

Meeting report

An alternative to negative pressure wound therapy (NPWT)

This meeting report focuses on the final plenary session of the opening day of the Wounds UK Harrogate 2010 Conference presented by Principal Podiatrist Paul Chadwick, Vascular Surgeon Dr Gunnar Riepe and Tissue Viability Nurse Specialist Simon Barrett.

The focus of this session was to explore whether an advanced wound dressing (sorbion sachet S) can provide a cost-effective and readily available alternative to negative pressure wound therapy (NPWT) in the management of patients with moderately to heavily exuding wounds.

sorbion sachet S is a dressing that uses Hydration Response Technology (HRT) to manage moderate to high levels of exudate in a variety of wound types. The inner layer of the dressing consists of cellulose fibres and gelling agents, that, by means of interaction, significantly increase the dressing's fluid-handling capacity and enable it to manage large amounts of exudate, even when used under compression.

Overlaps between a dressing and NPWT in the diabetic foot

Paul Chadwick, Principal Podiatrist, Salford PCT explained that he was a strong advocate for the use of NPWT in treating the diabetic foot and that Salford was one of the few centres who routinely use this therapy. However, he stressed that sorbion sachet S also has a role to play in this patient group.

There are few guidelines regarding NPWT and the diabetic foot, with most clinicians following the guidelines from the multidisciplinary expert panel convened at the Tucson Expert Consensus Conference (TECC) to determine appropriate use of NPWT in the treatment of diabetic foot wounds

(Andros et al, 2006). These guidelines recommend that:

- ▶▶ Smaller wounds that are responding to conventional therapy are not suitable for NPWT
- ▶▶ Treatment should continue until a healthy granular wound bed is established
- ▶▶ Large, deep and post-surgical debridement/partial amputation wounds are most likely to benefit
- ▶▶ NPWT should not be applied to a wound before debridement
- ▶▶ NPWT can be applied after re-vascularisation providing there are no signs to suggest residual infection
- ▶▶ NPWT is not a treatment for osteomyelitis but can be used following 24 hours of observation after surgical excision and drainage
- ▶▶ NPWT can be used on plantar wounds, providing adequate removable off-loading is used.

It is important to remove barriers to healing, although maintaining moisture balance at the wound dressing interface can be a see-saw effect (Bishop et al, 2003). On the one hand excess exudate causes the wound to become too wet and maceration/excoriation occurs; while, on the other, no exudate will result in the wound bed becoming too dry and impair re-epithelialisation. Thus, elimination of excess wound exudate in chronic wounds is an important part of wound bed preparation, while retention of some fluid to create a moist wound healing environment is essential for optimising tissue repair.

The clinical benefits of using NPWT include:

- ▶▶ Stabilisation: initiating promoters of healing through protection from bacteria, moisture control, oedema reduction and stimulating blood flow
- ▶▶ Preparation: removal of barriers to

healing through reduction of sloughy tissue, control of bacteria and removal of inhibitory exudate

- ▶▶ Closure: reduction of wound size and generation of granulation tissue.

However, there are occasions when NPWT should not be used. These may be related to patient factors, i.e. the patient's ability to cope with the treatment, presence of other comorbidities, or where quality of life might be affected by the noise of the device, e.g. resulting in sleep deprivation. Certain wound care conditions also preclude the use of NPWT, i.e. it can be difficult to obtain a seal on patients with diabetic foot ulcers due to contouring around the toes. There may also be issues with funding and availability (NPWT is only available in hospital settings in some areas), or ensuring that healthcare professionals have the necessary training to apply NPWT.

In these cases, a dressing that can provide the listed benefits of NPWT is welcomed. Paul went on to describe how he used sorbion sachet S in his clinic for patients for whom NPWT would be beneficial but was contraindicated, or to continue the benefits of NPWT once treatment was discontinued.

Is there an overlap with sorbion sachet S?

Case report one

Mr L was a 64-year-old male with well controlled type 2 diabetes (HbA_{1c} =6.7%). He was profoundly neuropathic with intact peripheral circulation. A previous forefoot amputation had healed without incident. However, the loss of perineal muscle function had created a non-healing ulcer (Figure 1).

He underwent further surgery to remove the cuboid bone, followed by

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Figure 1. Large wound in the middle of the forefoot with periwound maceration.



Figure 2. Wound showed minimal maceration after one week of treatment with sorbion sachet S.

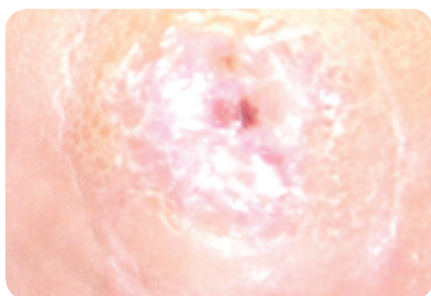


Figure 3. Following 12 weeks of treatment with sorbion sachet S, the wound had healed.

two weeks of NPWT. At the end of therapy the wound had reduced in size and granulation tissue was present. A conventional moisture-absorbing dressing was applied but, despite daily dressing changes, the wound became macerated and increased in size.

Mr L's wound was then dressed with sorbion sachet S (10x10cm). At review

one week later the patient reported that he had changed the dressing five times. There was still strikethrough on the dressing but minimal maceration (Figure 2). There was no adherence or bleeding.

After 12 weeks of treatment with sorbion sachet S, the wound had healed (Figure 3) and the patient was given a permanent cast to help maintain his healed status.

Case report two

Mr V was a 47-year-old male with cancer of the liver and a history of alcoholism. He was six feet four with a high body mass index (BMI). He had blistered his foot while on holiday and had been treated by district nurses for six weeks using foam, alginate and hydrofiber dressings before referral.

At presentation the wound was deteriorating and required daily dressing changes due to strikethrough (Figure 4). The wound was debrided and a total contact cast was applied and NPWT started.

However, after one week of treatment, NPWT was stopped as there was difficulty in maintaining a seal and the patient had been interfering with the device, indicated by its frequent alarming.

The wound was subsequently dressed with sorbion sachet S, and progressed well following three weeks of treatment (Figure 5), with healing occurring into the plantar aspect of the toe (Figure 6).

Paul Chadwick concluded that correcting moisture imbalance would move a wound towards healing, where that is the confounding feature. He went on to summarise the clinical benefits of using sorbion sachet S which mirrored those of NPWT, namely:

- ▶▶ Stabilisation
- ▶▶ Preparation
- ▶▶ Closure.

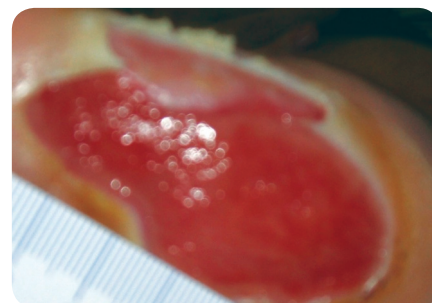


Figure 4. Wound with blistered area due to lack of moisture control.



Figure 5. Improvement in the wound can be seen after three weeks of treatment with sorbion sachet S.



Figure 6. Healing can be seen into the plantar aspect of the toe.

For further information on treating the diabetic foot go online to www.footindiabetes.org.uk or contact paul.chadwick@salford.nhs.uk.

References

- Andros G, Armstrong DG, Attinger CE, et al (2006) Consensus statement on negative pressure wound therapy (V.A.C. Therapy) for the management of diabetic foot wounds. *Ostomy Wound Manage* 52(Suppl): 1–32
- Bishop SM, Walker M, Rogers AA, et al (2003) Importance of moisture balance at the wound-dressing interface. *J Wound Care* 12(4): 125–8

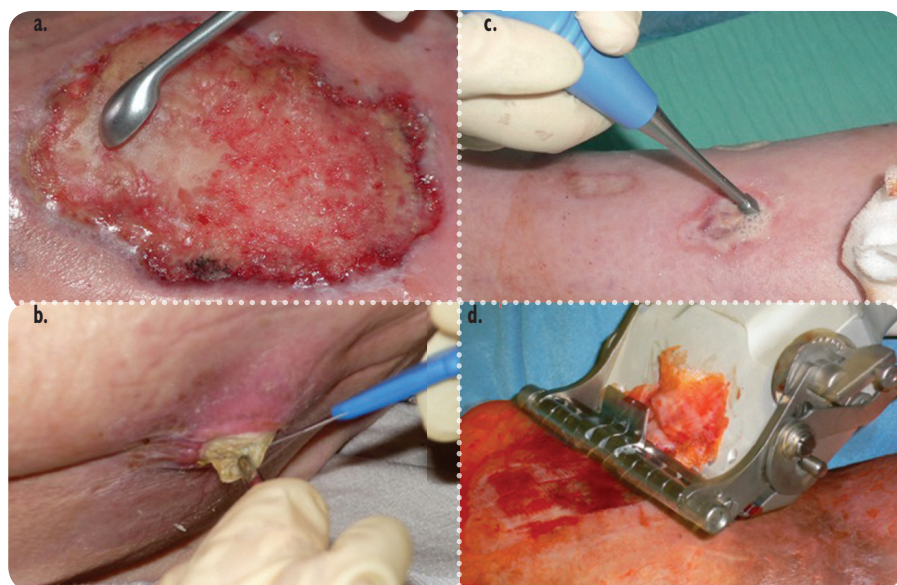


Figure 7. Different methods of performing debridement in hospitals in Germany (a and b = surgical/sharp debridement, c = ultrasound therapy; d = shaving).

A dressing instead of NPWT: a European perspective

Dr Gunnar Riepe, Vascular Surgeon, Boppard, Valley of the Loreley, Germany continued the session by giving a German perspective on the management of leg ulcers and pressure ulcers. He mentioned that currently in Germany only surgeons carry out debridement, using a variety of techniques (Figure 7). Afterwards, patients are frequently sent home with no follow-up due to:

- ▶ Lack of surgeons' time
- ▶ Lack of funding
- ▶ Lack of permission for nurses to carry out debridement techniques
- ▶ Larval therapy not being covered by German insurance companies.

Thus, patients requiring further debridement must return to hospital. If NPWT is used it can cost 40–120 euros per day. Dr Riepe stated that a more clinically- and cost-effective solution that could be applied by nursing staff would be beneficial.

Can a dressing substitute NPWT?

From previous observations, Dr Riepe and his colleagues have found no differences in efficacy between sponges

and fine foams (Granufoam AG®, KCI) when looking for an alternative to NPWT. They have also looked at coarse foam and sorbion sachet S.

He went on to say that over the years he has tried several absorbent dressings but, from his clinical experience, sorbion sachet S provides the best alternative to NPWT.

Dr Riepe carried out an observational study of six patients with wet, sloughy wounds that were treated with sorbion sachet S. The wounds would usually have been treated with NPWT, however, having had 4–5 years experience of using sorbion sachet S, this dressing was applied instead.

Figures 8–10 show three of the patients with these kinds of wounds, all of which were treated with sorbion sachet S. All wounds had progressed towards healing after four weeks of treatment without any need for debridement.

It was found that the dressing helped with wound bed preparation, when using the components of the acronym TIME as a guide (Falanga, 2004):

- ▶ Tissue non-viable or deficient:



Figure 8a. Wound at presentation on 17.03.2010.



Figure 8b. Wound after five weeks of treatment with sorbion sachet S on 21.04.2010.



Figure 9a. Wound at presentation on 11.03.2010.



Figure 9b. Wound after five weeks of treatment with sorbion sachet S on 19.04.2010.

sorbion sachet S performed soft debridement, removing slough from the wound bed. Maintenance debridement also occurred demonstrated by the presence of a clean wound bed

- ▶ Infection or inflammation: the dressing reduced odour
- ▶ Moisture imbalance: moisture was absorbed by the dressing and a good moisture balance was maintained

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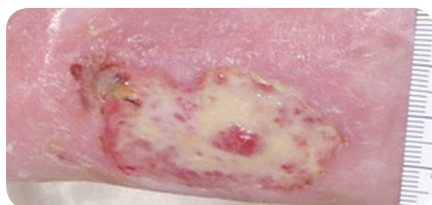


Figure 10a. Wound at presentation on 19.03.2010.

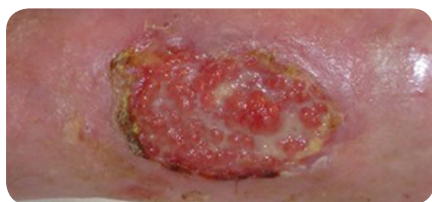


Figure 10b. Wound after two and a half weeks of treatment with sorbion sachet S on 06.04.2010.

- ▶ **Epithelial** edge advancement: the dressing is designed not to take up fluid at the wound margins, reducing the risk of damage to the delicate peri-wound area while absorbing exudate and maintaining moisture balance at the wound surface. Pain at dressing change also decreased over the four-week period.

Summary

sorbion sachet S was successfully used to substitute NPWT in all six cases. Material costs were reduced, as well as the length of hospital inpatient stay. Pain was controlled by protecting the edges of the wound and patients had greater mobility, being unrestricted by the tubes and battery of NPWT devices.

Reference

Falanga V (2004) Wound bed preparation: science applied to practice. Position Document: *Wound bed preparation in practice*. MEP Ltd, London

Limitations of NPWT and the alternatives in a primary care trust

Simon Barrett, Tissue Viability Specialist for East Riding of Yorkshire Primary Care Trust (PCT) concluded the session by stating that while there is a place for NPWT, clinicians should consider alternatives to achieve the same outcomes.

In his primary care trust in Yorkshire, the tissue viability service takes referrals from a wide geographical area. They are unable to access NPWT routinely — every patient is assessed and has to go through the commissioners on an individual basis to be prescribed this course of treatment. Thus, finding an alternative to NPWT that achieves the same clinical outcomes, is readily available and cost-effective has been beneficial to both patients and the trust.

It should be considered that there are some patients for whom NPWT is not suitable, for example, if they find the dressings painful or if the system affects mobility, hence raising issues of concordance. The trust cannot provide 24-hour cover and so patients and their carers need to be deemed fit to manage such advanced systems as NPWT. In addition, clinicians should be mindful of when to stop NPWT, as if left on for too long it can result in damaged, friable skin.

Simon Barrett went on to present a variety of cases to show different wound management issues that arise at the PCT, and the importance of thorough assessment to identify wounds that are inappropriate to treat with NPWT and which may benefit from a different type of treatment with sorbion sachet S. The cases demonstrated that in all patients, exudate was managed effectively, improving quality of life and helping the wound to progress to healing.

Both NPWT and sorbion sachet S have their advantages and disadvantages.

The potential advantages for NPWT include:

- ▶ Reduction in frequency of dressing changes
- ▶ Reduction in bacterial burden due to clearance
- ▶ Faster healing/wound closure
- ▶ Exudate management.

While the disadvantages are:

- ▶ Cost — lack of budget

- ▶ Independent research is needed into efficacy
- ▶ Can be difficult to achieve a seal
- ▶ Bleeding and trauma
- ▶ Patient may be reliant on carers out of clinic hours
- ▶ Reduced mobility/activity
- ▶ Support and education for appropriate use.

The potential advantages of sorbion sachet S include:

- ▶ Manages exudate well with no excoriation or maceration
- ▶ Reduced frequency of dressing change required and reduced time needed for dressing change
- ▶ Wound bed preparation
- ▶ No bleeding/trauma
- ▶ No odour
- ▶ No restriction to mobility/activity.

While the disadvantages include:

- ▶ Fixation of dressing (secondary dressing required)
- ▶ Support and education for appropriate use.

Summary

Simon Barrett argued that NPWT has a place in modern wound care as long as it is acceptable to the patient and appropriate for the wound. However, this may not always be the case and consideration should be given to other options that can produce the same or similar outcomes.

NPWT is not readily available in the PCT, but they have successfully overcome this by using sorbion sachet S as one of their alternative methods for wound management in a cost-effective way.

Conclusion

Dr Riepe summarised the plenary session by concluding that the importance of moisture balance is well recognised and that both techniques, NPWT and sorbion sachet S (HRT), have their indications and that clinicians should find opportunities to substitute one for the other to maximise patient outcomes. **WUK**