

# The Use of a DACC-Coated Wound Contact Layer with Topical Negative Pressure in a Deep Hip Infection

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## Introduction

In 2012, the reported number of hip procedures in the UK increased by 7% to 86,488. 10,040 (14%) of these were revision procedures, for which infection was cited as the indicator for revision in 12% of cases.<sup>1</sup>

Deep seated infection delays wound healing,<sup>2</sup> causing surgical dehiscence which often requires innovative techniques to support traditional dressing methods. New techniques have recently been reported using a hydrophobic antimicrobial dressing coated with dialkyl carbamoyl chloride (DACC)<sup>3</sup> (Cutimed® Sorbact®, BSN medical) to line and fill wounds under topical negative pressure therapy (TNP), rather than traditional non-adherent liners.<sup>4,5</sup>

This case study presents an 84 year old female who was re-admitted to hospital in March 2014 with a systemic infection one month post right total hip replacement. Usually independent, she suffers with epilepsy, is hard of hearing and has had bilateral hip replacements. She lives alone in a bungalow and struggles with low mood since the recent loss of her husband.

On admission, she was commenced on intravenous antibiotics (Tazocin); two days later she underwent surgical debridement, washout and exchange of femoral head. Intra-operative samples yielded a heavy growth of *Escherichia coli*, hence Rifampicin was added upon microbiology advice

The Tissue Viability team were invited to assess the closed wound 10 days post-operatively for possible application of TNP to help manage exudate.

## Method

On initial assessment, three sutures were removed, revealing a deep cavity behind a 7cm length of dehiscence. The patient was distressed by the high level of exudate however, active bleeding was noted which contraindicated TNP at this point<sup>6</sup>.

Primary management objectives were to:

- Promote haemostasis
- Reduce bacterial load
- Manage exudate
- Fill dead space to promote healing from the wound base

After soaking with an antimicrobial solution (Prontosan®, B Braun) for 10 minutes and protecting peri-wound skin with a barrier film (Cavilon® 3M Health Care), the wound was lined prophylactically with the DACC-coated wound contact layer to bind any remaining bacteria, then filled with a calcium alginate (Sorbsan®, Aspen Medical) under an absorbent secondary dressing. Secondary dressings were changed when clinically required and primary dressings after three days.

TNP was commenced for exudate management 17 days post-operatively after removing the remaining sutures to facilitate effective filling and lining of the wound (Fig.1). Distal sutures were embedded causing superficial bleeding which was isolated and managed with the calcium alginate. The wound was lined with a single layer of the DACC-coated wound contact layer (Cutimed® Sorbact® swab) and filled with moistened AMD antimicrobial gauze (Kerlix®, Covidien) around a 15mm gauge channel drain, secured using a Chariker-Jeter technique (Fig.2).<sup>7</sup> TNP was applied and pressure increased gradually from -60 mmHg to -80 mmHg over 24 hours to reduce the risk of bleeding.

Dressing changes were initially every 48 hours moving to twice weekly with weekly deep wound swabs to monitor bacterial status. Initially the drain was inserted into the proximal undermining which was the deepest point. However, a second narrow area opened directly towards the hip (Fig.3). This was filled with DACC-coated ribbon (Cutimed® Sorbact® ribbon) until the full 113mm depth was revealed. Thereafter the drain was positioned in this direction within the DACC-coated dressings to promote healing from the wound base. TNP was increased to -100mmHg and dressings continued until discharge (Fig.4).

## Results

Microbiology confirmed the wound remained free of infection until discharge. Tissue types were difficult to assess due to visibility, however 5% slough was noted on the visible wound bed at discharge.

Over 46 days of therapy, the following reductions were noted:

- Length of opening: 98mm to 70mm
- Depth: 120mm to 98mm
- Proximal undermining: 102mm to 62mm
- Deepest points became narrower
- Exudate: 300mls daily to approximately 200mls in three days

No moisture damage occurred. The patient felt comfortable after dressing changes and was able to transfer independently with the TNP unit.

## Discussion and Conclusion

Due to the depth of infection identified, resultant distress and cost of surgical revision, the passive mechanism of the DACC-coated dressings against wound pathogens<sup>3</sup> informed the decision to continue use despite clear wound cultures. Serum albumin remained 22–23g/l throughout admission and progress felt slow to the patient. Her appetite was usually low, plus she suffered additional nausea due to antibiotics which continued for six weeks. Nutritional supplements were prescribed by the dietician. An antidepressant (Citalopram) was also prescribed 14 days post admission and a referral made to the mental health liaison nurses who offered daily support around lunch times.

This patient's management was ongoing at discharge however, results appear to support the use of DACC-coated dressings under TNP in conjunction with holistic care including antibiotic therapy plus nutritional and psychological support.



Figure 1 - Wound prior to suture removal



Figure 2 - Wound with dressings and TNP applied



Figure 3 - Opening of second area 113mm deep



Figure 4 - Use of Cutimed Sorbact continued until patient discharge

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