

A Clinical Case Study on a Dehisced Surgical Abdomen Using Moistened Gauze and a Silicone Drain in Conjunction with NPWT

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Introduction

Negative Pressure Wound Therapy (NPWT) is a mechanical wound care treatment that uses controlled negative pressure to assist and accelerate wound healing (Bryant, R. 2000). NPWT utilising moistened gauze and a silicone drain was implemented for evaluation in this case study.

Mrs X is a 77 year old lady with a past medical history of non-insulin dependent diabetes mellitus and polio resulting in left leg weakness, needing a calliper to mobilise. Mrs X was admitted to hospital for investigation of RT sided abdominal pain. A laparotomy was performed; which revealed a caecal tumour, therefore a RT hemicolectomy was undertaken. Post operatively Mrs X experienced complications and the abdominal wound dehisced. Approximately six weeks after her initial surgery Mrs X was seen by the plastic surgeon who requested negative pressure wound therapy in order to prepare the wound bed for potential grafting.

Assessment of the Patient and the Wound

Prior to commencing negative pressure wound therapy, Mrs X's bloods were taken, and no major abnormalities were detected. Her nutritional and fluid intake was poor; therefore Mrs X was commenced on a high protein diabetic diet. Mrs X's medication was reviewed in order to list any medication that may impede wound healing. There were no impediments. Tramadol 100mgs 4 hourly was prescribed for pain relief.

Using Applied Wound Management, (Gray *et al* 2005) which utilises three continuums, The Wound Healing Continuum (WHC), Wound Infection Continuum (WIC) and Wound Exudate Continuum (WEC) to define the wound in terms of:-

- Tissue/colour (WHC)
- Bioburden/host response (WIC)
- Exudate volume/consistency (WEC)

Mrs X's wound was assessed as being red in colour, with local infection present and an exudate category of 'med/med'.

Planning the Treatment Options, Aims and Objectives

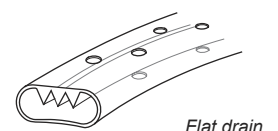
The aims and objectives for the use of negative pressure wound therapy were clearly identified prior to it being implemented. In the case of Mrs X the aims and objectives were to:-

- Remove excess fluid and oedema
- Assist in wound contraction
- Decrease the wound bioburden
- Protect from outside contaminants
- Maintain a moist healing environment
- Prepare the wound bed for grafting

A timescale of 4 weeks was initially set to re-assess the treatment options to ensure the best clinical outcome was being achieved.

Method

NPWT was applied using moistened gauze, a silicone drain and a clear semi-permeable film. The wound was irrigated with normal saline; the surrounding skin was patted dry. A layer of moistened gauze was placed directly on the wound bed. The flat drain was then cut to size and placed on top of the gauze, approximately 1-2cm from the wound edges to allow for contraction. The drain was then covered by the remaining moistened gauze and fluffed up to skin level. The entire wound was covered with a clear semi-permeable film. By applying a transparent dressing with an adequate seal a moist environment is maintained. Hence the gauze is moist to moist, not wet to dry (Chariker *et al* 1989). The flat drain was then connected to a NPWT pump unit and the pressure was initially set at 60mmHg of continuous negative pressure.



Results

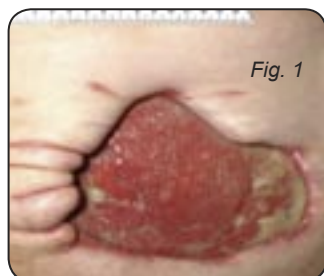
Mrs X's abdominal wound was photographed (Fig. 1) and initial measurements recorded were 14cm in width x 11cm in length x 2cm in depth. The first dressing change took place after 48 hours. The gauze was removed uneventfully and no pain was experienced by Mrs X.

Volume and consistency of exudate was recorded. Negative pressure wound therapy was continued.

Approximately two and a half weeks after commencing treatment the wound measured 11cm x 8cm x 1cm (Fig. 2). The wound bed remained red in colour with no infection present and an estimated exudate category of low/low.

Four and a half weeks after commencing treatment, the wound measured 8cm x 6cm x 1cm (Fig. 3). The plastic surgeon was overwhelmed with the progress being made and ordered treatment to continue.

Six and a half weeks after commencing NPWT, the plastic surgeon decided to graft the wound at this stage (Fig. 4), therefore NPWT was discontinued. Mrs X maintained her activities of daily living; she mobilised with assistance from the physiotherapist, and has since been discharged home.



Discussion

The use of moistened gauze was extremely beneficial, enabling manipulation of the gauze to all jagged wound edges and undermined areas. Since the gauze is white in colour it enabled staff to observe what was actually occurring at the wound bed. Although in this case there were no complications the use of gauze enables clinicians to be alerted to any problems and address them accordingly.

In this case the lower pressure settings enabled Mrs X to tolerate treatment, up until the plastic surgeon decided to graft the area.

Conclusion

The aims and objectives outlined prior to commencing NPWT with moistened gauze and a silicone drain were met. There was a decrease in wound size and a decrease in infection / purulent exudate, which enabled grafting to take place.

Dressing changes which took place every 48 hours were uneventful with no episodes of adherence and no complaints of pain. The main advantage of utilising this system was the ability to manipulate the moistened gauze to the exact shape of the wound.

Therefore when contemplating the use of negative pressure wound therapy, the application of moistened gauze and a silicone drain as the interface warrants consideration.

References

- Bryant, R. (2000) *Acute and Chronic Wounds*. Mosby St. Louis (p. 436).
- Chariker, M.E., Jeter, K.F., Tintle, T.E., Bottsford, J.E. (1989) *Effective management of incisional and cutaneous fistulae with closed suction drainage*. Contemporary Surgery Vol.34, 59-63.
- Gray, D.G., White, R., Cooper, P.J., Kingsley, A. (2005) *Understanding Applied Wound Management*. Wounds UK 1(1): 62-8.

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