Section: General Surgery

Original Research Article

A PROSPECTIVE OBSERVATIONAL STUDY TO EVALUATE VARIOUS POST-OPERATIVE FACTORS FOR FAILURE OF PARTIAL THICKNESS SKIN GRAFT UPTAKE AT TERTIARY CARE CENTER IN EASTERN INDIA

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ABSTRACT

Background: Partial thickness skin grafts (PTSGs) are widely used in reconstructive surgery for their versatility and healing benefits. However, graft failure continues to pose a significant clinical challenge. **Objective:** This prospective observational study aimed to evaluate the post-operative risk factors contributing to the failure of PTSG uptake at Rajendra Institute of Medical Sciences (RIMS), Ranchi, with an emphasis on complications such as hematoma, seroma, infection, and shear movement. **Materials and Methods:** A total of 215 patients aged 18–60 years undergoing split-thickness skin grafting for non-healing ulcers were included. Data were collected at multiple postoperative intervals (POD 6 and 21). Graft uptake below 80% at POD 21 was considered failure. Statistical analysis included chi-square and logistic regression to identify significant associations. **Result and Discussion:** The overall failure rate was notable. Significant associations were observed with age group 18–30 years (p=0.026) and female gender (p=0.006). Although complications like hematoma, seroma, and infection were prevalent, they did not show significant statistical association with graft failure. A notable decline in graft uptake from POD 6 to POD 21 (p=0.001) was observed. **Conclusion:** Older age and female gender were significantly associated with graft failure. These findings underscore the need for demographic-specific postoperative protocols and stricter monitoring strategies to improve graft uptake outcomes. Further research is encouraged to develop standardized guidelines tailored to high-risk groups.

INTRODUCTION

The skin, as the body's largest organ based on surface area, plays a vital role in direct interaction with the external environment, serving to safeguard and maintain the delicate homeostasis of the human body.[1] Addressing wound healing issues, skin grafting has emerged as a valuable technique for restoring skin continuity. This method offers several advantages, including reduced healing time, shorter hospital stays, and minimal donor site morbidity, making it an effective approach to managing large ulcers of diverse origins. Consequently, skin grafting has become one of the most frequently performed surgical procedures. Split thickness skin grafts involve harvesting both the epidermis and dermis, while allowing the remaining dermis to heal the donor site.[2]

Following the skin grafting procedure, the graft's survival relies on a well-defined sequence of events, culminating in vascular independence. These events comprise serum imbibition within the first 24 to 48 hours, inosculation occurring in the subsequent 24 to 72 hours, and angiogenesis initiating after 72 hours.[3] To enhance the healing process and improve graft uptake, surgeons utilize surgical dressings to cover the grafted site or the recipient site during the

postoperative period. These dressings encourage epithelialization from the graft into the wound and stimulate wound granulation.[4]

Partial thickness skin graft success depends on patient-related factors (age, sex, medical history) wound characteristics (size, location, etiology), graft handling and fixation technique and postoperative care. Common graft failure in post-operative duration causes include hematoma, seroma, infections, and shear movements at the recipient area. Mishandling of dressing in postoperative duration is also one important factor determining graft uptake.[5]

Regular inspection and dressing changes during this period facilitate the evacuation of hematoma, seroma, and clots, while also allowing for reapplication of the graft if disruptions occur, thereby enhancing revascularization and graft survival rate. Moreover, early inspection helps monitor the risk of infection, enabling timely initiation of appropriate treatments if needed.[6]

MATERIALS AND METHODS

Study Design: A prospective observational study to evaluate post-operative risk factors associated with partial thickness skin graft failure.

Study Duration: 18 months from the protocol acceptance by Institutional Ethics Committee.

Study Population: patients with ulcer undergoing partial thickness skin grafting in Department of General Surgery, RIMS, Ranchi

Study Site: Department of General Surgery, RIMS, Ranchi

Eligibility Criteria

Inclusion Criteria

a. Patients of age group from 18-60 years.
b. Patients undergoing split thickness skin grafting for treatment of ulcer.
c. Patients with preoperative wound culture sensitivity showing no growth.

Exclusion Criteria

a) Patients undergoing grafts for the second time.
b) Pediatric age group and pregnancy cases.
c) Patients with exposed tendons, bones & cartilage.

This prospective observational study was conducted on patients undergoing partial thickness skin grafting in the departments of General Surgery and Plastic Surgery at RIMS, Ranchi, under the supervision of senior consultants. Data were collected on patient demographics, date of grafting, and the presence of potential risk factors such as hematoma, seroma, infection, and shear movements at the recipient site.

The severity and presence of these risk factors were assessed through clinical examination and medical record review. Details regarding the type of postoperative surgical dressings, dressing techniques, and the frequency of dressing changes were documented. All patients were followed up regularly to monitor graft uptake, with any complications or signs of graft failure recorded during each visit.

Statistical analysis was performed using SPSS software, with relationships between risk factors and graft failure evaluated using chi-square tests and logistic regression analysis. Ethical clearance was obtained from the Institutional Review Board of RIMS Ranchi, and informed consent was secured from all participants.

RESULTS

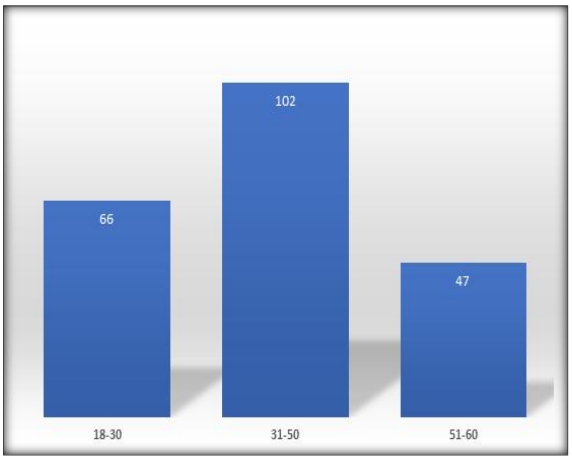

Figure 1: Distribution of Age Group

The table no-1 displayed the age distribution of participants receiving partial thickness skin grafts. Among the 215 participants, 30.7% (66 individuals) were aged between 18 and 30 years. The age group of 31 to 50 years constitutes the largest segment, comprising 47.4% (102 individuals). Participants aged between 51 and 60 years represent 21.9% (47 individuals) of the study population. This data highlights that nearly half of the participants are within the 31 to 50-year age range, with smaller proportions in the younger (18-30 years) and older (51-60 years) age brackets.

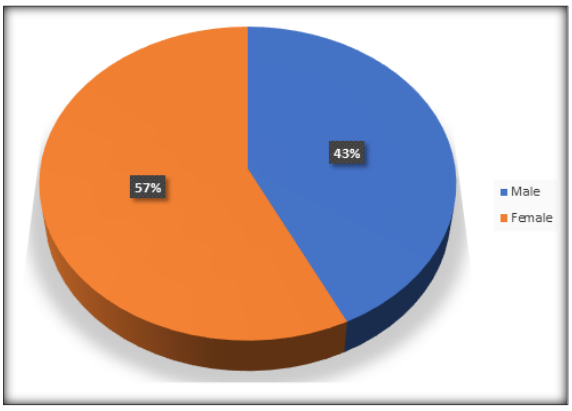

Figure 2: Distribution of Gender

The table no-2 illustrated the gender distribution of participants receiving partial thickness skin grafts. Out of 215 participants, 42.8% (92 individuals) were male, while 57.2% (123 individuals) are female.

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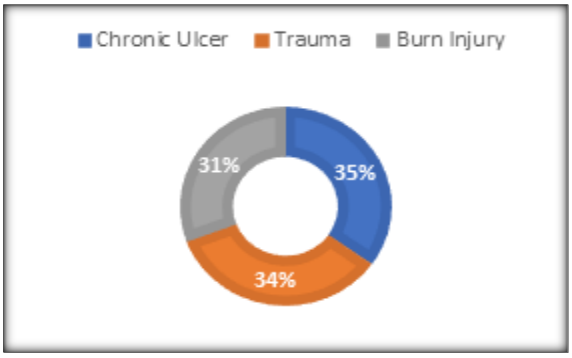

Figure 3: Distribution of Indication of Skin Graft

The table no-3 represented the distribution of indications for skin grafts among the study participants receiving partial thickness skin grafts. Of the 215 participants, 34.9% (75 individuals) underwent the procedure due to chronic ulcers. Trauma accounted for 34.4% (74 individuals) of the cases. Burn injuries were the indication for 30.7% (66 individuals) of the participants.

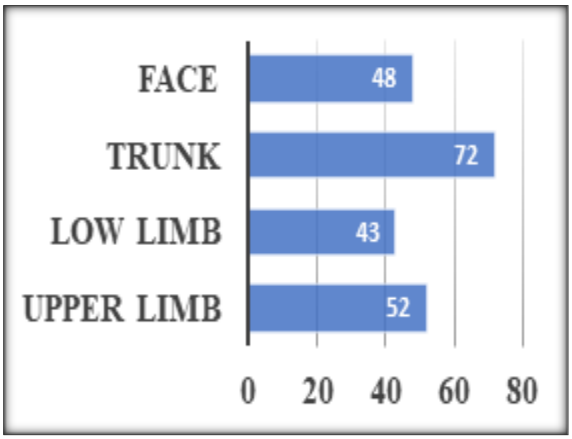

Figure 4: Distribution of Wound Location

The above table depicted that among the 215 participants, 24.2% (52 individuals) had wounds located on the upper limb. Wounds on the lower limb accounted for 20.0% (43 individuals) of the cases. The trunk was the most common wound location, representing 33.5% (72 individuals) of the participants. Additionally, 22.3% (48 individuals) of the participants had wounds on the face.

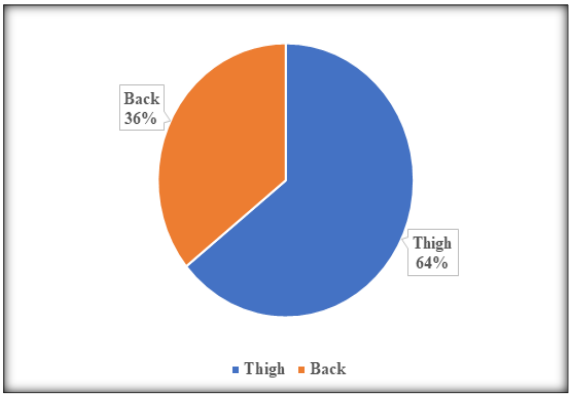

Figure 5: Distribution of Donor Site Location

The table no-5 represented that, out of 215 participants, 64.2% (138 individuals) had their grafts taken from the thighs. The remaining 35.8% (77 individuals) had their grafts taken from the back.

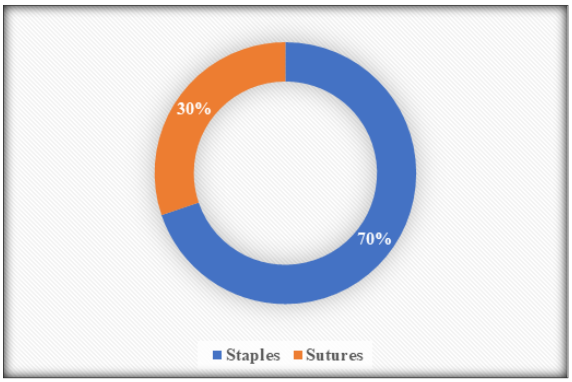

Figure 6: Distribution of Fixation Technique

The table no-6 showed that among the 215 participants, 69.8% (150 individuals) had their grafts fixed with staples. The remaining 30.2% (65 individuals) had their grafts fixed with sutures.

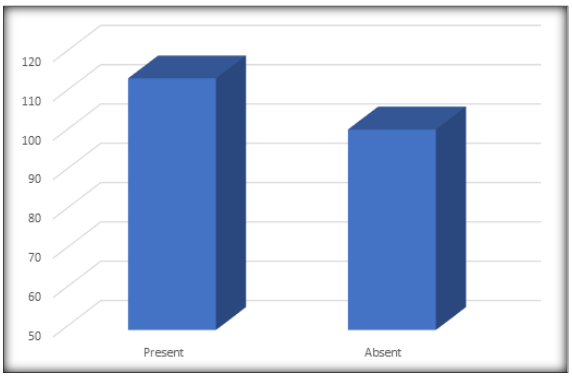

Figure 7: Distribution of Presence of hematoma

The above table displayed the distribution of hematoma presence among participants receiving partial thickness skin grafts. Out of 215 participants, 53.0% (114 individuals) had hematomas present, while 47.0% (101 individuals) did not have hematomas.

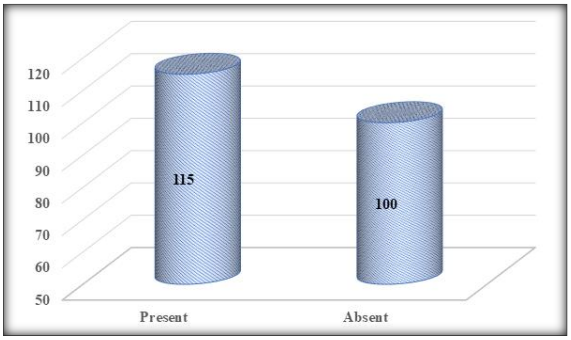

Figure 8: Distribution of Presence of Seroma

The table no-8 displayed that out of 215 participants, 53.5% (115 individuals) had seromas present, while 46.5% (100 individuals) did not.

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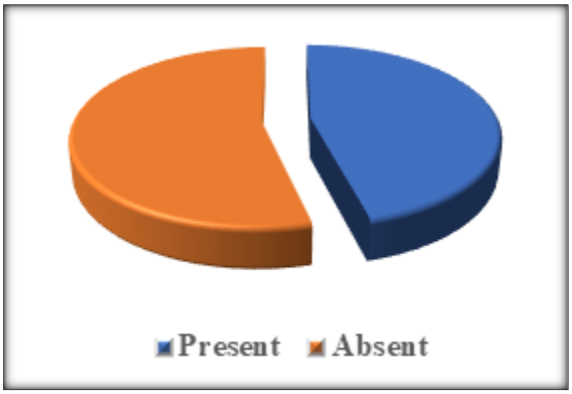

Figure 9: Distribution of Presence of Infection

The above table illustrated the distribution of infection among participants receiving partial thickness skin grafts. Out of 215 participants, 46.0% (99 individuals) had infections present in their wounds, while 54.0% (116 individuals) did not have infections.

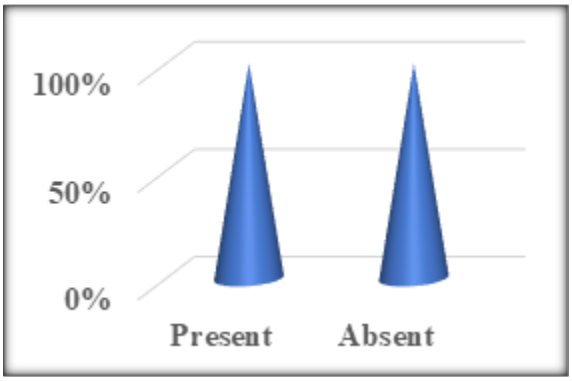

Figure 10: Distribution of Shear Movement

The table no-10 showed the distribution of shear movement among participants receiving partial thickness skin grafts. Out of 215 participants, 49.3% (106 individuals) experienced shear movement, while 50.7% (109 individuals) did not.

The table no-11 delineated the distribution of hematoma evacuation necessity among participants receiving partial thickness skin grafts. Out of 215 participants, hematoma evacuation was performed in 53.0% (114 individuals) of the cases. The remaining 47.0% (101 individuals) did not require hematoma evacuation. [Table 11]

The above table represented that out of 215 participants, seroma drainage was performed in 53.5% (115 individuals) of the cases. The remaining 46.5% (100 individuals) did not require seroma drainage. [Table 12]

The table above showcased the distribution of the need for antibiotics for infection treatment among participants receiving partial thickness skin grafts. Out of 215 participants, 46.0% (99 individuals) required antibiotics, while 54.0% (116 individuals) did not. [Table 13]

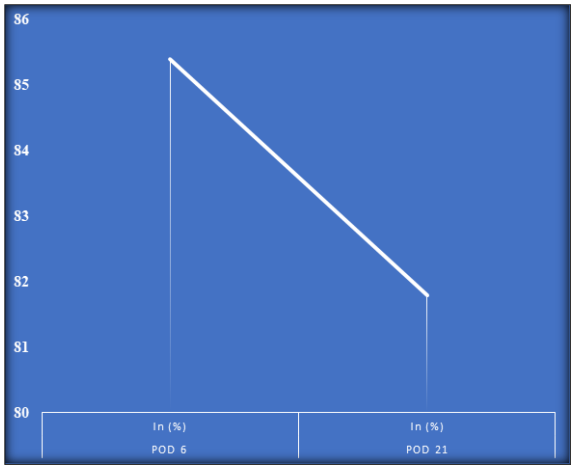

Figure 11: Comparison of Graft Uptake Between Pod 6 And 21 Days

The table no-14 compared the percentage of graft uptake on post-operative day 6 and day 21 among participants receiving partial thickness skin grafts. The mean percentage of graft uptake on day 6 is 85.40 with a standard deviation of 7.31. On day 21, the mean percentage of graft uptake decreases to 81.80 with a standard deviation of 6.65. The p-value of 0.001 indicates a statistically significant difference between the graft uptake percentages on these two post-operative days. This data suggests a notable reduction in graft uptake from day 6 to day 21. [Table 14]

The table displayed the association of various factors with graft uptake among participants receiving partial thickness skin grafts. Age showed a significant association, with participants aged 31-50 years having the highest successful uptake (80 successful cases, 22 failures) and a p-value of 0.026. Gender also exhibits a significant association, with males showing higher successful uptake (74 successful cases, 18 failures) and a p-value of 0.006.

Other factors, including indications for skin graft (chronic ulcer, trauma, burn injury), wound location (upper limb, lower limb, trunk, face), donor site location (thigh, back), presence of hematoma, presence of seroma, infection status, and shear movement, did not show statistically significant associations with graft uptake, as indicated by their respective p-values being greater than 0.05. The data suggests that age and gender are important factors influencing graft uptake success. [Table 15]

Table 1: Distribution of Age Group of Study Participants Receiving Partial Thickness Skin Graft (n=215)

Age in Years	Frequency	Percent
18-30	66	30.7
31-50	102	47.4
51-60	47	21.9

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Table 2: Distribution of Gender Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Male	92	42.8
Female	123	57.2

Table 3: Distribution of Indication for Skin Graft Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Chronic Ulcer	75	34.9
Trauma	74	34.4
Burn Injury	66	30.7

Table 4: Distribution of Wound Location Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Upper limb	52	24.2
Lower limb	43	20.0
Trunk	72	33.5
Face	48	22.3

Table 5: Distribution of Donor Site Location Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Thigh	138	64.2
Back	77	35.8

Table 6: Distribution of Fixation Techniques Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Staples	150	69.8
Sutures	65	30.2

Table 7: Distribution of Hematoma Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Present	114	53.0
Absent	101	47.0

Table 8: Distribution of Seroma Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Present	115	53.5
Absent	100	46.5

Table 9: Distribution of Infection in Wound Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Present	99	46.0
Absent	116	54.0

Table 10: Distribution of Shear Movement Involved Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Present	106	49.3
Absent	109	50.7

Table 11: Distribution of Need for Hematoma Evacuation Study Participants Receiving Partial Thickness Skin Graft

	Frequency	Percent
Performed	114	53.0
Not Required	101	47.0

Table 12: Distribution of Need for Seroma Drainage Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Performed	115	53.5
Not Required	100	46.5

Table 13: Distribution of Need for Antibiotics for Treatment of Infection Study Participants Receiving Partial Thickness Skin Graft (n=215)

	Frequency	Percent
Antibiotics	99	46.0
Not required	116	54.0

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Table 14: Comparison of Percentage of Graft Uptake on Post-Operative Day 6 and Day 21 Study Participants Receiving Partial Thickness Skin Graft

	POD 6 In (%)	POD 21 In (%)	P value
Mean±Standard Deviation	85.40±7.31	81.80±6.65	0.001

Table 15: Association of Various Factors with Graft Uptake Study Participants Receiving Partial Thickness Skin Graft

		Uptake Successful	Uptake Failure	P Value
Age	18-30	39	27	0.026
	31-50	80	22	
	51-60	31	15	
Gender	Male	74	18	0.006
	Female	77	46	
Indication of Skin graft	Chronic Ulcer	55	20	0.541
	Trauma	53	21	
	Burn Injury	43	23	
Wound Location	Upper limb	37	15	0.977
	Lower limb	29	14	
	Trunk	51	21	
	Face	34	14	
Donor Site Location	Thigh	97	41	1.000
	Back	54	23	
Hematoma	Present	78	36	0.554
	Absent	73	28	
Seroma	Present	78	37	0.456
	Absent	73	27	
Infection	Present	71	28	0.765
	Absent	80	36	
Shear Movement	Present	75	31	0.883
	Absent	76	33	

DISCUSSION

The age distribution of participants receiving partial thickness skin grafts in our study reveals that the majority of participants fall within the 31 to 50-year age range, accounting for 47.4% of the total. This is followed by the 18 to 30-year age group at 30.7%, and the 51 to 60-year age group at 21.9%.

A study conducted by Dias et al. (2023) on split thickness skin graft uptake in diabetics found that the majority of participants were also within the 31 to 50-year age range. This similarity may be attributed to the fact that individuals in this age group are more likely to seek medical treatment for skin grafts due to higher activity levels and increased exposure to injuries.[7]

However, a comparative study by Lam and Srikanth (2024) on split thickness and full thickness skin grafts in patients with raw areas from burns or trauma showed a different age distribution. In their study, the majority of participants were younger, with a significant proportion falling within the 18 to 30-year age range. This difference could be due to the nature of the injuries being treated, as younger individuals are more likely to experience burns and trauma-related injuries.[8]

Another study by Dean et al. (2025) on advancements in bioengineered and autologous skin grafting techniques highlighted the challenges faced by older participants, particularly those above 50 years of age. The lower proportion of participants in the 51 to 60-year age group in your study may be due to the increased complexity and risk associated with skin graft procedures in older individuals.[9]

The gender distribution of participants receiving partial thickness skin grafts in our study showed a higher proportion of female participants (57.2%) compared to male participants (42.8%).

In a study by Reddy et al. (2022) on the fixation of split skin grafts using cyanoacrylate tissue adhesive versus skin stapling, the gender distribution showed a male preponderance, with 73.3% of participants being male and only 26.7% being female. This difference could be attributed to the specific patient population and the nature of the injuries being treated in their study, which may have been more common among males.[10]

Another study by Masthi et al. (2023) on the survival of split skin grafting in diabetic ulcers also reported a higher proportion of male participants. The male-to-female ratio in their study was approximately 2.75:1, indicating a significant male dominance. This could be due to the higher prevalence of diabetic foot ulcers among males, as well as differences in healthcare-seeking behavior between genders.[11]

In contrast, this study's higher proportion of female participants may be influenced by factors such as the type of injuries or conditions being treated, cultural or societal factors, or differences in healthcare access and utilization between genders. It is also possible that females are more likely to seek medical treatment for skin grafts due to cosmetic concerns or other reasons.

The distribution of indications for partial thickness skin grafts in this study reveals that chronic ulcers

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(34.9%), trauma (34.4%), and burn injuries (30.7%) are the primary reasons for the procedure.

In a study by Dias et al. (2023) on split thickness skin graft uptake in diabetics, chronic ulcers were also a significant indication for the procedure, similar to our findings. This similarity may be due to the high prevalence of chronic ulcers among diabetic patients, which often necessitates skin grafting for effective wound management.[7]

However, a comparative study by Lam and Srikanth (2024) on split thickness and full thickness skin grafts in patients with raw areas from burns or trauma showed a higher proportion of participants undergoing the procedure due to trauma and burn injuries. This difference could be attributed to the specific patient population and the nature of the injuries being treated in their study, which may have been more common among individuals with traumatic injuries and burns.[8]

Another study by Dean et al. (2025) on advancements in bioengineered and autologous skin grafting techniques highlighted the challenges faced by patients with burn injuries, particularly those with extensive burns. The lower proportion of participants with burn injuries in your study may be due to the increased complexity and risk associated with skin graft procedures in patients with severe burns.[9]

The distribution of wound locations among participants receiving partial thickness skin grafts in our study shows that the trunk was the most common wound location (33.5%), followed by the upper limb (24.2%), face (22.3%), and lower limb (20.0%).

In a study by Kimani et al. (2019) on the effect of recipient site bacterial profile on the percentage take of split thickness skin grafts, the trunk was also identified as a common wound location, similar to our findings. This similarity may be due to the larger surface area of the trunk, making it a frequent site for skin graft procedures.[12]

However, a study by Pinho et al. (2024) on the role of perfusion in skin graft viability on the scalp and lower limb showed a higher proportion of participants with wounds on the lower limb. This difference could be attributed to the specific patient population and the nature of the injuries being treated in their study, which may have been more common among individuals with lower limb wounds.[13]

Another study by Ravishankar et al. (2020) on the uptake of skin grafts between patients receiving negative pressure wound therapy and conventional petroleum jelly gauze dressing found that the upper limb was a common wound location. The higher proportion of participants with upper limb wounds in their study may be due to the increased use of negative pressure wound therapy in treating upper limb injuries.[14]

The distribution of donor site locations among participants receiving partial thickness skin grafts in this study showed that the majority of grafts were taken from the thighs (64.2%), while the remaining grafts were taken from the back (35.8%).

In a study by Romanelli et al. (2019) on skin graft donor site management in the treatment of burns and hard-to-heal wounds, the thighs were also identified as a common donor site location. This similarity may be due to the larger surface area and ease of access provided by the thighs, making them a preferred site for harvesting skin grafts.[15]

However, a study by Coban et al. (2011) on skin graft harvesting and donor site selection highlighted the use of the back as a donor site, particularly in cases where the thighs were not suitable. This difference could be attributed to the specific patient population and the nature of the injuries being treated in their study, which may have required the use of alternative donor sites.[16]

Another study by Kumar and Babu (2022) on the management of donor sites in split-skin grafting emphasized the importance of selecting an appropriate donor site to minimize complications and promote wound healing. The higher proportion of participants with grafts taken from the thighs in our study may be due to the lower risk of complications and faster healing associated with this donor site.[17]

The distribution of fixation techniques among participants receiving partial thickness skin grafts in our study shows that the majority of grafts were fixed with staples (69.8%), while the remaining grafts were fixed with sutures (30.2%).

In a study by Venkatesan et al. (2023) on the fixation of split skin grafts using skin staples versus skin sutures, it was found that staples were preferred over sutures due to their faster application and reduced operating time. This similarity may be due to the efficiency and convenience of using staples, which can significantly reduce the time required for graft fixation.[18]

However, a study by Modi et al. (2023) on the comparison between skin sutures and skin staplers in abdominal surgery highlighted that while staples were faster to apply, sutures provided better cosmetic outcomes and lower rates of postoperative wound infection. This difference could be attributed to the specific surgical context and the nature of the wounds being treated in their study, which may have required more precise and secure fixation methods.[19]

Another study by Ravishankar et al. (2020) on the uptake of skin grafts between patients receiving negative pressure wound therapy and conventional petroleum jelly gauze dressing found that the choice of fixation technique could influence the overall success of the graft. The higher proportion of participants with graft fixed using staples in our study may be due to the lower risk of complications and faster healing associated with this fixation method.[14]

In our study, 53.0% of participants experienced hematomas. This finding aligns with previous research that identified hematoma formation as a common complication in skin graft procedures. The presence of hematomas can be attributed to the disruption of blood vessels during grafting, leading to blood accumulation under the graft.[14] However, some studies have reported lower hematoma rates,

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which could be due to differences in surgical techniques or patient populations.[21]

The occurrence of seromas in 53.5% of participants is consistent with other studies that highlight seroma formation as a frequent postoperative issue. Seromas result from the accumulation of serous fluid in the dead space created during grafting.[10] The use of cyanoacrylate tissue adhesive has been shown to reduce seroma formation compared to traditional skin stapling methods.

Infections were present in 46.0% of participants, which is higher than the rates reported in some studies.[22] The high infection rate in our study could be due to inadequate preoperative preparation or postoperative care.[23] Common pathogens associated with graft infections include Staphylococcus aureus and Pseudomonas aeruginosa. Effective infection control measures, such as proper wound care and the use of prophylactic antibiotics, are crucial in reducing infection rates.[12]

Shear movement was observed in 49.3% of participants, indicating a significant challenge in maintaining graft stability. Shear forces can disrupt graft adherence, leading to partial or complete graft loss. Studies have shown that minimizing patient movement and using appropriate immobilization techniques can reduce shear-related complications. The variation in shear movement rates across studies may be influenced by differences in patient compliance and postoperative protocols.[24]

The comparison of graft uptake percentages on post-operative day 6 and day 21 among participants receiving partial thickness skin grafts reveals a statistically significant reduction in graft uptake over time. This finding is consistent with previous studies that have observed a decline in graft uptake as the post-operative period progresses. The mean percentage of graft uptake on post-operative day 6 was 85.40% with a standard deviation of 7.31. This high initial uptake can be attributed to the early stages of graft healing, where the graft is still well-adhered to the wound bed and has not yet been subjected to significant mechanical stress or infection. Studies have shown that the initial graft uptake is crucial for the overall success of the grafting procedure. By post-operative day 21, the mean percentage of graft uptake decreased to 81.80% with a standard deviation of 6.65. This reduction in graft uptake can be attributed to several factors, including the development of complications such as infection, hematoma, or seroma, as well as mechanical shear forces that disrupt graft adherence. The statistically significant p-value of 0.001 indicates that this reduction is not due to random variation but is a consistent trend observed in the study population. Previous research has reported similar trends in graft uptake over time. For instance, a study comparing the uptake of skin grafts between patients receiving negative pressure wound therapy (NPWT) and conventional petroleum jelly gauze dressing found that NPWT significantly improved graft uptake and reduced complications.[8] Another study on the role of infection in split skin grafting highlighted the impact of bacterial contamination on graft uptake, with infected grafts showing significantly lower uptake rates.[23] The similarity in findings across studies can be attributed to the common factors influencing graft uptake, such as the quality of the wound bed, the presence of infection, and the mechanical stability of the graft. Differences in graft uptake rates may arise from variations in surgical techniques, postoperative care protocols, and patient populations. For example, the use of advanced wound care technologies like NPWT can enhance graft uptake and reduce complications, leading to better outcomes compared to conventional methods. The observed reduction in graft uptake from post-operative day 6 to day 21 underscores the importance of vigilant postoperative care and the management of complications to ensure successful graft healing.

The association of various factors with graft uptake among participants receiving partial thickness skin grafts reveals significant insights. Age showed a significant association, with participants aged 31-50 years having the highest successful uptake (80 successful cases, 22 failures) and a p-value of 0.026. This finding aligns with previous studies that have identified age as a critical factor in graft uptake success, with younger patients generally exhibiting better outcomes due to their higher regenerative capacity 19. Gender also exhibits a significant association, with males showing higher successful uptake (74 successful cases, 18 failures) and a p-value of 0.006. This result is consistent with research indicating that hormonal differences and variations in skin thickness between genders can influence graft uptake.

Other factors, including indications for skin graft (chronic ulcer, trauma, burn injury), wound location (upper limb, lower limb, trunk, face), donor site location (thigh, back), presence of hematoma, presence of seroma, infection status, and shear movement, did not show statistically significant associations with graft uptake, as indicated by their respective p-values being greater than 0.05. These findings are in line with studies that have reported mixed results regarding the impact of these factors on graft uptake 20. For instance, while some research suggests that wound location and donor site can affect graft success, others have found no significant correlation.

The data suggests that age and gender are important factors influencing graft uptake success. The similarity in findings across studies can be attributed to the common biological and physiological factors that influence graft healing. Differences in graft uptake rates may arise from variations in surgical techniques, postoperative care protocols, and patient populations. For example, the use of advanced wound care technologies like negative pressure wound therapy (NPWT) can enhance graft uptake and reduce complications, leading to better outcomes compared to conventional methods.

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CONCLUSION

This study highlights the influence of patient demographics and post-operative complications on the success of partial thickness skin graft uptake. Age and gender emerged as statistically significant predictors of graft adherence, with the highest success rate observed among male participants aged 31-50 years. The progressive decline in graft uptake from post-operative day 6 to day 21 underscores the necessity for continuous monitoring and optimized post-operative care strategies to enhance graft retention.

Despite the high prevalence of post-operative complications such as hematoma, seroma, infection, and shear movement, these factors did not demonstrate statistically significant associations with graft failure. This finding suggests that while these complications may contribute to delayed healing, they are not the primary determinants of graft adherence.

The study underscores the importance of tailored post-operative interventions, particularly for high-risk groups such as older individuals and female patients, to mitigate the risks of graft failure. Further research with larger sample sizes and longer follow-up periods is warranted to elucidate additional factors that may influence skin graft outcomes. Implementing evidence-based wound management protocols and refining surgical techniques may further enhance graft survival and overall patient outcomes in reconstructive procedures.

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