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Study of Donor Site Healing Following Harvesting of Split Skin Graft

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ABSTRACT

Background: Split-thickness skin grafting (STSG) is a commonly performed reconstructive procedure for managing burns, traumatic wounds, chronic ulcers, and soft tissue defects. Although successful graft uptake at the recipient site is often the primary focus, healing of the donor site is equally important, as it influences postoperative pain, patient comfort, mobility, and overall recovery. Conventional Vaseline gauze remains the standard dressing in many centres; however, it may be associated with pain, wound soakage, and delayed healing. Haemocoagulase combined with collagen has been suggested to improve donor site healing by promoting haemostasis and accelerating tissue repair. **Aim**: To evaluate the Donor Site Healing Following Harvesting of Split Skin Graft. **Materials and Methods**: This prospective randomized interventional study was conducted in the Department of General Surgery at Muzaffarnagar Medical College over a period of 18 months. Sixty patients undergoing split-thickness skin graft harvesting were randomly assigned to two equal groups. Group A received conventional Vaseline gauze dressing, while Group B was treated with a haemocoagulase-collagen composite dressing. Donor site pain was assessed using the Visual Analogue Scale (VAS) at 48 hours. Time to pain-free ambulation, extent of re-epithelialization on postoperative days 15 and 21, and postoperative complications were recorded and compared. Statistical analysis was performed using SPSS version 20, and a p-value of less than 0.05 was considered statistically significant. **Results**: Patients treated with the haemocoagulase-collagen dressing experienced significantly less pain at 48 hours than those receiving Vaseline gauze (VAS: 3.23 ± 1.71 vs. 4.33 ± 2.36; p = 0.0464). They also resumed pain-free walking earlier (2.83 ± 1.10 days vs. 3.70 ± 1.22 days; p = 0.0060). Although donor site re-epithelialization was consistently better in the haemocoagulase-collagen group on postoperative days 15 and 21, the differences were not statistically significant. Wound soakage was significantly less frequent with the haemocoagulase-collagen dressing (p = 0.0443). No major adverse events or significant differences in other complications were observed between the groups. **Discussion**: The present hospital-based interventional study demonstrated that topical haemocoagulase with a collagen sheet is an effective alternative to conventional Vaseline gauze for split-thickness skin graft donor-site management. Patients treated with haemocoagulase experienced significantly lower postoperative pain, earlier pain-free ambulation, and reduced wound soakage, resulting in improved comfort and functional recovery. Although re-epithelialisation and postoperative complication rates were comparable between the two groups, haemocoagulase provided a cleaner wound environment without compromising healing. Overall, these findings suggest that haemocoagulase with a collagen sheet is a safe, effective, and patient-friendly dressing option for routine donor-site management following split-thickness skin grafting. **Conclusion**: Haemocoagulase-collagen composite dressing offers better donor site management than conventional Vaseline gauze by reducing postoperative pain, facilitating earlier mobilization, and minimizing wound soakage. Although the rate of

epithelialization was comparable between the groups, the improved patient comfort and functional recovery make this dressing a useful and practical alternative for donor site care following split-thickness skin graft harvesting.

Keywords*: Split-thickness skin graft, donor site healing, haemocoagulase, collagen dressing, wound healing, re-epithelialization.*

INTRODUCTION

Skin grafting is a cornerstone of reconstructive surgery and remains one of the most effective methods for covering burns, traumatic wounds, chronic ulcers, and post-excisional soft tissue defects [1-3]. Among the available grafts, split-thickness skin grafts (STSGs), comprising the epidermis and a variable portion of the dermis, are most commonly used because they provide reliable graft take, cover large defects, and are associated with relatively low donor-site morbidity [4,5].

While successful graft uptake at the recipient site is the primary goal of surgery, healing of the donor site is equally important, as it significantly influences postoperative pain, mobility, hospital stay, cosmetic outcome, and patient satisfaction [6]. The donor site is essentially a superficial partial-thickness wound that heals through re-epithelialization from residual dermal appendages such as hair follicles and sweat glands. Under normal conditions, healing is usually completed within 10–21 days; however, it may be delayed by factors including advanced age, diabetes mellitus, poor nutritional status, smoking, graft thickness, donor site location, and postoperative wound care [7-10].

Delayed donor-site healing can result in pain, infection, prolonged wound discharge, pigmentation changes, hypertrophic scarring, and delayed recovery, emphasizing the importance of appropriate donor-site management [10]. Although conventional Vaseline (paraffin) gauze remains one of the most widely used dressings because of its low cost and easy availability, it is often associated with painful dressing changes, wound soakage, and slower healing [11]. Consequently, several advanced dressings have been introduced to create a moist wound environment, reduce pain, and promote faster epithelialization [12].

Collagen dressings provide a biological scaffold that supports cell migration, angiogenesis, and tissue repair, whereas haemocoagulase promotes rapid haemostasis by enhancing fibrin formation and reducing capillary bleeding [13]. Their combined use may improve donor-site healing by reducing pain, controlling wound exudate, and facilitating epithelialization [15-16]. Although newer approaches such as platelet-rich plasma, minced skin grafting, and modified harvesting techniques have shown promising results, no dressing has yet been established as the universal standard for donor-site care [17-18].

Given the continued lack of consensus, this study was undertaken to evaluate donor-site healing following split-thickness skin graft harvesting and to compare conventional Vaseline gauze dressing with a haemocoagulase-collagen composite dressing. The study assessed postoperative pain, wound soakage, re-epithelialization, and donor-site complications to determine whether the haemocoagulase-collagen dressing offers a clinical advantage over conventional management [19-20].

AIM AND OBJECTIVES

Aim

To evaluate Study of Donor Site Healing Following Harvesting of Split Skin Graft.

Objectives

- To compare donor site healing between patients treated with conventional Vaseline gauze dressing and those treated with haemocoagulase-collagen composite dressing following split-thickness skin graft harvesting.
- To assess postoperative donor site outcomes, including pain, wound soakage, re-epithelialization, and complications.
- To evaluate the patient- and procedure-related factors that influence donor site healing following split-thickness skin graft harvesting.

MATERIALS AND METHODS

Study Design

This was a prospective, hospital-based interventional study conducted to evaluate donor site healing following split-thickness skin graft (STSG) harvesting. The study compared two donor site dressing techniques to determine their effectiveness in promoting wound healing.

Study Setting

The study was carried out in the Department of General Surgery, Muzaffarnagar Medical College and Hospital, Muzaffarnagar, Uttar Pradesh.

Study Duration
The study was conducted over a period of 18 months, comprising 12 months of patient recruitment and data collection, followed by 6 months of data analysis and interpretation.

Study Population
The study included patients undergoing split-thickness skin graft harvesting for various surgical indications during the study period.

Sample Size and Sampling
A total of 60 patients were enrolled based on the average number of eligible cases treated at the institution over the preceding three years. Eligible patients who fulfilled the selection criteria were included using purposive sampling.

Study Groups
Participants were randomly allocated into two equal groups (30 patients each):

- **Group A:** Donor site dressed with conventional sterile Vaseline gauze.
- **Group B:** Donor site treated with 5–10 drops of topical haemocoagulase solution followed by application of a sterile moist collagen sheet.

Inclusion Criteria
Patients were included if they:

- Were 18–60 years of age.
- Underwent split-thickness skin graft harvesting.
- Had a donor site measuring approximately 10 × 10 cm to 25 × 40 cm.
- Provided written informed consent to participate in the study.

Exclusion Criteria
Patients were excluded if they had:

- Diabetes mellitus.
- Anaemia.
- Hypoproteinaemia.
- Donor site wounds larger than the predefined size.

Data Collection
Demographic details, clinical findings, operative details, and postoperative outcomes were recorded using a predesigned case record proforma. Patients were followed to assess donor site pain, wound soakage, re-epithelialization, and postoperative complications.

Statistical Analysis
Data were entered and analysed using SPSS version 20. Continuous variables were expressed as mean ± standard deviation, while categorical variables were presented as frequencies and percentages. Comparisons between the two groups were performed using appropriate statistical tests. A p-value < 0.05 was considered statistically significant.

RESULTS

Age Distribution of Patients in the Two Study Groups

Table 1: Age Distribution of Patients in the Two Study Groups

Age	Group A (Vaseline gauze)		Group B (Haemocoagulase)	
	Frequency	Percentage	Frequency	Percentage
20-30 years	10	33.33%	9	30.00%
31-40 years	14	46.67%	13	43.33%
41-50 years	5	16.67%	8	26.67%
51-60 years	1	3.33%	0	0.00%
Total	30	100.00%	30	100.00%
p-value	0.6188			

Most patients in both groups were aged 31–40 years, comprising 46.67% of Group A and 43.33% of Group B. The 20–30 years age group was the next most common, followed by patients aged 41–50 years. Only one patient in Group A belonged to the 51–60 years age group, while no patients in Group B were in this age range. Overall, the age distribution was similar between the two groups, and the difference was not statistically significant ($p = 0.6188$), indicating that the groups were comparable with respect to age (Table 1).

Gender Distribution of Patients in the Two Study Groups

Table 2: Gender Distribution of Patients in the Two Study Groups

Gender	Group A (Vaseline gauze)		Group B (Haemocoagulase)	
	Frequency	Percentage	Frequency	Percentage
Male	14	46.67%	18	60.00%
Female	16	53.33%	12	40.00%
p-value	0.3006			

The gender distribution was comparable between the two study groups. In Group A, females slightly outnumbered males, accounting for 53.33% and 46.67% of patients, respectively. In Group B, males were more common than females (60.00% vs. 40.00%). However, this difference was not statistically significant ($p = 0.3006$), indicating that the two groups were well matched with respect to gender (Table 2).

Comparison of Mean Donor Site Area Between the Two Study Groups

Table 3: Comparison of Mean Donor Site Area Between the Two Study Groups

Donor Site Area (cm^2)	Group A (Vaseline gauze)	Group B (Haemocoagulase)
Mean	246.43	265.40
SD	83.99	76.56
p-value	0.3725	

The mean donor site area was slightly larger in Group B (265.40 ± 76.56 cm^2) than in Group A (246.43 ± 83.99 cm^2). However, this difference was not statistically significant ($p = 0.3725$), indicating that the donor site areas were comparable between the two groups at baseline (Table 3).

Comparison of Visual Analogue Scale (VAS) Pain Score at 48 Hours Between the Two Study Groups

Table 4: Comparison of Visual Analogue Scale (VAS) Pain Score at 48 Hours Between the Two Study Groups

VAS Score at 48hr	Group A (Vaseline gauze)	Group B (Haemocoagulase)
Mean	4.33	3.23
SD	2.36	1.71
p-value	0.0464	

Patients in Group B experienced significantly less pain at 48 hours after surgery than those in Group A. The mean VAS score was 3.23 ± 1.71 in the haemocoagulase-collagen group compared with 4.33 ± 2.36 in the Vaseline gauze group. This difference was statistically significant ($p = 0.0464$), indicating that the haemocoagulase-collagen dressing provided better postoperative pain relief (Table 4).

Comparison of Ambulation Start Day Between the Two Study Groups

Table 5: Comparison of Ambulation Start Day Between the Two Study Groups

Ambulation Start Day	Group A (Vaseline gauze)	Group B (Haemocoagulase)
Mean	1.70	1.40
SD	0.69	0.49
p-value	0.0613	

Patients in Group B began ambulation slightly earlier than those in Group A. The mean time to ambulation was 1.40 ± 0.49 days in the haemocoagulase-collagen group compared with 1.70 ± 0.69 days in the Vaseline gauze group. Although ambulation tended to occur earlier in Group B, the difference was not statistically significant ($p = 0.0613$), indicating comparable postoperative recovery between the two groups (Table 5).

Comparison of Time to Pain-Free Ambulation Between the Two Study Groups

Table 6: Comparison of Time to Pain-Free Ambulation Between the Two Study Groups

Pain-free Ambulation Day	Group A (Vaseline gauze)	Group B (Haemocoagulase)
Mean	3.70	2.83
SD	1.22	1.10
p-value	0.0060	

Patients treated with the haemocoagulase-collagen dressing achieved pain-free ambulation significantly earlier than those treated with conventional Vaseline gauze. The mean time to pain-free ambulation was 2.83 ± 1.10 days in Group B compared with 3.70 ± 1.22 days in Group A. This difference was statistically significant ($p = 0.0060$), suggesting that the haemocoagulase-collagen dressing facilitated earlier functional recovery following split-thickness skin graft harvesting (Table 6).

Comparison of Donor Site Re-epithelialization Status on Postoperative Day 15 Between the Two Study Groups

Table 7: Comparison of Donor Site Re-epithelialization Status on Postoperative Day 15 Between the Two Study Groups

Re-epithelisation Day 15	Group A (Vaseline gauze)		Group B (Haemocoagulase)	
	Frequency	Percentage	Frequency	Percentage
Complete	19	63.33%	21	70.00%
Partial	11	36.67%	9	30.00%
p-value	0.5838			

By postoperative day 15, complete donor site re-epithelialization was observed in 70.00% of patients in Group B compared with 63.33% in Group A. The remaining patients showed partial re-epithelialization (30.00% in Group B and 36.67% in Group A). Although a greater proportion of patients in the haemocoagulase-collagen group achieved complete healing by day 15, the difference between the two groups was not statistically significant ($p = 0.5838$) (Table 7).

Comparison of Donor Site Re-epithelialization Status on Postoperative Day 21 Between the Two Study Groups

Table 8: Comparison of Donor Site Re-epithelialization Status on Postoperative Day 21 Between the Two Study Groups

Re-epithelisation Day 21	Group A (Vaseline gauze)		Group B (Haemocoagulase)	
	Frequency	Percentage	Frequency	Percentage
Complete	24	80.00%	27	90.00%
Partial	6	20.00%	3	10.00%
p-value	0.278			

Assessment of donor site healing on postoperative day 21 showed that the majority of patients in both groups had achieved complete re-epithelialization. Complete healing was observed in 80.00% of patients in Group A and 90.00% of patients in Group B, while partial re-epithelialization persisted in 20.00% and 10.00% of patients, respectively. Although the haemocoagulase-collagen group demonstrated a higher rate of complete healing, the difference was not statistically significant ($p = 0.278$), indicating comparable re-epithelialization outcomes between the two groups by day 21 (Table 8).

Comparison of Postoperative Donor Site Complications Between the Two Study Groups

Table 9: Comparison of Postoperative Donor Site Complications Between the Two Study Groups

Complications	Group A (Vaseline gauze)		Group B (Haemocoagulase)		p-value
	Frequency	Percentage	Frequency	Percentage	
Infection	6	20.00%	3	10.00%	0.278
Mild soakage	6	20.00%	1	3.33%	0.0443
Delayed healing	3	10.00%	1	3.33%	0.3006

Overall, postoperative donor site complications were less frequent in the haemocoagulase-collagen group than in the conventional Vaseline gauze group. Donor site infection occurred in 20.00% of patients in Group A and 10.00% in Group B; however, this difference was not statistically significant ($p = 0.278$). Mild wound soakage was significantly more common in Group A (20.00%) than in Group B (3.33%) ($p = 0.0443$). Delayed healing was observed in 10.00% of patients in Group A compared with 3.33% in Group B, although the difference was not statistically significant ($p = 0.3006$). These findings suggest that the haemocoagulase-collagen dressing was associated with fewer donor site complications, particularly a significant reduction in wound soakage (Table 9).

DISCUSSION

The present hospital-based interventional study demonstrated that topical haemocoagulase with a collagen sheet is an effective alternative to conventional Vaseline gauze dressing for split-thickness skin graft donor-site management. Both groups were comparable in terms of age, gender, and donor-site area, minimizing baseline bias and allowing a reliable comparison of postoperative outcomes. Unlike previous studies by Otene CI et al. [21] and Miyanaga T et al. [17], which included relatively older and predominantly male populations, the present study involved a younger and more gender-balanced cohort, enhancing the applicability of the findings.

One of the most important findings was the significant reduction in donor-site pain in the haemocoagulase group. Patients treated with haemocoagulase and collagen dressing had significantly lower VAS pain scores at 48 hours and achieved pain-free ambulation earlier than those receiving conventional Vaseline gauze. These findings indicate better postoperative comfort and faster functional recovery. Similar reviews by Asuku M et al. [22] have reported variable pain outcomes with different donor-site dressings; however, the present study demonstrates a clear analgesic advantage with haemocoagulase, likely due to improved haemostasis, reduced inflammation, and the protective properties of the collagen sheet.

Although the difference in the day of initial ambulation was not statistically significant, patients in the intervention group showed a trend toward earlier mobilization, while pain-free ambulation occurred significantly sooner. Earlier mobility is associated with improved functional recovery, fewer postoperative complications, and greater patient satisfaction, highlighting the clinical benefit of haemocoagulase dressing.

Both groups demonstrated progressive re-epithelialisation, with slightly higher healing rates in the haemocoagulase group by postoperative days 15 and 21, although the differences were not statistically significant. These findings are consistent with those of Asuku M et al. [22] and Wehrens KME et al. [23], who reported that while dressing materials may influence early wound conditions, biological factors also play an important role in epithelial regeneration. Thus, haemocoagulase improved patient comfort without compromising wound healing.

Postoperative complications were generally fewer in the haemocoagulase group, with significantly reduced wound soakage and numerically lower rates of infection and delayed healing. Reduced soakage decreases dressing changes, improves patient comfort, and simplifies postoperative wound care. Similar observations have been reported by Asuku M et al. [22] and Miyanaga T et al. [17], whereas Kuwabara K et al. [18] reported minimal donor-site complications with primary closure techniques, which differ from the open donor-site management evaluated in the present study.

The comparable donor-site areas in both groups further strengthen the study by eliminating wound size as a confounding factor. Similar findings by Jun D et al. [24] and Wehrens KME et al. [23] suggest that standardized wound care has a greater influence on healing than donor-site dimensions alone.

Overall, the present study demonstrates that topical haemocoagulase combined with collagen sheet dressing provides superior postoperative pain control, earlier pain-free ambulation, reduced wound soakage, and comparable wound healing compared with conventional Vaseline gauze dressing. These advantages may reduce analgesic requirements, improve patient comfort, facilitate rehabilitation, and simplify postoperative care, making haemocoagulase with collagen dressing a safe and effective option for routine donor-site management following split-thickness skin grafting.

CONCLUSION

The present study demonstrates that topical haemocoagulase with a collagen sheet is a superior donor-site dressing compared with conventional Vaseline gauze following split-thickness skin graft harvesting. It significantly reduces postoperative pain, promotes earlier pain-free ambulation, and minimizes wound soakage, thereby improving patient comfort and early functional recovery. While re-epithelialisation and postoperative complication rates remained comparable between the two groups, haemocoagulase provided a cleaner wound environment without compromising healing. Overall, these findings support haemocoagulase dressing as a safe, effective, and patient-friendly option for routine donor-site management.

REFERENCES

1. Divyang, G. B., Kotennavar, M., Patil, A. V., Jaju, P. P., Rathod, S., Savant, M. S., ... & Parikh Jr, S. S. (2025). A Comparative Study of Split-Thickness Skin Graft Fixation and Uptake Using Autologous Platelet-Rich Plasma Versus Conventional Methods. *Cureus*, *17*(5) e85136.
2. Paredes, K. A., Rojas, J. C. S., Valdés, J. R. F., Castillo, J. L., Quevedo, M. M., Delgado, F. J. M., ... & Vazquez, E. N. (2024). A comparative analysis of the outcomes of various graft types in burn reconstruction over the past 24 years: a systematic review. *Cureus*, *16*(2) e54277.
3. Vecin, N. M., & Kirsner, R. S. (2023). Skin substitutes as treatment for chronic wounds: Current and future directions. *Frontiers in medicine*, *10*, 1154567.
4. Haris, S., Nema, P. K., Charokar, K., & Gupta, N. (2025). A clinical study of the role of split-thickness skin autograft in management of wounds and identification of factors influencing the graft uptake. *Int Surg J*, *12*(3), 344-9.
5. Simman, R. (2009). Wound closure and the reconstructive ladder in plastic surgery. *The Journal of the American College of Certified Wound Specialists*, *1*(1), 6-11.
6. Jain, R. K., Choudhary, G. M., Gupta, G., Patil, A. N., Prakash, G. D., & Jain, A. K. (2021). Reducing split-thickness skin grafting donor site agony; faster healing and decreased pain-role of platelet-rich plasma. *Asian Journal of Transfusion Science*, *15*(2), 195-198.
7. Alhindi, N., Qari, S., Nukaly, H., Althagafi, A., Alzolaibani, S., Akkour, M., ... & Arab, K. (2025). Dressing Influence on Re-epithelialization Rate Following Split-thickness Skin Graft Harvest: Network Meta-analysis of Randomized Controlled Trials. *Plastic and Reconstructive Surgery–Global Open*, *13*(5), e6748.
8. Dogan, S., Kjölhede, A., & Karlsson, M. (2025). An Open, Noncomparative, Clinical Follow-up Study to Confirm Performance and Safety of a Gelling Fiber Dressing When Used on Split-thickness Skin Graft Donor Sites. *Advances in Skin & Wound Care*, *38*(8), 433-441.

9. Bache, S. E., Martin, L., Malatzky, D., Nessler, M., Frank, A., Douglas, H. E., ... & Wood, F. M. (2024). First do no harm: A patient-reported survey of split skin graft donor site morbidities following thin and super-thin graft harvest. *Burns*, *50*(1), 41-51.
10. Chalwade, C., Kumar, V., Suresh, A., & Chalwade, C. S. (2022). Use of minced residual skin grafts to improve donor site healing in split-thickness skin grafting. *Cureus*, *14*(3) :e23453.
11. Augustine, R., Kalarikkal, N., & Thomas, S. (2014). Advancement of wound care from grafts to bioengineered smart skin substitutes. *Progress in biomaterials*, *3*(2), 103-113.
12. Singh, A., Singh, L., Gupta, R., Saxena, S., & Kaneria, R. (2019). Effect of liquid paraffin gauze dressing in burn wounds: a prospective study. *Int J Sci Stud;7*(2):5-8.
13. Nguyen, H. M., Ngoc Le, T. T., Nguyen, A. T., Thien Le, H. N., & Pham, T. T. (2023). Biomedical materials for wound dressing: recent advances and applications. *RSC advances*, *13*(8), 5509-5528.
14. Saco, M., Howe, N., Nathoo, R., & Cherpelis, B. (2016). Comparing the efficacies of alginate, foam, hydrocolloid, hydrofiber, and hydrogel dressings in the management of diabetic foot ulcers and venous leg ulcers: a systematic review and meta-analysis examining how to dress for success. *Dermatology online journal*, *22*(8):5070.
15. Shahzad, F. (2021). Management of skin graft donor site in pediatric patients with tumescent technique and AQUACEL® Ag foam dressing. *Journal of Plastic Surgery and Hand Surgery*, *55*(5), 309-314.
16. Xu, P., Wu, Y., Zhou, L., Yang, Z., Zhang, X., Hu, X., ... & Cheng, B. (2020). Platelet-rich plasma accelerates skin wound healing by promoting re-epithelialization. *Burns & trauma*, *8*, tkaa028.
17. Miyanaga, T., Haseda, Y., & Sakagami, A. (2017). Minced skin grafting for promoting epithelialization of the donor site after split-thickness skin grafting. *Burns*, *43*(4), 819-823.
18. Kuwabara, K., Ikenoya, S., Oishi, M., Yokogi, A., Sakakihara, N., & Tanaka, Y. (2025). Technique for Harvesting a Split-thickness Skin Graft to Direct Closure on the Donor Site. *Journal of Plastic and Reconstructive Surgery*, *4*(4), 226-229.
19. Legemate, C. M., Lucas, Y., Oen, I. M., & Van Der Vlies, C. H. (2020). Regrafting of the split-thickness skin graft donor-site: is it beneficial?. *Journal of Burn Care & Research*, *41*(1), 211-214.
20. Olawoye, O. A., Ademola, S. A., Iyun, A. O., Michael, A. I., & Oluwatosin, O. M. (2017). Management of split skin graft donor site in the West African sub region: Survey of plastic surgeons' practice. *Annals of Burns and Fire Disasters*, *30*(2), 146-149.
21. Otene, C. I., Olaitan, P. B., Ogbonnaya, I. S., & Nnabuko, R. E. (2011). Donor site morbidity following harvest of split-thickness skin grafts in South Eastern Nigeria. *Journal of the West African College of Surgeons*, *1*(2), 86-96.
22. RIBEIRO, R. V. E., & MARTUSCELLI, O. J. D. (2018). Split-thickness skin graft donor-site dressings: is it possible to establish the ideal dressing based on a literature review?. *Revista Brasileira de Cirurgia Plástica*, *33*, 119-129.
23. Wehrens, K. M. E., Arnoldussen, C. W., Booi, D. I., & van der Hulst, R. R. (2016). Clinical evaluation of wound healing in split-skin graft donor sites using microscopic quantification of reepithelialization. *Advances in Skin & Wound Care*, *29*(6), 254-260.
24. Jun, D., Kim, B., Park, M. S., Ahn, M. R., & Lee, J. H. (2023). Novel Method of Split-Thickness Skin Graft Donor Site Management Using Combined Fenestrated Polyurethane Film and Negative-Pressure Wound Therapy. *Journal of Wound Management and Research*, *19*(3), 193-199.