

## Management of Peristomal Skin Complications with Negative Pressure Wound Therapy: A Case Study

Danila Maculotti<sup>1\*</sup> and Dassenno D<sup>2</sup>

<sup>1</sup>Department of Surgery (Ostomy Surgery), Fondazione Poliambulanza, Brescia, Italy

<sup>2</sup>Department of Surgery, Catholic University of Sacro Cuore, Rome, Italy

\*Corresponding author: Maculotti D, Department of Surgery (Ostomy Surgery), Fondazione Poliambulanza, Brescia, Italy, E-mail: [danila.maculotti@poliambulanza.it](mailto:danila.maculotti@poliambulanza.it)

Rec date: Mar 21, 2016; Acc date: Apr 15, 2016; Pub date: Apr 18, 2016

Copyright: © 2016 Maculotti D, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

### Abstract

**Aim:** Estimate the effectiveness of the Negative Pressure Wound Therapy (NPWT) into managing a complex peristomal skin complication in a patient with a urostomy. The goal was to improve the conditions of the skin in order to concede stoma management with the appropriate ostomy device. The clinical condition of the patient was exasperated by her overall status: advanced neoplasia, skin deterioration and diabetes.

**Methods:** The subject had a urostomy (Wallace 2) caused by advanced bladder cancer; she presented a peristomal skin lesion L4-TV according to Studio Alterazioni Cutanee Stomali (Study on Peristomal Skin Lesions [SACSTM Instrument]). The treatment with advanced dressings as per current protocol did not improve her clinical status. After this phase the subject was treated with Negative Pressure Wound Therapy. A total of four dressings were changed every 72 hours.

**Results:** In just 12 days the skin lesion improved greatly to L3 / T1-T4; this allowed correct management of the stoma with the appropriate ostomy device for the following month. During follow-up visits we appraised a day to day improvement of her peristomal skin condition. The medication was very well received by her; no negative effects nor did intolerance occur.

**Conclusions:** This case study allowed us to observe the use of Negative Pressure Wound Therapy as an effective substitute treatment in case of difficult peristomal skin lesions. The technique is safe, efficient, money-saving and comfortable for patients.

**Keywords:** Urostomy; Peristomal lesion; Negative pressure wound therapy; Nursing care-wound care; Granulation; Advanced medication

### Abbreviations

SACSTM: Studio Alterazioni Cutanee Stomali; NPWT: Negative Pressure Wound Therapy; L: Lesion; T: Topography

### Introduction

The occurrence of a complex peristomal lesion in an ostomy patient [1-3] implies many issues [4]. It exacerbates the already severe clinical condition, especially because managing the stoma becomes harder and the wound's healing is delayed.

Although advanced medications are commonly effective for this kind of lesions, sometimes no method yields positive results. The patient suffered a range of negative symptoms, from the loss of her ostomy device to skin degradation and overall bad quality of life. The necessity of trying new approaches led us to a change of strategy. After consulting with other colleagues and briefly researching the use of NPWT in ostomy patient [5,6], we decided to use this device with our patient. We waited 20 days while we managed the lesion with traditional treatment before starting the NPWT for a period of 12 days. This had never been tried before in our surgical setting.

### Objectives

The target of this case study was to estimate the effectiveness of the Negative Pressure Wound Therapy (NPWT) into managing a complex peristomal skin complication in a patient with a urostomy. At the beginning we had difficulties with attaching any ostomy device because of the skin condition, so we needed to improve the conditions of the skin in order to manage the ostomy correctly with the appropriate equipment.

The patient was an elderly woman of 72 years who suffered from a malignant metastatic bladder cancer. She had a complex medical case: urostomy (Wallace 2), overweight, arterial hypertension, diabetes, impaired mobility. The patient had a severe peristomal skin lesion L4-TV, according to the SACSTM Classification (Figure 1). Skin complications treatment was a priority in order to manage the ostomy with the appropriate medical device.

### Methods

In the first phase after an appropriate wound bed preparation and debridement the patient was treated with advanced dressings according to the current protocols. Also the excess of exudate and urine leakage forced us to admit the patient in a hospital setting because of the impossibility of managing the ostomy device properly from home. We used Hydrofiber, Alginate, Hydrocolloids,

Stomahesive Protective Powder, Stomahesive Paste and Polyurethane Foam skin barriers, but after 20 days of continuous medication unfortunately we observed no improvement in the patient's clinical conditions.

In the second phase the patient was treated with Negative Pressure Wound Therapy. We will now show you step by step how we treated the patient are wound.

Step 1: We started protecting the periwound skin with sterile grease gauze, in order to preserve the area from Negative Pressure (Figure 2).



**Figure 1:** Peristomal Skin Lesion L4-TV (S.A.C.S. Classification).



**Figure 2:** Positioning of the non-adherent dressing to protect the skin.

Step 2: Then we applied the Stomahesive Paste to flatten and protect peristomal skin from urine leakages (Figure 3).

Step 3: As we experienced some challenges in adapting the Polyurethane Foam to the peristomal area, we decided to protect the skin with sterile gauze (Figure 4).

Step 4: The last step was applying the NPWT Therapy; we used a Foley Catheter in order to reduce urine leakage, placed directly inside the urinary ostomy (Figure 5). This innovative set-up allowed us to reduce significantly the risks of detaching the NPWT device.



**Figure 3:** Application of the Stomahesive Paste in order to protect the lesion from the urine.



**Figure 4:** Application of the antimicrobial gauze.



**Figure 5:** Foley catheter and VAC Therapy application.

The patient was treated with a new wound dressing every 72 hours. The device used in this case study is The RENASYS GOTM, an electronic NPWT pump (Figure 6), that can offer flexibility in treating a wide variety of wounds in acute and home care settings, and it combines portability and ease of operation in order to maximize patient comfort, mobility, and convenience. This device was chosen because it allowed us to continue the treatment at the patient's home. The decision was made with the patient in order to best meet her needs.



**Figure 6:** The RENASYS GO™ NPWT Smith and Nephew GmbH Medication Kit (UK).

## Results

In each follow-up visit, we assessed a constantly improving condition of peristomal skin. The patient was treated with NPWT for 12 days. After this time we could already observe a significant improvement of the lesion. The skin condition, initially rated L4, improved to L3; the extension of the skin lesion also reduced from TV to TI-TIV (Figure 7).

This reduction allowed an appropriate management of the stoma with an ostomy device and allowed the patient to be discharged from hospital with self-management of the ostomy and stomacare. After discharge the lesion was treated with zinc oxide until complete healing and tissue restoration occurred in about one week.

## Conclusion

This was the first time that NPWT was used for this kind of lesion in our setting. Even if no one ever tried to manage a complex peristomal lesion like this, we discussed this case with the patient and colleagues and decided to try this new approach. Our goal was to allow correct stomacare for the patient and improve her quality of life. NPWT has been the perfect choice for this. It allowed connecting wound edges together, cleaning the wound from any infected material, and favouring granulation. The technique is secure, efficient, money-saving and comfortable for patients.

This case made us realize that NPWT is a great alternative also as treatment for complex peristomal skin complications [7-9]. The

treatment was well received by the patient; neither negative effects nor intolerance occurred.



**Figure 7:** (a) Skin lesion at Time 0 of Vac Therapy, (b) After 72 hours from the first use of the Vac Therapy, (c) After 12 days the lesion had a significant improvement to L3 / TI-TIV (S.A.C.S. Classification).

## Conflict of Interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

## Ethics Committee

Not consulted.

## Consent

Written informed consent was obtained from the patient for publication of this case study and any accompanying images.

## Competing Interests

No financial support received.

## Authors' Contributions

All authors equally contributed in writing the case and giving care to the patient.

## References

1. Beitz J, Gerlach M, Ginsburg P, Ho M, McCann E, et al. (2010) Content validation of a standardized algorithm for ostomy care. *Ostomy Wound Manage* 56: 22-38.

2. Bosio G, Pisani F, Lucibello L, Fonti A, Scrocca A, et al. (2007) A proposal for classifying peristomal skin disorders: results of a multicenter observational study. *Ostomy Wound Manage* 53: 38-43.
3. Salvadalena G (2008) Incidence of complications of the stoma and peristomal skin among individuals with colostomy, ileostomy, and urostomy: a systematic review. *J Wound Ostomy Continence Nurs* 35: 596-607.
4. Review of the evidence for WOC nursing practice 2007-2008 (2009). *J Wound Ostomy Continence Nurs* 36: S17-S18.
5. Chuo CH, Thomas SS (2008) Absorbable mesh and topical negative pressure therapy for closure of abdominal dehiscence with exposed bowel. *Journal of Plastic, Reconstructive & Aesthetic Surgery* 61: 1378-1381.
6. Herrero VL, García-Alcalá DG, Paz PS, Rowan S (2012) The challenges of managing a complex stoma with NPWT. *J Wound Care* 21: 120-123.
7. Clavijo-Alvarez JA (2014) Novel technique for skin grafting parastomal wounds using a negative-pressure dressing. *Adv Skin Wound Care* 27: 256-258.
8. Shah A, Lopez R, Pallikaras G, Jandali S, Pfaff MJ, et al. (2013) Use of the ostomy baseplate in negative pressure wound therapy. *Br J Community Nurs Suppl*: S22-25.
9. Bohn G (2013) Mechanically powered ambulatory negative pressure wound therapy device for treatment of a colostomy takedown site. *J Wound Ostomy Continence Nurs* 40: 315-317.