

## Post op Management of Split Skin Grafting

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**Conflicts of Interest:** Nil

### Abstract

**Introduction:** Split thickness skin graft is a surgical procedure for the treatment of wounds resulting from varying etiology. The common causes of graft failure are due to post op management of seroma or infection. These affect the graft uptake in the initial postop period by reducing the perfusion status and adherence.

### Aim

- Early post op dressing on pod 3 to enhance graft uptake
- Post op Prolonged immobilisation has no relation to graft take/ rejection.

**Materials & Methods:** This is a prospective observational study on 50 patients who have undergone split skin grafting done in the department of general surgery, Government medical college and hospitals, cuddalore from October 2019 – September 2021. Post op graft take was assessed on pod3 as 1<sup>st</sup> dressing followed by 5<sup>th</sup> day as 2<sup>nd</sup> dressing. Early post op mobilisation has also been noted in terms of graft take and rejection.

**Results:** The mean graft uptake of 88% on first post op dressing on day 3 compared to the literature report of 82% graft take when done on first post op dressing on day 5 which is statistically significant. The mean graft uptake of 85% on second post op dressing on day 5 compared to the literature report of 82% graft take when done on first post op dressing on day 5 which is statistically significant. Also, Early mobilization has no effect on graft take.

**Keywords:** SSG, early post op dressing, graft uptake, graft rejection, prolonged immobilisation

### Introduction

Split thickness skin graft is a surgical procedure for the treatment of wounds resulting from varying etiology. It is useful due to quick healing and decreased complication rates. Severe skin and soft tissue structure infections and resultant wounds are commonly seen in patients with diabetes mellitus and post traumatic due to road traffic accidents and crush injuries. Most common complication is ulcers that seriously affect the quality and length of life. Most common method of management is ulcer debridement and follows up with appropriate

dressing. Many reconstructive methods are available one of which is split skin grafting to promote wound healing thereby improving the quality of life and reduce the economic burden on family by increasing workdays.

Following skin grafting, the graft will survive based on a defined sequence of events including serum imbibition in 24-48 hrs, inosculation in 24-72 hrs and angiogenesis in the next 72 hrs. Factors that impede the graft take are fluid collection such as seroma, hematoma, and infection. Surgical dressing of non-adhesive type with antibiotic impregnated tulle dressing is used to prevent shearing forces between recipient bed and graft to enhance epithelisation and granulation of the wound.

The success of the graft take is dependent on the initial post-operative period at which extent vascular perfusion was restored between the graft and recipient bed. Thus, early post op dressing is very important for ensuring graft uptake.

The post op dressing was typically done in 5-7 days at which time the graft might be lifted from the bed due to fluid collection and starts getting infected reducing the final graft take.

Also, prolonged immobilisation for more than 7 days has no adverse effects on graft take other than the expenses of the stay during hospital for the patient.

So, the study is to insist on the importance of early post op dressing on pod3 to prevent complication and early mobilisation.

### **Aims**

The aims and objectives of the study are early post op dressing on pod 3 to enhance graft uptake and early mobilisation of the patient.

### **Materials and Methods**

This is a prospective observational study on 50 patients who have undergone split skin grafting done in the

department of general surgery, Government medical college and hospitals, cuddalore from October 2019 – September 2021 after passing ethical board certification.

### **Exclusion Criteria**

Patients of either sex aged below 12 years and above 70 years, pregnancy, burns, malignancy and who are not willing for the study.

History and clinical examination of the patients was done in all cases. Documentation was done using a clinical proforma which included demographic data of the patients. Pre-op blood investigations were carried out as enumerated in the proforma. X ray of the affected foot, vascular status of the limb, Chest Xray, ECG and cardiac evaluation were done. Wound preparation was done for all the patients by wound debridement, all the patients were put on broad spectrum antibiotics according to their respective wound culture reports. Their glycaemic status was assessed and all of them were put on Injection. Human insulin both monotard and act rapid according to their blood sugar level. Recipient bed is prepared by daily saline dressing, vacuum or serial wound debridement. After getting assessed by the anaesthetist they were taken up for surgery- Split Skin Graft.

### **Procedure**

Under strict aseptic precautions, after appropriate anaesthesia, the recipient bed was prepared. The split thickness graft, harvested from the thigh using humby's knife, meshed and placed over recipient site the graft was secured with sutures. The grafted area was covered with sterile non-adhesive antibiotic impregnated tulle and upon which sterile dressing and pressure bandage applied. The limb was immobilized with the pop slab when grafted near the joints. Donor site was covered with non adhesive

antibiotic impregnated tulle and pressure bandage applied.

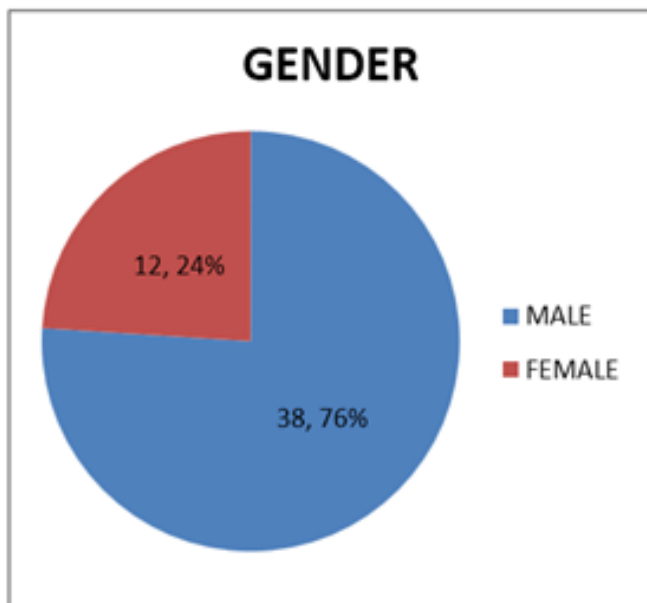
### Postoperative Management

Post operatively, on third day, the graft take percentage was assessed by the presence of seroma, hematoma, slough, graft adherence and rejection followed by on fifth and seventh day. The grafted area was then covered with nonadhesive antibiotic impregnated tulle dressing. On fourteenth day, the donor site was also examined for any infection. The results were analysed.

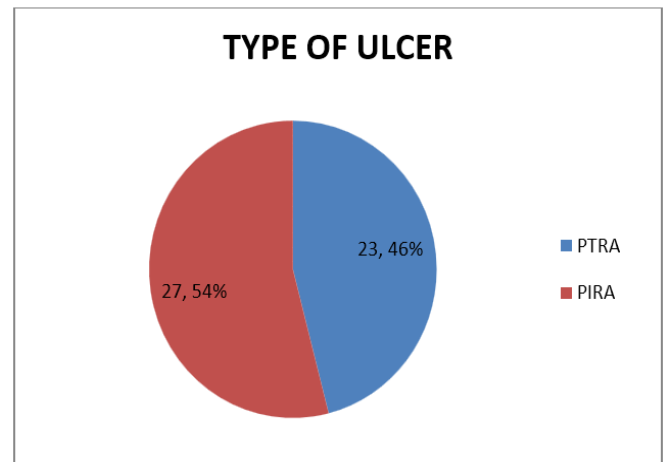
The mean stay of the patients in the hospital during the postoperative period were also analysed. And early ambulation of the patient is also noted. The patients were discharged and followed up.

### Results

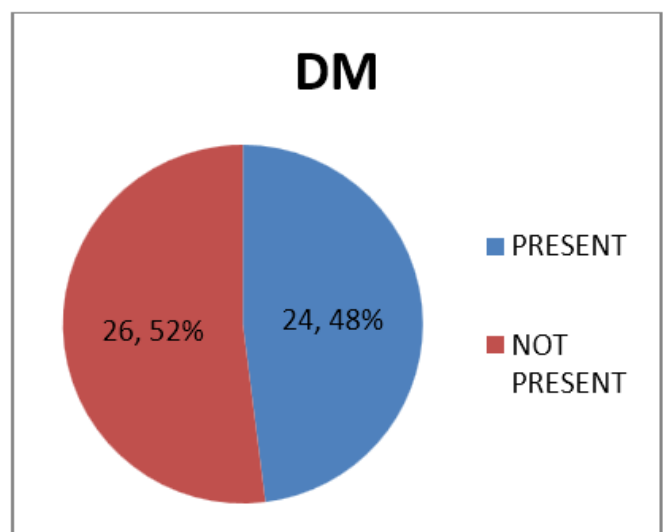
- The study population consist of 24% female (n 12) and 76% male (n 38).



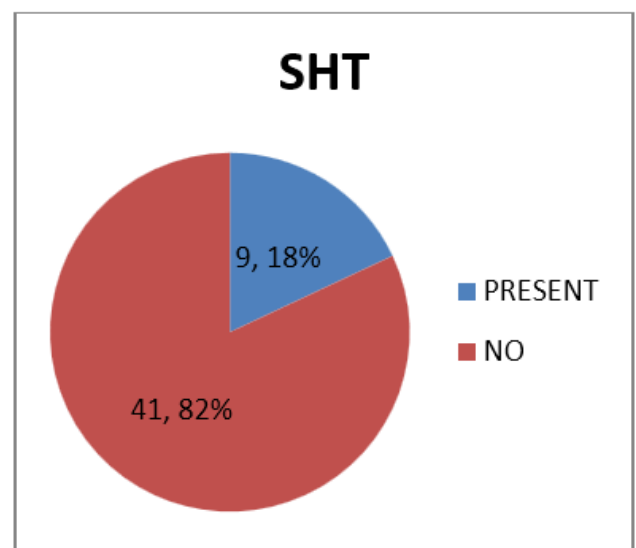
- The most common cause of raw area was infective due to diabetic 54% and trauma 46%



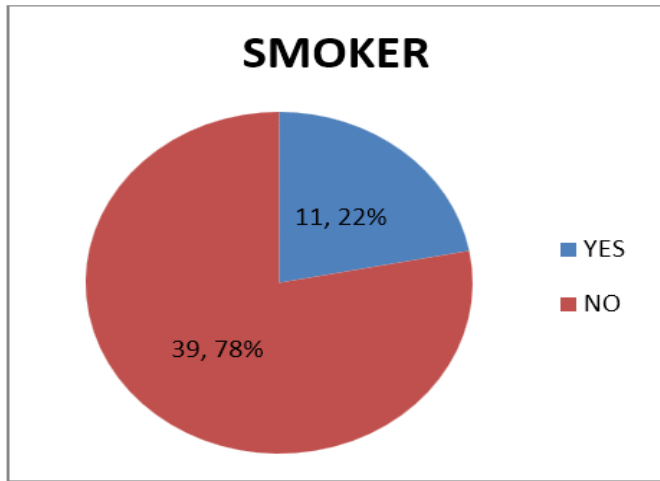
- Diabetes present in 48% of patients.



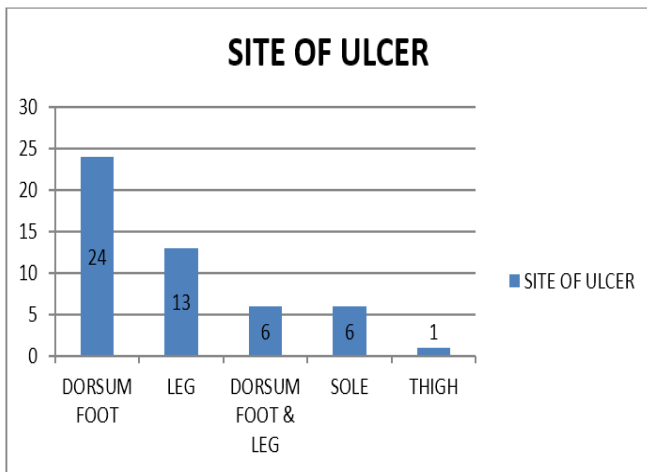
- Hypertension present in 18% of patients.



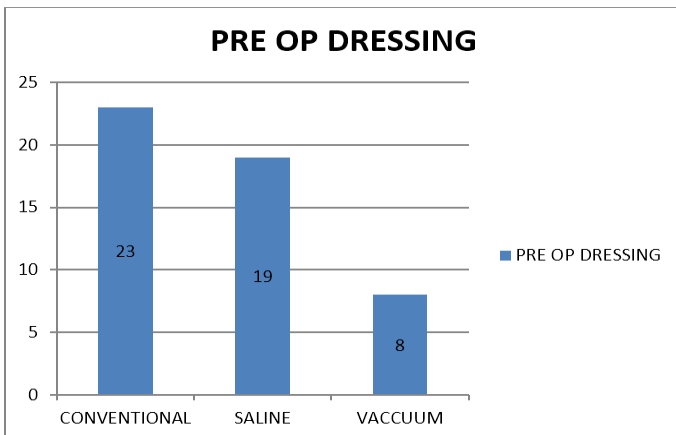
- Smokers are 22% of our study group.



➤ Site of ulcer on dorsum foot – 48%, leg – 26%, both dorsum foot and leg – 12%, sole – 12%, thigh – 2%.



➤ Pre op dressing: 46% were done in conventional wound debridement method, 38% saline dressing and 16% vaccum dressing.



**Intra-OP**



Figure 1: Donor Area – graft harvested.



Figure 2: Freshly prepared recipient bed



Figure 2: Meshing and securing the graft



Figure 3: First Look



Figure 4: Final Graft Uptake

➤ First dressing day graft uptake value

Variable	Day 3	Day 5 ( literature)
Percentage of graft take	88%	82%

➤ Second dressing day graft uptake value :

variable	Day 5	Day 7
Percentage of graft take	85%	76%

➤ Comparison of different studies:

Name of the study	1 <sup>st</sup> dressing	Percentage of graft take
Tauro et al	Pod 5	60%
Rituraj et al	Pod 5	86%
Maher	Pod 3	84%
Our study	Pod 3	88%

➤ Early Ambulation on 4<sup>th</sup> – 5<sup>th</sup> day had no adverse effects on graft take:

### Discussion

In this prospective study conducted on 50 patients with ulcers of varying etiology, who have undergone split skin graft, we are able to observe the following results. The mean graft uptake of 88% on first post op dressing on day 3 compared to the literature report of 82% graft take when done on first post op dressing on day 5 which is statistically significant. The mean graft uptake of 85% on second post op dressing on day 5 compared to the literature report of 82% graft take when done on first post op dressing on day 5 which is statistically significant.

The post operative care is as important as the technique of graft application for successful vascularisation of the graft. The importance of early post op dressing is to reduce the infection, evacuation of seroma/ hematoma to increase the vascular perfusion status of the grafts thereby increasing the graft take with less rate of rejection.

Prolonged immobilization has no relation with graft area rejection or uptake. Percentage of graft take is not statistically significant with more than 7 days bed rest compared to early mobilization in fourth or fifth day except increased hospital stay and expenses. This leads to decrease in post op stay to 6 days rather than 12 days according to the literature report. The confounding factors in our study were noted to be the different patient profile such as smoking, different recipient sites.

### Conclusion

As we know that the prevalence of the diabetes mellitus and trauma cases are increasing worldwide and many people develop foot ulcers, which are difficult to heal on its own and it has become the major cause of long hospitalisation and economical burden for both the hospital and the individual. It is important to treat these

ulcers earlier to prevent major complication like amputation. Certain factors can be altered by surgery to promote the wound healing such as split skin graft and flap. From this study we could appreciate the effect of split skin graft in promoting the wound healing. We conclude in our study that early post operative dressing in SSG on 3rd pod allowed the graft to be cleared of excess seroma formation, infection if any thus increasing the final uptake of the graft by early restoring of vascular perfusion. Early mobilization in 4-5 days has not affected the graft uptake and moreover, it has also shown to reduce the length of hospital stay thereby it reduce the expenses spent on treating these ulcers. It helps the patient to ambulate in early period and modify his lifestyle into healthy one.

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