

## Application of Innovative Soft Compression Bandage Technique in Amputation Stump Dressings Our Experience

Neljo Thomas<sup>1</sup>, Ravi Kumar Chittoria<sup>2</sup>, Padmalakshmi Bharathi Mohan<sup>3</sup>, Shijina Koliyath<sup>4</sup>, Imran Pathan<sup>5</sup>, Nishad Kerakkada<sup>6</sup>

**Author Affiliation:** <sup>1,3,4,5,6</sup>Senior Resident, <sup>2</sup>Professor, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

**Corresponding Author:** Ravi Kumar Chittoria, Ravi Kumar Chittoria, Professor, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

**E-mail:** drchittoria@yahoo.com

### How to cite this article:

Neljo Thomas, Ravi Kumar Chittoria, Padmalakshmi Bharathi Mohan, *et al.* Journal of Plastic Surgery and Transplantation 2021;2(1):11-13.

### Abstract

Limb amputations for various etiologies are one of the most common causes for disability and resulting social and financial losses at present. Higher the level of amputation more difficult it is to treat the stump and also more delayed is the rehabilitation. Therefore various therapeutic techniques for dressing the amputation stump have been described over the years to aid in fast recovery and to avoid local stump complications. In this case report a similar innovative method of dressing a above knee amputation stump has been described.

**Keywords:** Amputation; Crepe Bandage; Compression Dressing.

### Introduction

As per the latest statistics, lower extremity amputation occurs most commonly because of dysvascular disease, malignancy or traumatic injuries. According to the National Trauma Databank version 5 in the US from 2000 to 2004 there were 8910 amputated patients (1.0% of all trauma patients). Of these, 6855 (76.9%) had digit and 2055 (23.1%) had limb amputation. Of those with limb amputation, 92.7 per cent (1904/2055) had a single limb amputation.<sup>1</sup> Diabetics are at a higher risk of amputation than non diabetics.<sup>1</sup> As the incidence of diabetes is seeing a drastic increase at present, it is postulated that the incidence of lower extremity amputations would also see a significant rise in the

coming years. The reported worldwide incidence of amputations was variable and ranged from 0.4 to 116 amputations per 10,000 individuals. The incidence of lower limb amputations was reported at 37.4 amputations per 100,000 individuals in Australia, 24 per 100,000 in the USA and 26 per 100,000 in the UK.<sup>2</sup> Lower extremity amputations are associated with considerable health care challenges such as mobility issues, psychological impact, and health care resource use. Post operatively primary dressings are the dressings that are used directly on top of the wound. Secondary dressings are the ones which keep the primary dressing securely in place.<sup>3</sup> Shorter the amputation stump more challenging is the dressing technique. Hence an innovative dressing strategy which aids in quick rehabilitation and mobilization patient is desirable. Our experience with such a strategy has been discussed here.

### Materials and Methods

The study was conducted in The Department of Plastic Surgery in a tertiary care center during September 2021. The patient was a 37 year old male with no known comorbidities, who had amputation of The right lower limb after road traffic accident. As the amputation was at Transfemoral level and remnant stump was shorter than the classic Above Knee Amputation Stump he was managed with local debridement along with IV antibiotics. His

wound gradually improved and later raw area was covered with a Split thickness skin graft.



Fig. 1A: Clinical Photograph of the amputation stump.



Fig. 1B: Clinical Photograph of the amputation stump.

In order to aid faster resolution of post-operative stump edema and to prevent infection an innovative dressing technique was formulated. Using crepe bandage, Stump dressing was done using the opposite lower limb and hip as the anchor and thus providing better stability at the stump area. Graft area was initially cleaned with betadine. After primary dressing with Vaseline gauze and dry cotton gauze and dry cotton pad secondary dressing was done with crepe bandage. Initial rolls were taken to cover the graft area followed by

which the next rolls were taken around the hip and the opposite limb so as to anchor the dressing to the opposite hip.



Fig. 2A: Amputation stump after crepe bandage dressing.



Fig. 2B: Amputation stump after crepe bandage dressing.

## Discussion

Post amputation patient care is important considering psychological and physical disability that all of them endure. Stump complications accounted for 13% and 10% of early and late readmissions, post amputation according to a study done by Kayssi *et al.*<sup>4</sup> Faster rehabilitation and recovery is thus considered important. Return to ambulation may be facilitated by faster wound healing and decrease in time duration between amputation and prosthetic fitting. Stump edema is one of the most common complications seen post amputation. It is considered harmful because it delays wound healing due to limited blood circulation. Therefore edema control is an important

aspect of post-amputation management. Following amputation, dressings are used for wound healing, prevention of edema, pain control, and shaping of the residual limb. Rigid cast dressing, removable rigid dressings and soft (or non-rigid) dressings such as elastic bandages are some of the types. Soft dressings are cost effective and easy to apply however improper application can lead to pressure ulcers. Rigid dressings is said to result in faster recovery however they are more labor intensive to apply and inconvenient to remove for wound inspection.<sup>2</sup> According to a study done by Sumpio *et al.* after the first 60 days, 58.24% of patients who received a rigid dressing were ready to be cast, compared with 38.33% of patients receiving a soft dressing ( $P = 0.03$ ).<sup>5</sup> However in a meta analysis done in Australia it was concluded that there is uncertainty regarding the benefits and harms of rigid dressings compared with soft dressings for people undergoing trans tibia amputation due to limited and very lowcertainty evidence. It is not clear if rigid dressings are superior to soft dressings for improving outcomes related to wound healing, adverse events, prosthetic prescription, walking function, length of hospital stay and swelling. Patients with high risk of falling may benefit from the protection offered by a rigid dressing, and patients with poor skin integrity may have less risk of skin breakdown from a soft dressing.<sup>6</sup> Therefore it's left to the decision of the treating surgeon and individual patient condition to decide the modality of dressing for eachpatient.

## Conclusion

Our case report describes about the innovative application of soft crepeb and age application for

shorter amputation stump to reduce post of stump complications and aid early recovery. Although there are equivocal evidences in this regard, it's safe to assume that a cost effective and easier method would always be better for dressing amputation stumps. Although this involves a learning curve to avoid the technical complications. It's something which shows a lot of promise as far as amputation stump management goes. However, as it is a single case report, single institute study. It requires multicentric randomized Control study to validate the reports.

## References

1. Barnparas G, Inaba K, Teixeira PG, Dubose JJ, Criscuoli M, Talving P, Plurad D, Green D, Demetriades D. Epidemiology of post-traumatic limb amputation: a National Trauma Databank analysis. *The American Surgeon*. 2010 Nov;76(11):1214-22.
2. Banerjee S, Adcock L. Rigid Dressings for Edema Management for Leg Amputation: A Review of Clinical and Cost-Effectiveness.
3. Dhivya S, Padma VV, Santhini E. Wound dressings—a review. *BioMedicine*. 2015 Dec;5(4):1-5.
4. Kayssi A, de Mestral C, Forbes TL, Roche-Nagle G. Predictors of hospital readmissions after lower extremity amputations in Canada. *Journal of vascular surgery*. 2016 Mar1;63(3):688-95.
5. Sumpio B, Shine SR, Mahler D, Sumpio BE. A comparison of immediate postoperative rigid and soft dressings for below-knee amputations. *Annals of vascular surgery*. 2013 Aug 1;27(6):774-80.
6. Kwah LK, Webb MT, Goh L, Harvey LA. Rigid dressings versus soft dressings for transtibial amputations. *Cochrane Database of Systematic Reviews*.2019(6).

