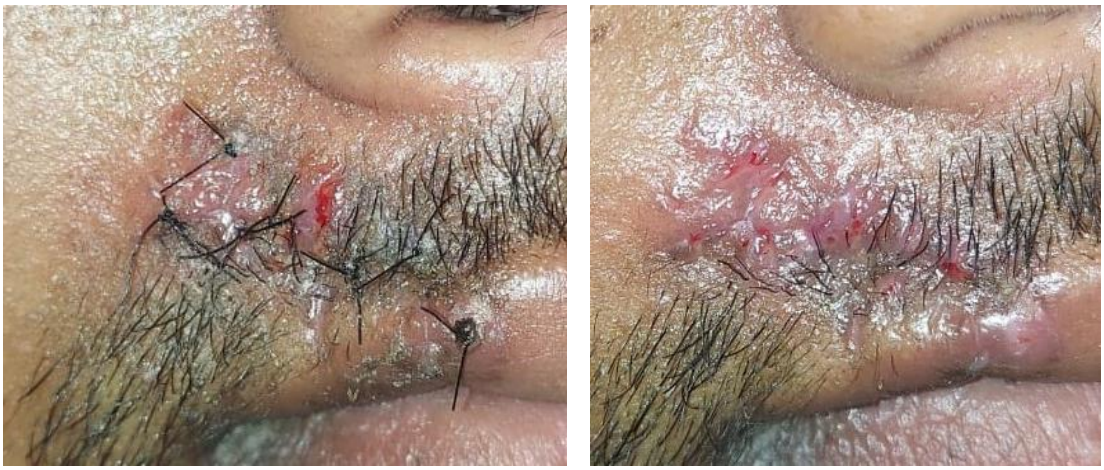


FIG.13. Showing follow up (post up day 7)

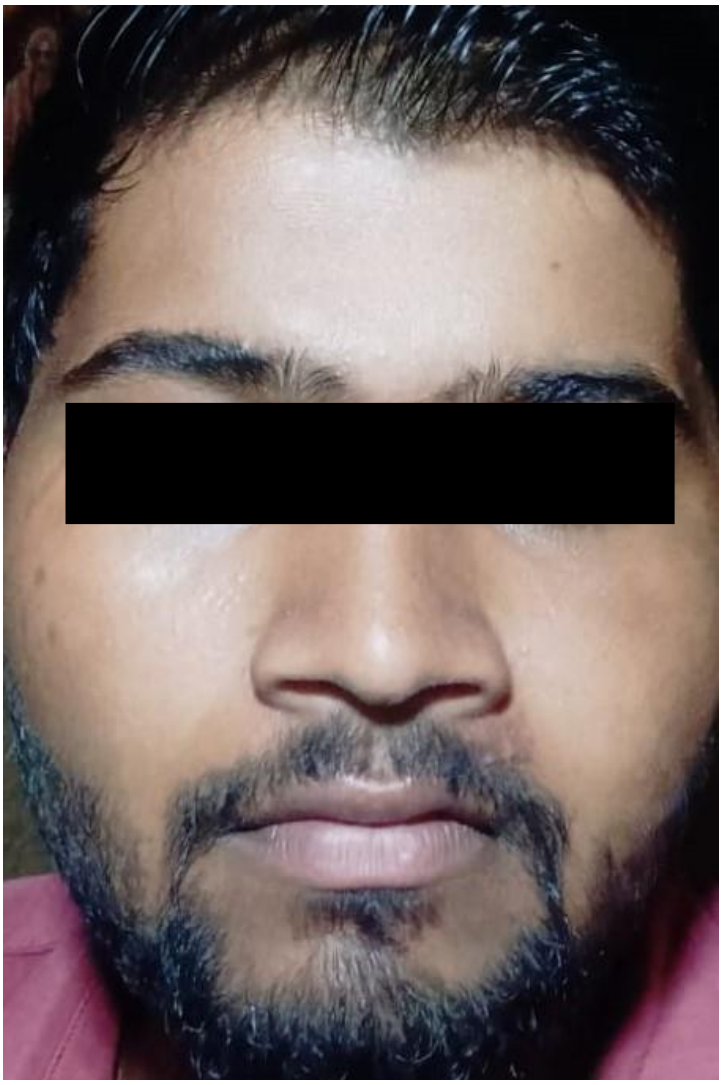


Fig. 14. Showing follow up (post op 3rd month)

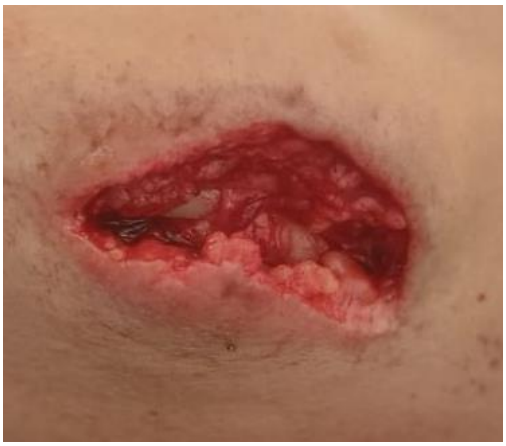
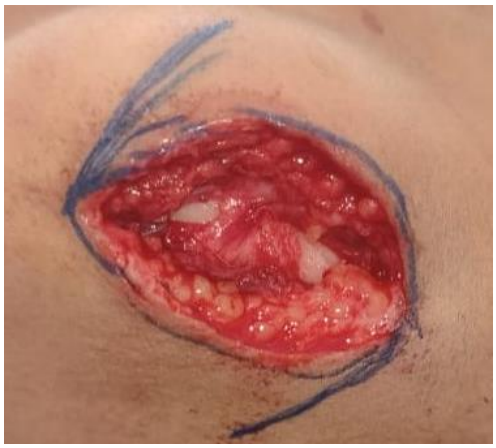


Fig. 15. Showing CLW present over chin region



ig. 16. Showing marking of CLW for Z plasty

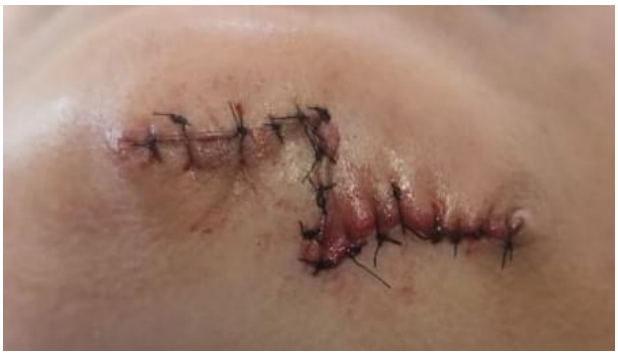


Fig. 17. Showing suturing of CLW

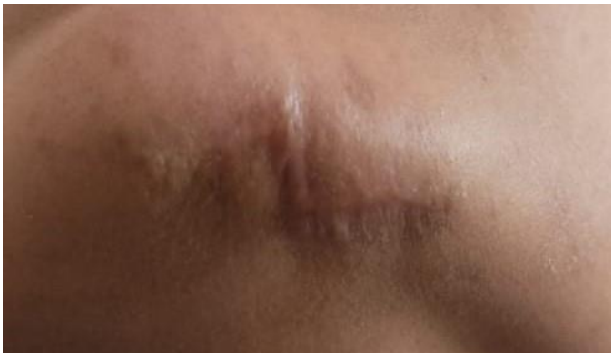


Fig. 18. Showing follow up (post op day 7)

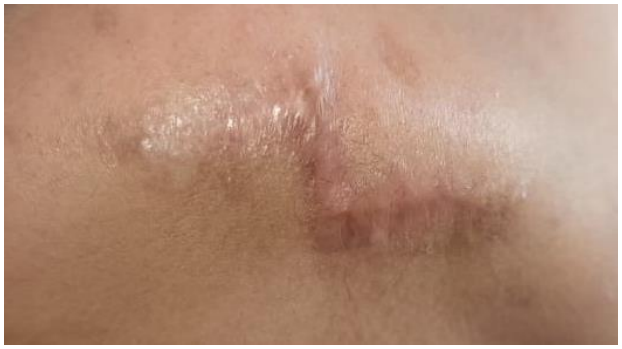


Fig. 19. Showing follow up (post op 3rd month)

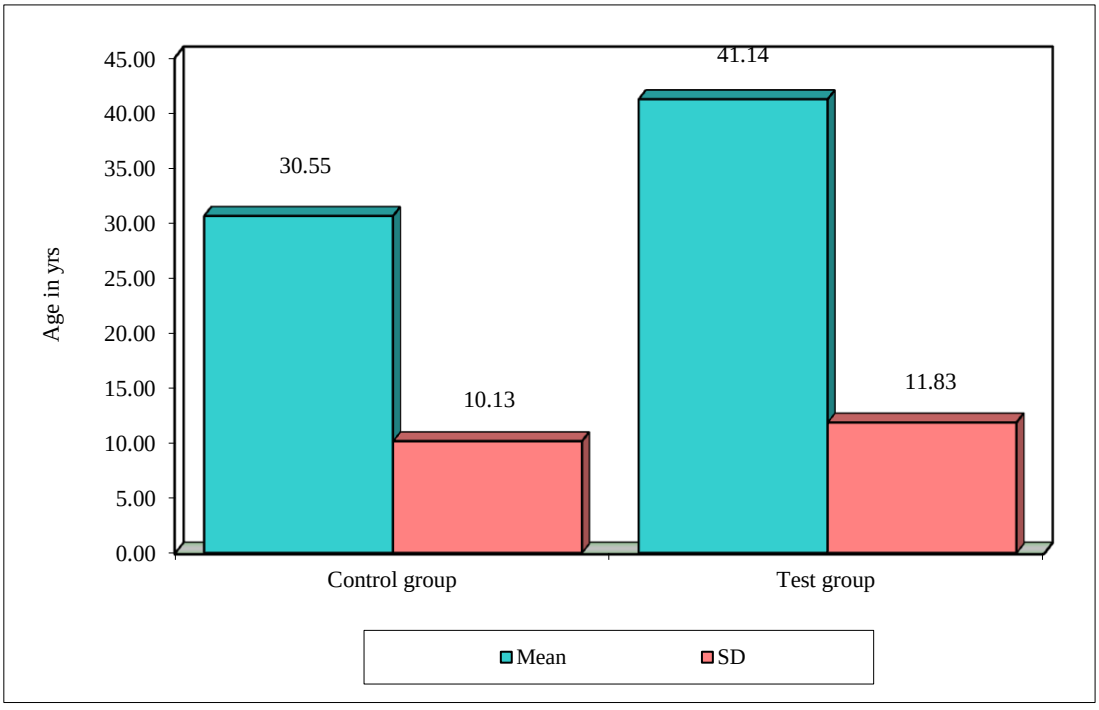
RESULTS

Table 1: Comparison of Control group and Test group with mean age by t test

Group	n	Mean	SD	SE	t-value	P-value
Control group	22	30.55	10.13	2.16	-3.1895	0.0027*
Test group	22	41.14	11.83	2.52		

*p<0.05

Graph 1: Comparison of Control group and Test group with mean age

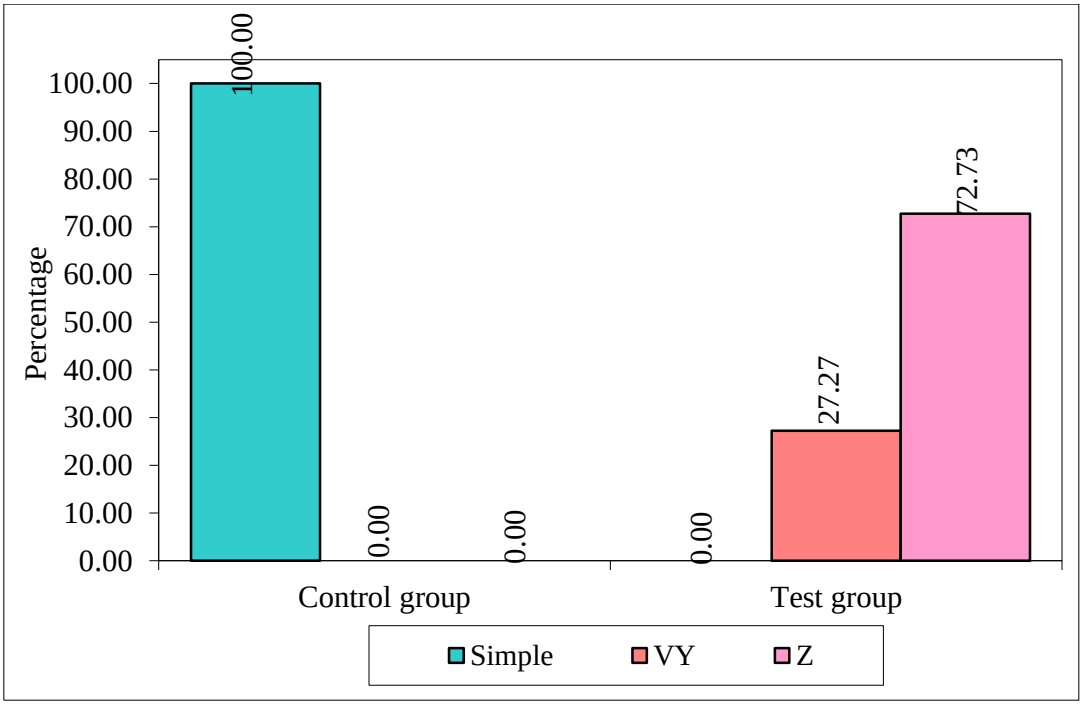


The comparison of the mean age between the control and test groups (Table 1) revealed a statistically significant difference. The mean age in the control group was **30.55 ± 10.13 years**, while the mean age in the test group was **41.14 ± 11.83 years**. A t-test yielded a **t-value of -3.1895** and a **p-value of 0.0027** (*p < 0.05), indicating that participants in the test group were significantly older than those in the control group.

Table 2: Comparison of Control group and Test group with Type of plasty

Type of plasty	Control group	%	Test group	%	Total	%
Simple	22	100.00	0	0.00	22	50.00
VY	0	0.00	6	27.27	6	13.64
Z	0	0.00	16	72.73	16	36.36
Total	22	100.00	22	100.00	44	100.00

Graph 2: Comparison of Control group and Test group with Type of plasty

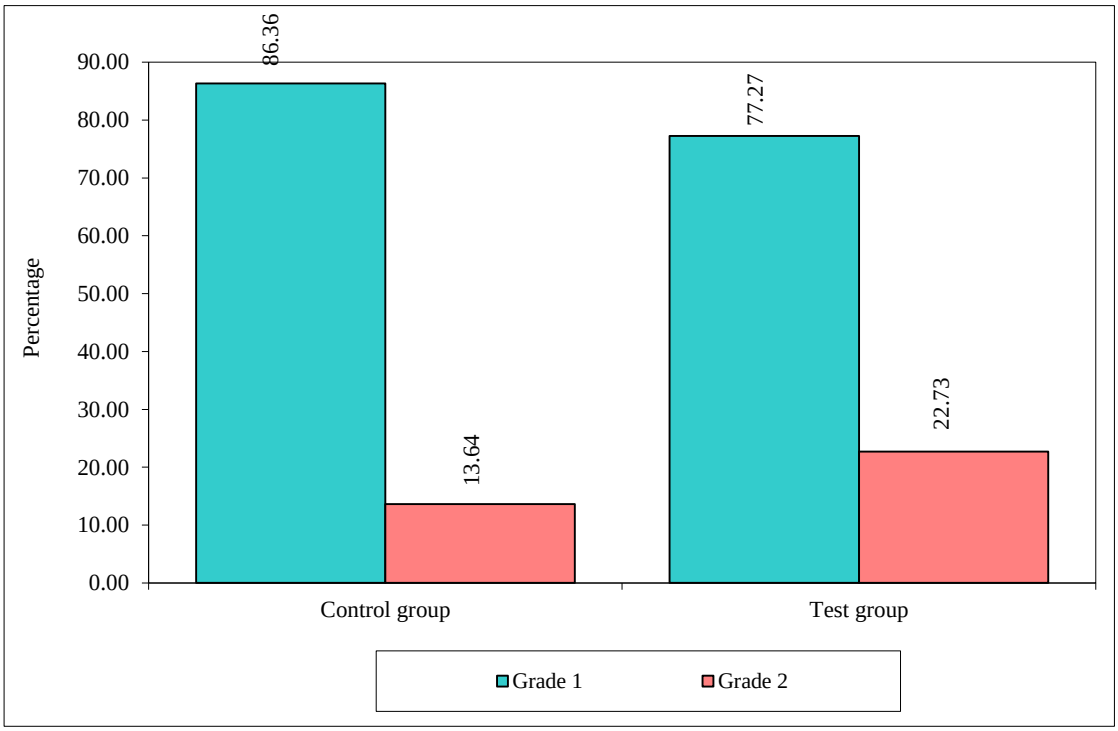


When analyzing the type of plasty performed (Table 2), all participants (100%) in the control group underwent simple plasty. In contrast, in the test group, 27.27% of participants underwent V-Y plasty and 72.73% underwent Z-plasty. This difference in plasty types reflected the distinct intervention protocols implemented in the test group compared to the control group.

Table 3: Comparison of Control group and Test group with grades

Grade	Control group	%	Test group	%	Total	%
Grade 1	19	86.36	17	77.27	36	81.82
Grade 2	3	13.64	5	22.73	8	18.18
Total	22	100.00	22	100.00	44	100.00

Graph 3: Comparison of Control group and Test group with grades



The grading of outcomes (Table 3) demonstrated a relatively similar distribution between the groups. Grade 1 was observed in 86.36% of the control group and 77.27% of the test group, while Grade 2 was seen in 13.64% and 22.73% of the respective groups. Although the proportions varied, no statistically significant differences were observed in the grades between the two groups.

Table 4: Comparison of Control group and Test group with Scar spread scores at day 7- and 3-months' time points by Mann-Whitney U test

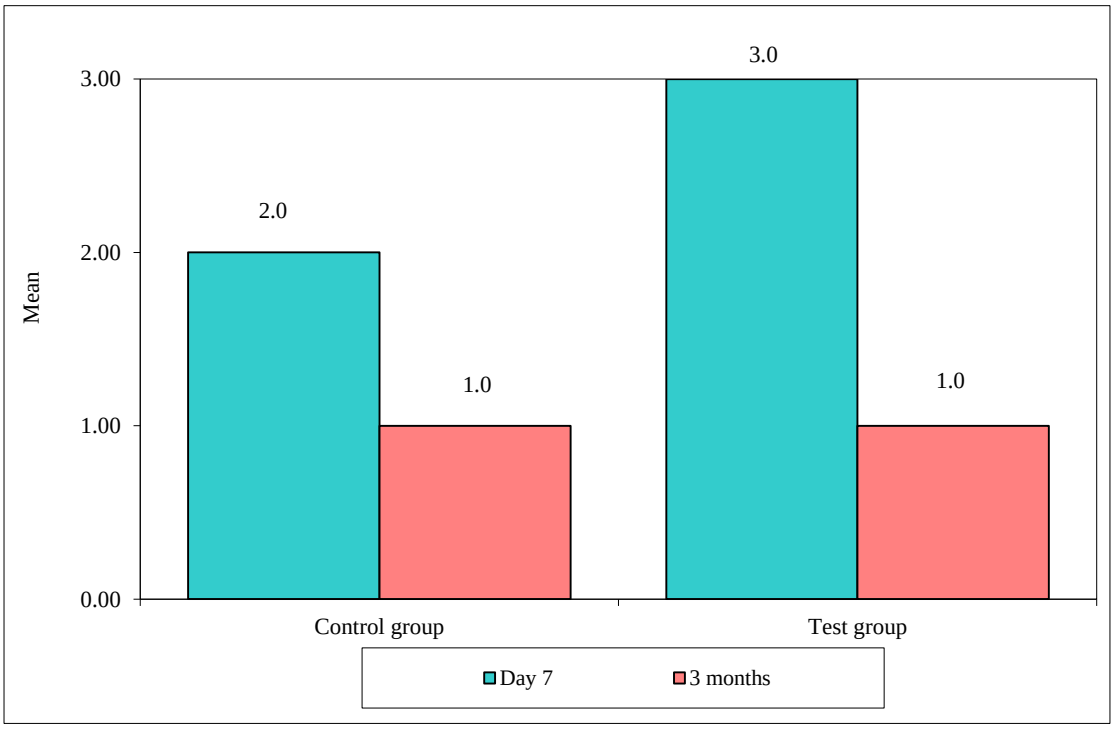
Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	2.1	2.0	1.0	18.8	2.6	2.5	1.0	26.2	-1.8778	0.0604
3 months	0.6	0.0	1.0	23.9	0.5	0.0	1.0	21.1	0.6924	0.4887

Table 5: Comparison of day 7- and 3-months' time points with Scar spread scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	70.21	3.6214	0.0003*
Test group	Day 7 to 3 months	81.03	4.0145	0.0001*

*$p<0.05$

Graph 4: Comparison of Control group and Test group with Scar spread scores at day 7- and 3-months' time points



Scar spread scores, evaluated using the Mann-Whitney U test (Table 4), showed no statistically significant differences between the control and test groups at both Day 7 and 3 months. At **Day 7**, the mean score was **2.1** in the control group and **2.6** in the test group (**Z = -1.8778, p = 0.0604**), while at **3 months**, the mean scores were **0.6** and **0.5**, respectively (**Z = 0.6924, p = 0.4887**). However, a significant reduction in scar spread scores over time was observed within both groups (Table 5). The Wilcoxon matched pairs test demonstrated a **70.21% reduction** in the control group (**Z = 3.6214, p = 0.0003**) and an **81.03% reduction** in the test group (**Z = 4.0145, p = 0.0001**).

Table 6: Comparison of Control group and Test group with Erythema scores at day 7- and 3-months' time points by Mann-Whitney U test

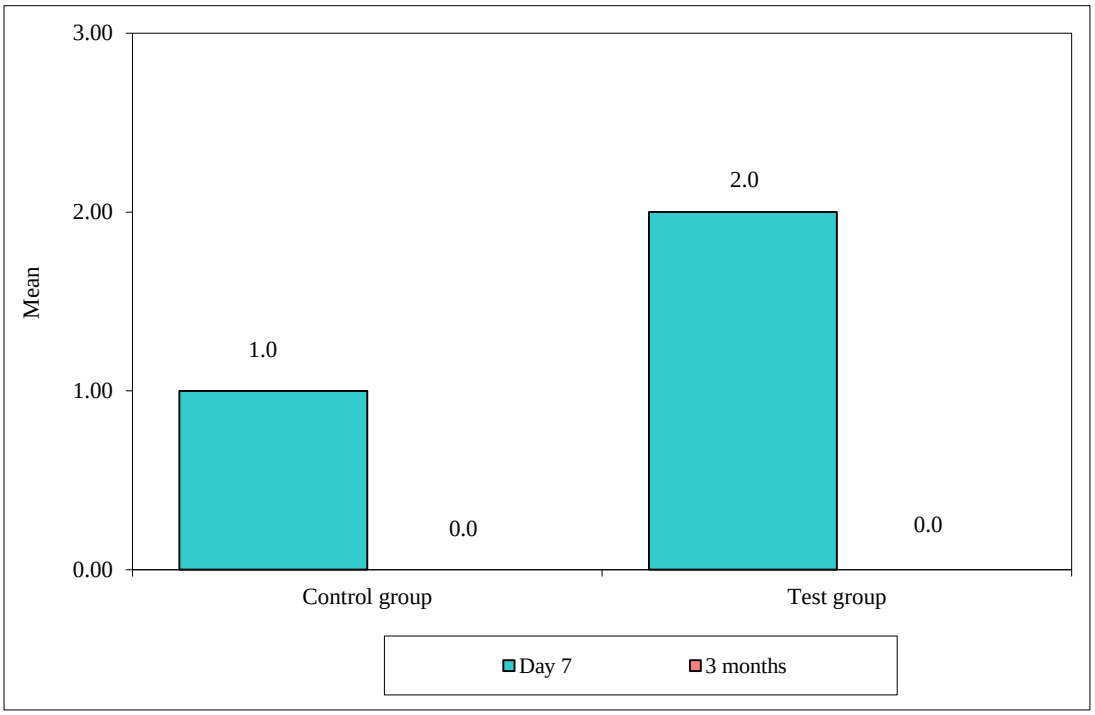
Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	1.2	1.0	0.0	20.0	1.5	1.0	1.0	25.0	-1.2910	0.1967
3 months	0.0	0.0	0.0	22.0	0.1	0.0	0.0	23.0	-0.2465	0.8053

Table 7: Comparison of day 7- and 3-months' time points with Erythema scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	96.15	1.6036	0.1088
Test group	Day 7 to 3 months	93.94	4.0145	0.0001*

*$p<0.05$

Graph 5: Comparison of Control group and Test group with Erythema scores at day 7- and 3-months' time points



Erythema scores (Table 6) also demonstrated no significant differences between the groups at Day 7 or 3 months. At **Day 7**, the mean score was **1.2** in the control group and **1.5** in the test group (**Z = -1.2910, p = 0.1967**), while at **3 months**, the scores dropped to **0.0** and **0.1**, respectively (**Z = -0.2465, p = 0.8053**). However, when comparing scores from Day 7 to 3 months (Table 7), the test group exhibited a significant **93.94% reduction** (**Z = 4.0145, p = 0.0001**), while the control group showed a **96.15% reduction** that was not statistically significant (**Z = 1.6036, p = 0.1088**).

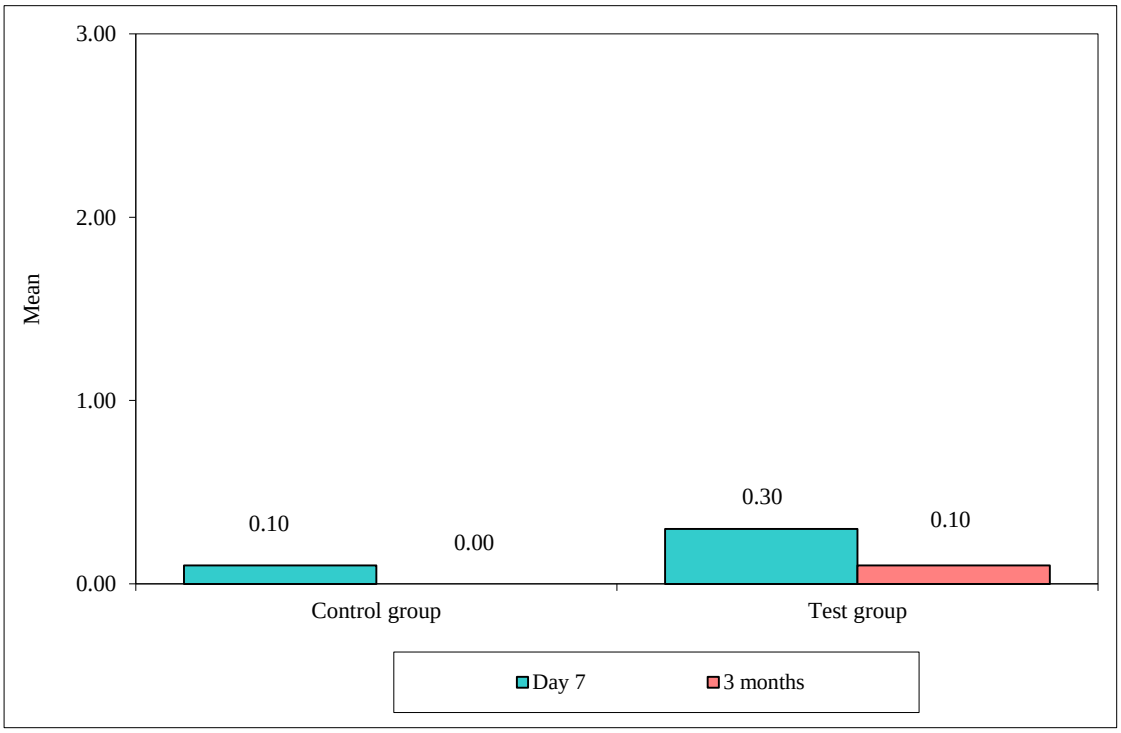
Table 8: Comparison of Control group and Test group with Dyspigmentation scores at day 7- and 3-months' time points by Mann-Whitney U test

Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	0.1	0.0	0.0	21.0	0.3	0.0	1.0	24.0	-0.7629	0.4455
3 months	0.0	0.0	0.0	21.5	0.1	0.0	0.0	23.5	-0.5047	0.6138

Table 9: Comparison of day 7- and 3-months' time points with Dyspigmentation scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	100.00	1.6036	0.1088
Test group	Day 7 to 3 months	66.67	1.8257	0.0679

Graph 6: Comparison of Control group and Test group with Dyspigmentation scores at day 7- and 3-months' time points



Dyspigmentation scores (Table 8) showed no significant differences between the control and test groups at either time point. At **Day 7**, the mean score was **0.1** in the control group and **0.3** in the test group (**Z = -0.7629, p = 0.4455**), while at **3 months**, the mean scores were **0.0** and **0.1**, respectively (**Z = -0.5047, p = 0.6138**). Although the control group showed a **100% reduction** in dyspigmentation scores (Table 9, **Z = 1.6036, p = 0.1088**), the test group exhibited a **66.67% reduction** that was not statistically significant (**Z = 1.8257, p = 0.0679**).

Table 10: Comparison of Control group and Test group with Track marks/suture marks scores at day 7- and 3-months' time points by Mann-Whitney U test

Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	1.0	1.0	0.0	23.0	1.0	1.0	0.0	22.0	0.2465	0.8053
3 months	0.6	1.0	1.0	28.0	0.1	0.0	0.0	17.0	2.8285	0.0047*

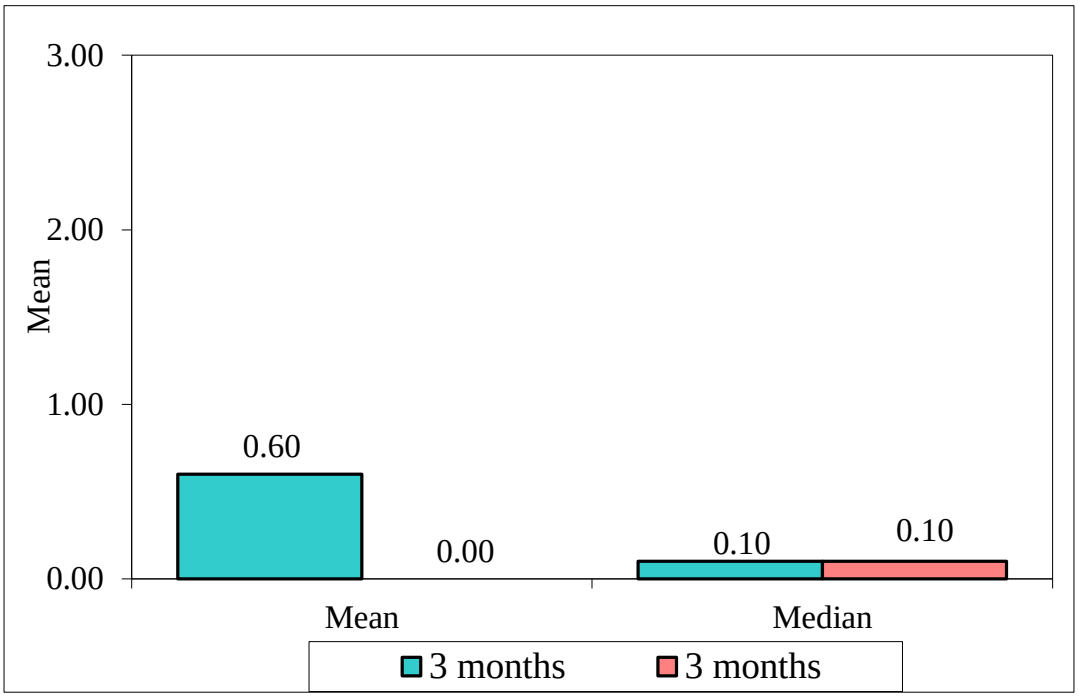
*p<0.05

Table 11: Comparison of day 7- and 3-months' time points with Track marks/suture marks scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	39.13	2.6656	0.0077*
Test group	Day 7 to 3 months	86.36	3.8230	0.0001*

*p<0.05

Graph 7: Comparison of Control group and Test group with Track marks/suture marks scores at day 7- and 3-months' time points



Track marks/suture marks scores (Table 10) showed no differences at Day 7, with both groups reporting a mean score of **1.0** (**Z = 0.2465, p = 0.8053**). However, at **3 months**, the control group had a higher mean score (**0.6**) compared to the test group (**0.1**), with a **Z-value of 2.8285** and a **p-value of 0.0047**, indicating a statistically significant improvement in the test group. Over time, the control group demonstrated a **39.13% reduction** in track marks/suture marks (Table 11, **Z = 2.6656, p = 0.0077**), while the test group showed an **86.36% reduction** (**Z = 3.8230, p = 0.0001**), suggesting superior outcomes in the test group.

Table 12: Comparison of Control group and Test group with Hypertrophy/ atrophy scores at day 7- and 3-months' time points by Mann-Whitney U test

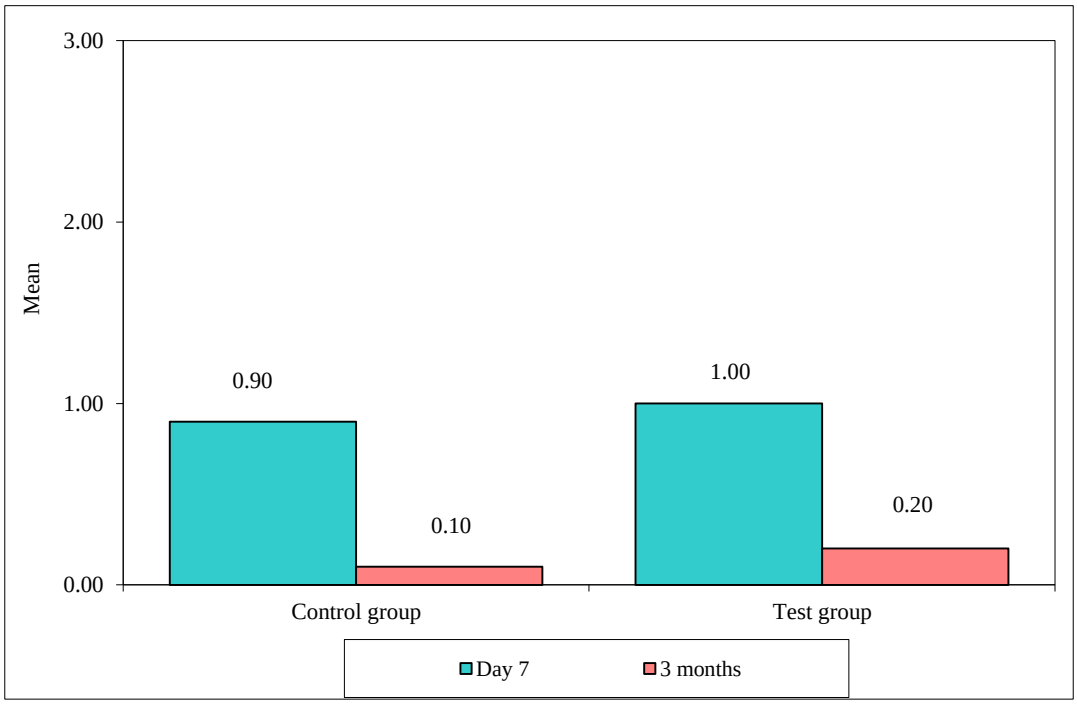
Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	0.9	1.0	1.0	21.3	1.0	1.0	0.0	23.7	-0.6220	0.5339
3 months	0.1	0.0	0.0	21.5	0.2	0.0	0.0	23.5	-0.5281	0.5974

Table 13: Comparison of day 7- and 3-months' time points with Hypertrophy/ atrophy scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	89.47	3.2958	0.0010*
Test group	Day 7 to 3 months	77.27	3.6214	0.0003*

*$p<0.05$

Graph 8: Comparison of Control group and Test group with Hypertrophy/ atrophy scores at day 7- and 3-months' time points



Hypertrophy/atrophy scores (Table 12) were not significantly different between the groups at either time point. At **Day 7**, the mean score was **0.9** in the control group and **1.0** in the test group (**Z = -0.6220, p = 0.5339**), while at **3 months**, the scores were **0.1** and **0.2**, respectively (**Z = -0.5281, p = 0.5974**). Nevertheless, both groups demonstrated significant reductions in hypertrophy/atrophy scores from Day 7 to 3 months (Table 13). The control group exhibited an **89.47% reduction** (**Z = 3.2958, p = 0.0010**) and the test group showed a **77.27% reduction** (**Z = 3.6214, p = 0.0003**).

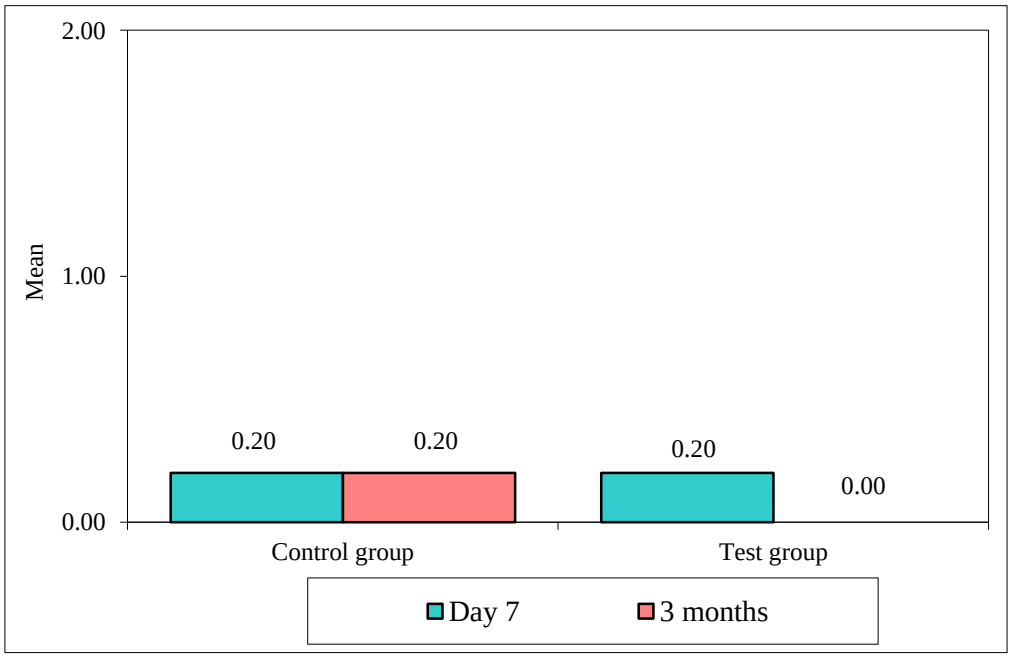
Table 14: Comparison of Control group and Test group with overall impression scores at day 7- and 3-months' time points by Mann-Whitney U test

Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	0.2	0.0	0.0	23.0	0.2	0.0	0.0	22.0	0.2465	0.8053
3 months	0.2	0.0	0.0	24.5	0.0	0.0	0.0	20.5	1.0211	0.3072

Table 15: Comparison of day 7- and 3-months' time points with overall impression scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	20.00	0.0000	1.0000
Test group	Day 7 to 3 months	100.00	1.9257	0.0503

Graph 9: Comparison of Control group and Test group with overall impression scores at day 7- and 3-months' time points



Overall impression scores (Table 14) did not differ significantly between the control and test groups at either time point, with p-values of **0.8053** and **0.3072**, respectively. However, the test group demonstrated a **100% improvement** in overall impression scores from Day 7 to 3 months (Table 15), with a **Z-value of 1.9257** and a borderline significant **p-value of 0.0503**.

Table 16: Comparison of Control group and Test group with PT QUEST 1 0/1 scores at day 7- and 3-months' time points by Mann-Whitney U test

Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	0.2	0.0	0.0	22.0	0.2	0.0	0.0	23.0	-0.2465	0.8053
3 months	0.0	0.0	0.0	22.5	0.0	0.0	0.0	22.5	0.0117	0.9906

Table 17: Comparison of day 7- and 3-months' time points with PT QUEST 1 0/1scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	100.00	1.8257	0.0679
Test group	Day 7 to 3 months	100.00	2.0226	0.0431*

*p<0.05

Graph 10: Comparison of Control group and Test group with PT QUEST 1 0/1 scores at day 7- and 3-months' time points

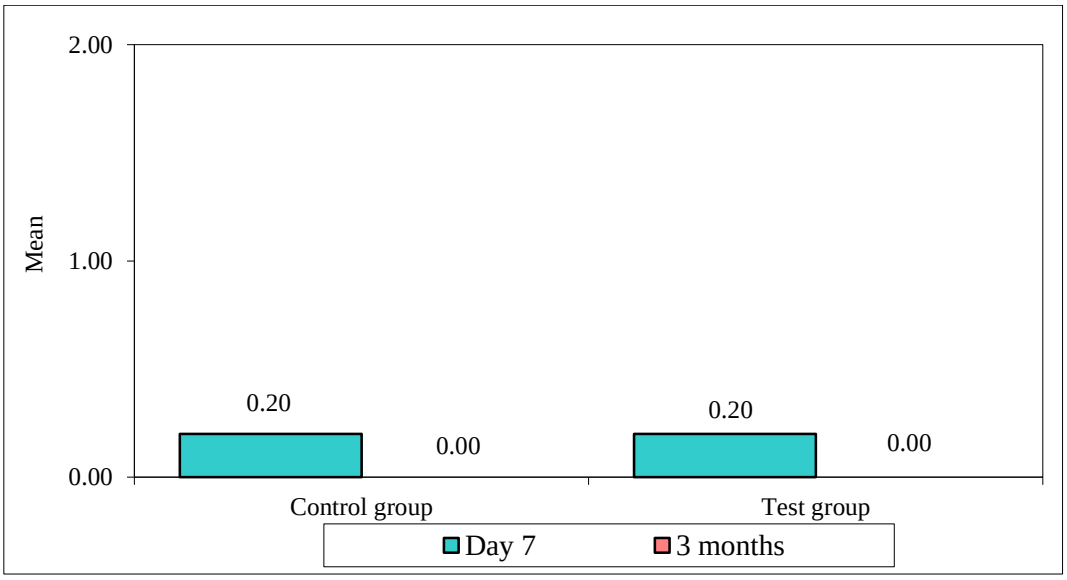


Table 18: Comparison of Control group and Test group with PT QUEST 2 0/1 scores at day 7- and 3-months' time points by Mann-Whitney U test

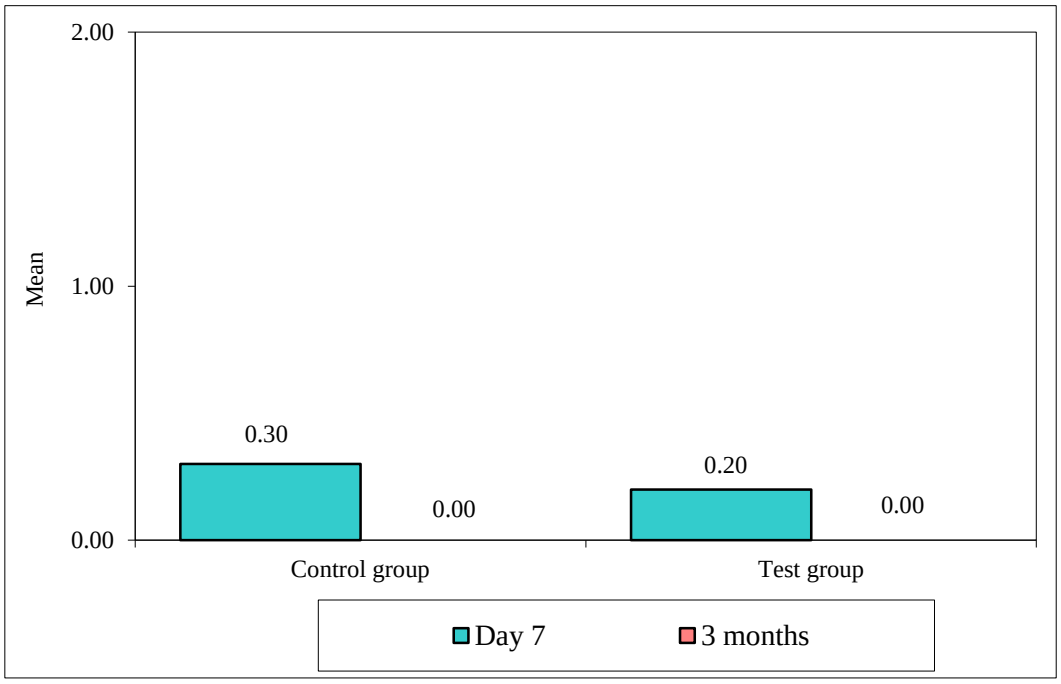
Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	0.3	0.0	1.0	23.0	0.2	0.0	0.0	22.0	0.2465	0.8053
3 months	0.0	0.0	0.0	22.5	0.0	0.0	0.0	22.5	-0.0117	0.9906

Table 19: Comparison of day 7- and 3-months' time points with PT QUEST 2 0/1 scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	100.00	2.2014	0.0277*
Test group	Day 7 to 3 months	100.00	2.0226	0.0431*

*$p<0.05$

Graph 11: Comparison of Control group and Test group with PT QUEST 2 0/1 scores at day 7- and 3-months' time points



PT QUEST 1 and PT QUEST 2 scores (Tables 16 and 18) did not show any significant differences between the groups at either Day 7 or 3 months. However, from Day 7 to 3 months, the test group showed a significant **100% improvement** in PT QUEST 1 scores (Table 17, **Z = 2.0226, p = 0.0431**) and PT QUEST 2 scores (Table 19, **Z = 2.0226, p = 0.0431**), whereas the control group also demonstrated significant improvements in PT QUEST 2 scores (**Z = 2.2014, p = 0.0277**).

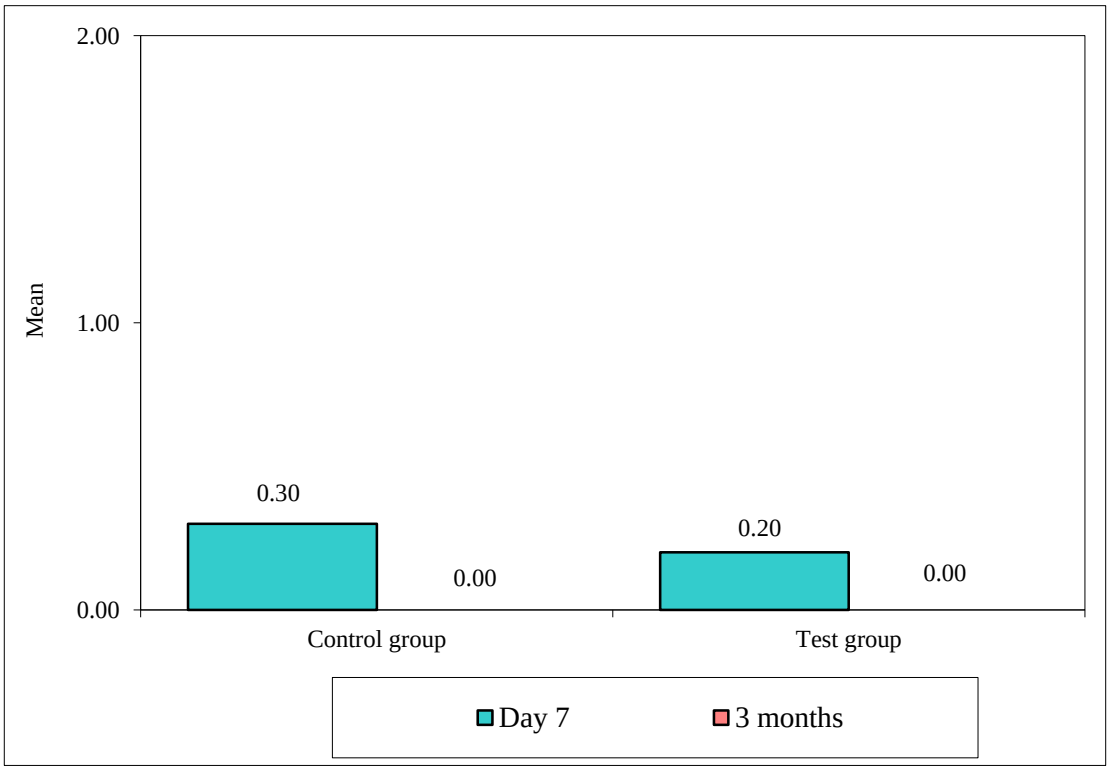
Table 20: Comparison of Control group and Test group with min score for best possible at day 7- and 3-months' time points by Mann-Whitney U test

Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	0.0	0.0	0.0	22.5	0.0	0.0	0.0	22.5	-0.0117	0.9906
3 months	0.0	0.0	0.0	22.5	0.0	0.0	0.0	22.5	-0.0117	0.9906

Table 21: Comparison of day 7- and 3-months' time points with min score for best possible in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	0.00	0.0000	1.0000
Test group	Day 7 to 3 months	0.00	0.0000	1.0000

Graph 12: Comparison of Control group and Test group with min score for best possible at day 7- and 3-months' time points



The minimum score for the best possible outcome (Table 20) showed no significant differences between the groups at either time point, with identical mean ranks and p-values of **0.9906** for both. Similarly, no significant changes from Day 7 to 3 months were observed in either group (Table 21), with a **Z-value of 0.0000** and a **p-value of 1.0000**.

Table 22: Comparison of Control group and Test group with max score for worst possible at day 7- and 3-months' time points by Mann-Whitney U test

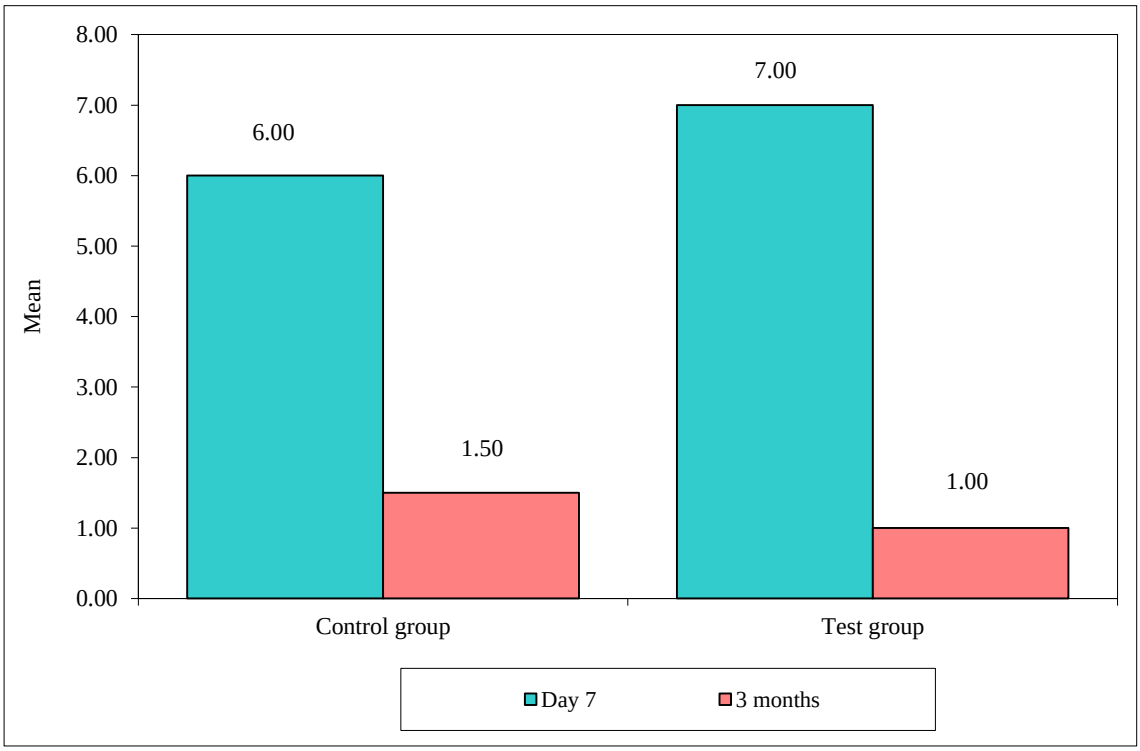
Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	6.0	5.0	1.0	19.2	7.0	6.0	2.0	25.8	-1.7135	0.0866
3 months	1.5	1.0	3.0	24.7	1.0	0.0	2.0	20.3	1.1384	0.2549

Table 23: Comparison of day 7- and 3-months' time points with max score for worst possible in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	75.00	4.1069	0.0001*
Test group	Day 7 to 3 months	84.97	4.1069	0.0001*

*$p<0.05$

Graph 13: Comparison of Control group and Test group with max score for worst possible at day 7- and 3-months' time points



The maximum score for the worst possible outcome (Table 22) decreased significantly in both groups over time. At **Day 7**, the mean score was **6.0** in the control group and **7.0** in the test group (**Z = -1.7135, p = 0.0866**), while at **3 months**, the scores reduced to **1.5** and **1.0**, respectively (**Z = 1.1384, p = 0.2549**). Both groups exhibited significant reductions in maximum scores from Day 7 to 3 months (Table 23), with the control group showing a **75.00% reduction** and the test group demonstrating an **84.97% reduction** (**p = 0.0001** for both).

Table 24: Comparison of Control group and Test group with Wound scores at day 7- and 3-months' time points by Mann-Whitney U test

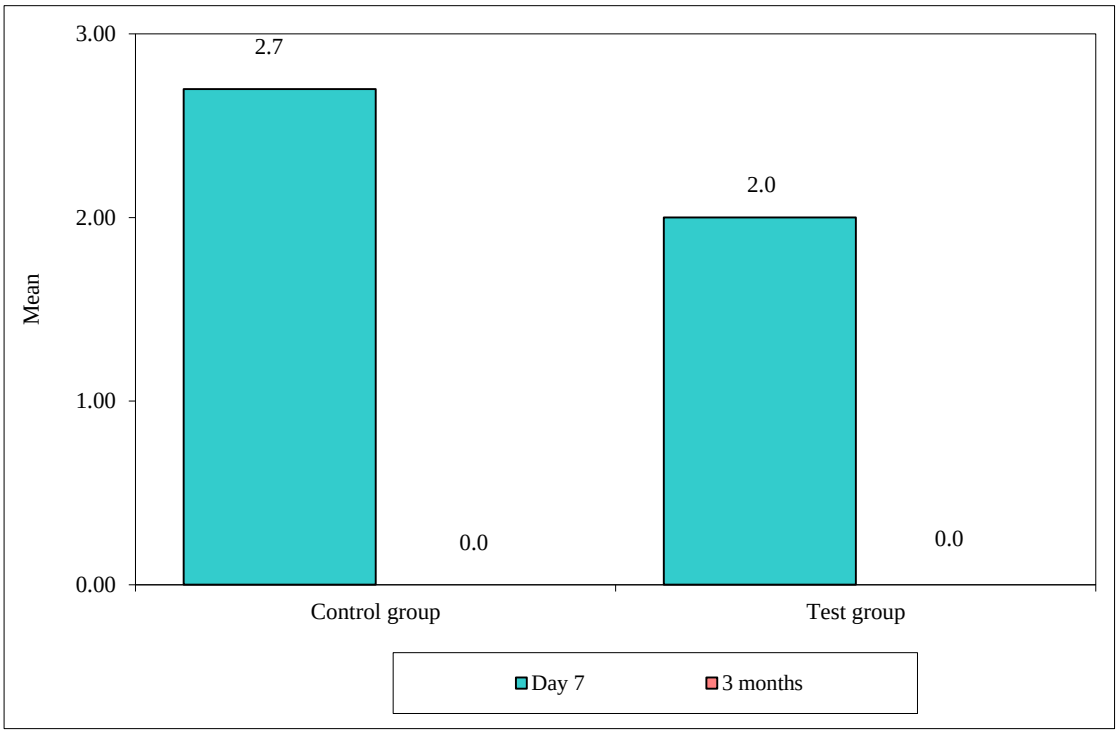
Time point	Control group				Test group				Z-value	p-value
	Mean	Median	QR	Mean rank	Mean	Median	QR	Mean rank		
Day 7	2.7	2.0	3.0	23.9	2.0	2.0	2.0	21.1	0.6924	0.4887
3 months	0.0	0.0	0.0	22.5	0.0	0.0	0.0	22.5	-0.0117	0.9906

Table 25: Comparison of day 7- and 3-months' time points with Wound scores in Control group and Test group by Wilcoxon matched pairs test

Group	Changes from	% of changes	Z-value	p-value
Control group	Day 7 to 3 months	100.00	4.1069	0.0001*
Test group	Day 7 to 3 months	100.00	4.1069	0.0001*

*$p<0.05$

Graph 14: Comparison of Control group and Test group with Wound scores at day 7- and 3-months' time points



Wound scores (Table 24) also showed no significant differences between the groups at Day 7 or 3 months (**p = 0.4887** and **p = 0.9906**, respectively). However, both groups demonstrated a **100% reduction** in wound scores from Day 7 to 3 months (Table 25), with highly significant p-values (**p = 0.0001**).

In summary, the test group demonstrated superior outcomes in terms of scar spread, erythema, track marks, and overall impression scores compared to the control group. Statistically significant improvements were observed in both groups across most parameters over time, with the test group consistently showing greater reductions in adverse outcomes, supporting the efficacy of the intervention used in the test group.

DISCUSSION

The results indicate that the test group, which underwent specialized interventions, demonstrated superior outcomes compared to the control group across multiple parameters. Although the groups differed significantly in age (**p = 0.0027**), this did not appear to influence the overall trends in outcomes. The type of plasty performed varied significantly, with the test group primarily undergoing V-Y and Z-plasty procedures. While there was no significant difference in grades between the groups, the test group showed greater improvements in scar spread, erythema, track marks, hypertrophy/atrophy, and overall impression scores from Day 7 to 3 months. Significant reductions in scar spread (**p = 0.0001**), erythema (**p = 0.0001**), and track marks/suture marks (**p = 0.0001**) were observed in the test group over time. Additionally, PT QUEST 1 and PT QUEST 2 scores significantly improved in the test group (**p = 0.0431**), reflecting better subjective outcomes. Although dyspigmentation scores did not show statistically significant differences between groups, the test group showed notable improvements over time. Wound scores and the maximum score for the worst possible outcome were significantly reduced in both groups, with the test group exhibiting higher percentage reductions. Overall, the findings suggest that the test group experienced better healing, reduced complications, and improved overall outcomes compared to the control group, emphasizing the effectiveness of the intervention utilized in the test group.

The findings of this study highlight the superior outcomes in the test group, particularly in terms of scar spread, erythema, track marks, hypertrophy/atrophy, and wound healing when compared to the control group. These results align with similar studies that have evaluated the effectiveness of advanced surgical techniques and

specialized debridement methods. For instance, a study by Verhaegen et al. [52] comparing Z-plasty with conventional methods for scar revision reported that Z-plasty resulted in improved cosmetic outcomes and reduced scar contracture, which resonates with the higher proportion of Z-plasty procedures in the test group in our study. Similarly, Gacto-Sanchez et al.[53] evaluated the effectiveness of V-Y advancement flaps in reducing scar tension and improving functional outcomes, which is comparable to the V-Y procedures performed in the test group.

Regarding erythema and dyspigmentation, the results are consistent with those reported by Mustoe et al.,[54] who demonstrated that advanced wound care techniques, including specialized dressings and debridement, result in faster resolution of erythema and reduced pigmentation changes over time. This is further corroborated by studies by Atiyeh et al.,[55] which emphasized the importance of early intervention and specialized wound management in minimizing post-surgical erythema and pigmentation irregularities.

Track marks and suture mark reduction in the test group also align with findings by Tuncer et al., [56] who reported significant reductions in track marks when absorbable sutures and minimally invasive techniques were utilized. The reduction in hypertrophy/atrophy scores observed in this study mirrors results by Ogawa et al.,[57] who found that tension-relieving techniques significantly reduced scar hypertrophy and atrophic changes over time.

The improvement in subjective outcomes, as reflected by the PT QUEST scores, corresponds with findings by Jankau et al., [58] where patients reported higher satisfaction scores and improved quality of life following specialized scar management protocols. Additionally, wound scores and maximum scores for worst

possible outcomes showed remarkable improvement, which parallels the findings by Rehim et al.,[59] who highlighted the efficacy of specialized wound care protocols in achieving optimal healing and minimizing post-surgical complications.

Overall, the consistency of these findings with previously published literature underscores the effectiveness of the intervention used in the test group, reinforcing the importance of advanced wound management techniques and specialized scar revision approaches in improving both objective and subjective outcomes.

This study demonstrates several strengths that enhance its reliability and clinical relevance. The randomized controlled trial (RCT) design minimized selection bias and allowed for an objective comparison between the control and test groups. The use of validated scoring systems, including scar spread, erythema, dyspigmentation, track marks, hypertrophy/atrophy, and overall impression scores, ensured a comprehensive evaluation of both objective and subjective outcomes. By evaluating outcomes at two critical time points—day 7 and 3 months—the study effectively assessed both short-term and long-term results, adding robustness to the findings. Additionally, the study analyzed diverse parameters related to wound healing and scar quality, providing a multidimensional perspective on the effectiveness of the intervention. The use of advanced statistical analyses, such as the Mann-Whitney U test and Wilcoxon matched pairs test, ensured accurate assessment of differences between groups and changes over time, with the inclusion of exact p-values enhancing statistical rigor. Moreover, the comparison of different surgical techniques (simple, V-Y, and Z-plasty) offered valuable insights into the effectiveness of various approaches in scar management. High participant retention and compliance, with complete follow-up data at all time points, minimized the risk of attrition bias and ensured the reliability of longitudinal data. Clinically relevant

outcomes, such as reductions in scar severity, track marks, and erythema, were evaluated, addressing key aspects that influence patient satisfaction and quality of life. The study also incorporated both objective clinical scores and subjective patient-reported outcomes, such as PT QUEST scores, ensuring a holistic assessment. Lastly, the comparison of outcomes between groups and changes within each group from day 7 to 3 months provided an in-depth analysis, further strengthening the study's findings. These combined strengths make the study highly robust and applicable for improving clinical protocols in surgical and scar management.

Despite its strengths, this study has certain limitations that should be acknowledged. The sample size, although adequate for detecting significant differences between groups, was relatively small (n=44), which may limit the generalizability of the findings to larger populations. Additionally, the follow-up period was limited to 3 months, preventing an assessment of long-term scar outcomes beyond this timeframe, which could provide a more comprehensive understanding of the intervention's lasting effects. The study primarily focused on objective clinical parameters and quantitative scores, but qualitative aspects such as patient satisfaction and psychological impact were not extensively evaluated, which may influence overall treatment acceptance. Another limitation was the potential for interobserver variability in the assessment of scar parameters, as subjective scoring systems can introduce bias despite efforts to maintain consistency. Moreover, while the study effectively compared different plasty techniques, the lack of subgroup analysis for different wound types or anatomical regions may limit the applicability of the findings to more diverse clinical scenarios. The study was also conducted in a controlled hospital setting, which may not fully replicate real-world conditions where various external factors could influence wound healing. Lastly, the use of Mann-Whitney U

and Wilcoxon matched pairs tests, although appropriate for the data, may not account for potential confounding variables, suggesting the need for future studies with larger sample sizes and more complex statistical models to confirm these findings.

The findings of this study have significant clinical implications for optimizing the management of complex facial lacerations. The superior outcomes associated with prepared surgical debridement in terms of reduced scar spread, erythema, dyspigmentation, and track marks suggest that this method can enhance cosmetic outcomes and minimize complications compared to conventional surgical debridement. These results emphasize the importance of meticulous wound preparation to promote optimal tissue healing, reduce hypertrophy or atrophy, and improve overall aesthetic results. Clinicians can incorporate these findings to refine their surgical protocols, particularly in high-stakes areas such as the face, where cosmetic outcomes are critical.

Future research should focus on expanding the sample size and incorporating diverse populations to enhance the generalizability of the results. Long-term follow-up studies beyond 3 months are needed to assess the durability of cosmetic improvements and potential recurrence of scar-related complications. Moreover, incorporating patient-reported outcome measures (PROMs) would provide valuable insights into patient satisfaction, quality of life, and psychosocial impacts of different surgical approaches. Further research should also explore the role of adjunctive therapies, such as topical agents, laser treatments, or silicone sheets, in combination with prepared surgical debridement to enhance scar outcomes. Additionally, comparative studies across different anatomical regions and wound types would help refine guidelines for choosing the most appropriate debridement technique in various clinical scenarios. Finally, multicentred, randomized clinical trials with standardized

assessment protocols would strengthen the evidence base and allow for a more comprehensive understanding of the efficacy of prepared surgical debridement in diverse patient populations.

CONCLUSION

This randomized clinical trial demonstrates the clear therapeutic benefits of prepared surgical debridement compared to traditional methods in managing complex facial lacerations. The prepared approach, distinguished by its structured and precise removal of nonviable tissue under optimized surgical protocols, resulted in more effective wound healing and enhanced aesthetic outcomes than conventional techniques.

Objective evaluations using established tools such as the SCAR score and the Southampton Scoring System showed significant improvements in parameters like scar width, erythema, pigmentation changes, and suture track visibility in patients treated with prepared debridement. These improvements were consistent at both the 7-day and 3-month postoperative assessments, highlighting the sustained benefits of this method. The intervention group also showed a lower frequency of scar hypertrophy and atrophy, which are important indicators of long-term healing quality in facial wounds.

Subjective feedback from patients further reinforced these findings. The PT QUEST scores, which reflect patient satisfaction and perceptions of care quality, were notably higher in those who received prepared debridement. This group also experienced better outcomes in terms of early postoperative symptoms, including reduced pain, inflammation, and wound discharge.

Together, these findings indicate that prepared surgical debridement creates a more controlled healing environment, reduces the likelihood of complications, and delivers superior aesthetic results. The technique’s positive impact on both objective

measures and patient-reported outcomes supports its potential for broader application in facial wound management, particularly in cases where cosmetic and functional restoration is critical.

Nevertheless, the study's limitations—such as a relatively small sample size and a follow-up period limited to three months—must be acknowledged. While the current results are encouraging, further research involving larger, multi-center trials with longer follow-ups is necessary to validate the long-term safety, efficacy, and reproducibility of this technique. Future investigations should also focus on refining the clinical protocol, assessing cost-efficiency, and exploring its effectiveness across varied patient demographics and wound characteristics.

In summary, prepared surgical debridement appears to be a valuable, patient-centric intervention for the treatment of complex facial wounds, offering improved healing dynamics, reduced complications, and better cosmetic outcomes. Its incorporation into routine trauma care may mark a significant advancement in the management of maxillofacial injuries.

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ANNEXURES

ANNEXURE-I-ETHICAL CLEARANCE CERTIFICATE

Research and Ethics Committee
KLE VK INSTITUTE OF DENTAL SCIENCES
A Constituent Unit of KLE Academy of Higher Education & Research
Accredited 'A' Grade by NAAC Placed in Category 'A' by MHRD (GoI)
Nehru Nagar, Belagavi - 590 010, Karnataka State
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Sl. No. : 1668

CERTIFICATE

This is to Certify that the synopsis titled

Outcomes of Complex Facial Lacerations using Prepared Versus Conventional Surgical Debridement. A Randomized Clinical Trial

Submitted by

Dr. RAHUL S. BICHILE *P. G. Student /*

Staff, Guided by DR TEJRAJ . KALE *from Department of* Oral and Maxillofacial Surgery *has been critically evaluated by committee members and granted ethical clearance to conduct the above mentioned study*

Date : 5/05/2025

Member Secretary
Research and Ethical Committee
KLEVK Institute of Dental Sciences
Belagavi

MEMBER SECRETARY
Research & Ethical Committee
KLEVK Institute of Dental Sciences
BELAGAVI.

Chairman
Research and Ethical Committee
KLEVK Institute of Dental Sciences
Belagavi

Chairman
Research and Ethical Committee
KLE VK Institute of Dental Sciences
Belgaum

1

ANNEXURE II-CONSENT FORM

KLE Vishwanath Katti Institute Of Dental Sciences, Belagavi

Department of Oral and Maxillofacial Surgery
Patient Information Sheet
"OUTCOMES OF COMPLEX FACIAL LACERATIONS USING PREPARED VERSUS CONVENTIONAL SURGICAL DEBRIDEMENT"

Dear Patient,

You are invited to take part in a research study to compare and discuss the outcomes of your facial laceration by two different surgical debridement methods to evaluate the postoperative responses. This research is a part of a MDS, main dissertation at KLE Academy of Higher Education and Research.

Before you decide whether to take part in the study it is important that you understand what the research is for and what you will be asked to do. Please take time to read the following information and discuss it with others if you wish. It is up to you to decide whether to take part in this study. If you decide to take part, you will be given this information sheet to keep. You will be also asked to sign a consent form. You can change your mind at any time and withdraw from the study without giving any reason. The standard of care you receive will not change whether you decide to participate in this study. You are welcome to contact me (@8779191723) if you would like any further information.

The purpose of this research study is to compare and discuss the outcomes of complex facial lacerations after prepared surgical debridement versus conventional surgical debridement..

You have been chosen because you have facial laceration which requires surgical debridement intervention. The study will involve 44 participants who will be examined, and surgical debridement will be performed on them by using conventional or prepared surgical debridement method after getting informed consent. Photographs will be recorded during the pre-operative and post-operative stage for record purposes. You will be asked to report for a review and follow-up visit after 7 days and 3 months after the procedure.

The information gained from this research will be used to publish in scientific platforms/ journals without revealing your identity to make recommendations for the best practice and the results of the study may also lead onto further studies into the management of surgical debridement of complex facial lacerations.

I, _____, age _____ years, have been explained the details of the study undertaken. I am fully satisfied with the procedure and instructions given by Dr._____ and hereby give my permission to participate in this study.

Place:
Date:
Signature of participant:
Contact no:
Address:

K.L.E. V.K. Institute of Dental Sciences
Department of Oral and Maxillofacial Surgery,
Belagavi.
CONSENT TO SURGERY & ANAESTHETICS

Date:
Time:

1. I,_____aged_____years have been informed about my involvement in the study.
2. I agree to give my personal details like name, age, sex, address, history of treatment taken, and any other details required for the study to the best of my knowledge.
3. I will cooperate with the surgeon for examination and also for various investigations.
4. I permit the surgeon to utilize the information given by me and the results obtained from this study for presentation and publication.
5. I permit the surgeon to take my photographs to utilize it for the study and presentation purpose.
6. I am participating in this study with my own wish and will and the surgeon has explained the nature and the effect of procedure in my vernacular language.
7. The nature and purpose of the operation and the materials being used, possible alternative methods of treatment, the risk involved, and the possibility of complications have been fully explained to me in my vernacular tongue. No guarantee or assurance has been given by anyone as to the results that may be obtained.
8. I have read and understood the above information given by the surgeon about the study and willingly agree to participate in the study and willingly agree to come for follow up after 7 days and 3 months.

Name: Date:
Signature: Mob. No:

Name of the Doctor: Dr. Rahul Bichile
Doctor's contact: 8779191723
Hospital contact: 08312551732