A clinical case study on a non-healing, post operative pilonoidal sinus using the VENTURI™ negative pressure wound therapy system

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Introduction

Negative Pressure Wound Therapy (NPWT) also known as Topical Negative Pressure (TNP) is not a new concept. It has appeared in research literature for over 50 years and has revolutionised the way clinicians manage and treat a wide range of wounds.

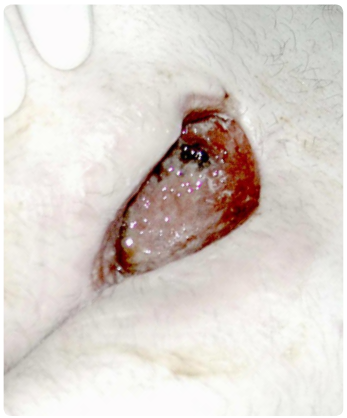
The physiological and molecular biological mechanisms by which NPWT accelerates wound healing are largely unknown. The VENTURI™ NPWT system, manufactured by Talley Medical and supplied by Keaney Medical Ltd., has been designed specifically to provide NPWT using the latest technologies and incorporates a number of unique features that will benefit both the clinician and the patient.

The VENTURI™ NPWT system employs the Chariker-Jeter application to dispense negative pressure, utilising moistened gauze, a silicone drain and transparent film (Chariker, Jeter et al 1989). A choice of flat or channel drain is available. The channel drain is excellent in the management of sinuses and undermining. The Chariker-Jeter method advocates lower pressures (60-80mmHg), research has shown the benefit of this, as there is increased hyper perfusion in soft tissue at these pressures (Wackenfors et al, 2004).

The following case study demonstrates the use of this gauze based dressing technique using the channel drain in the treatment of a non-healing, very painful, highly exudating pilonoidal sinus.

Case Study

This case study follows a 24 year old male, post incision and drainage of a pilonoidal sinus which was initially operated on and required further excision 86 days later as the wound did not heal. He reported no known allergies, with no previous medical or surgical history. Due to the features of the channel drain the Consultant General Surgeon opted to commence VENTURI™ for the management of this wound. Verbal permission and consent was obtained from the patient, prior to commencing treatment with the VENTURI™ system and compiling this case study. The patient had read the information sheet and all questions were answered.



The wound as it presented at commencement of negative pressure wound therapy

Initial Assessment

When treatment commenced using the VENTURI™ NPWT system the wound measured 3cm deep x 5.5cm long x 1.5cm at its widest point. The previous dressing regime was daily application of bethadine soaked gauze, requiring intramuscular analgesia pre-dressing. Granulation tissue was visible with reports of moderate/high levels of serous exudates with slight odour present. The surrounding skin was slightly irritated from previous dressing.

Method

The wound was irrigated with normal saline and the surrounding skin patted dry. A single layer of moistened gauze was placed directly on the wound bed. The channel drain was then cut to size and placed in the sinus, and withdrawn approximately 1-2 cm from the end of the sinus to allow for contraction. The drain was then covered with the moistened gauze and gently packed slightly above skin level ensuring the gauze was kept within the wound margins. The entire wound was then covered with transparent 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. The channel drain was then connected to a VENTURI™ NPWT pump unit and the pressure was set at 80mmHg of continuous negative pressure.

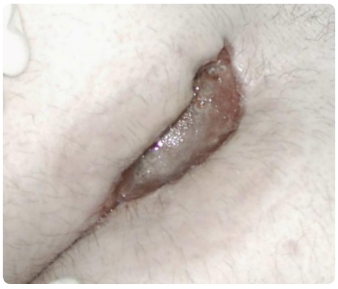
The Public Health Nurse (PHN) and the patient were advised to check the dressing on regular intervals and advice and education was given in relation to NPWT and the care and maintenance of the dressing and VENTURI™ pump unit. Based on the initial assessment of the wound and guidelines on NPWT the dressing was renewed 48 hours later.

Results

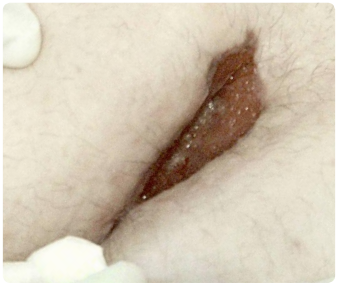
The patient's feedback was very positive regarding the dressings and their application. The PHN quickly adopted the technique having been shown the method, thus demonstrating the ease of use of the Chariker-Jeter technique. Dressings were then changed every 48-72 hours based on clinical judgement and wound healing.

The wound measurement on day 8 was 2cm deep x 5cm long x 1cm at the widest point. Exudate and odour from the wound was noticed to be considerably less.

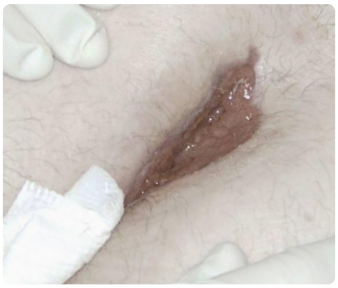
The wound measurement on day 16 was 1cm deep x 5cm long x 0.75 cm at the widest point. Treatment discontinued under the orders of the Consultant after 20 days of treatment as he felt NPWT was no longer required, ordering a conventional dressing. Total wound exudates was estimated at 300 mls.



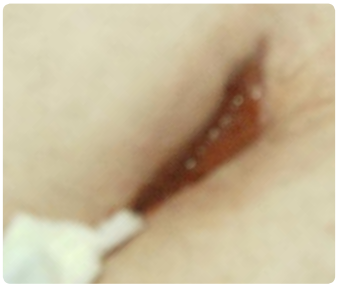
Day 2



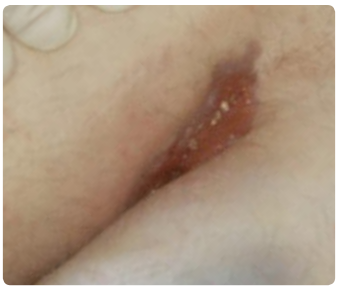
Day 10



Day 13



Day 17



Day 21 (at end of NPWT)

Discussion

Both the patient and the PHN were very pleased with the clinical results using the VENTURI™ system and with the support he received from Keaney Medical through home visits and advice. By using the VENTURI™ system, the patient stated it had allowed him to return to work sooner than he anticipated. He remained under the care of Consultant General Surgeon throughout the treatment.

Conclusion

In this case study the post operative non-healing pilonoidal sinus was successfully treated with the Talley Medical VENTURI™ NPWT system from Keaney Medical Ltd. In addition it has also demonstrated the effectiveness of the use of the channel drain and the moistened gauze in treating wounds.

References

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.

Wackenfors A, Sjogren J, Gustafsson R, Malmsjo M (2004) Effects of vacuum-assisted closure therapy on inguinal wound edge microvascular blood flow. *Wound Repair and Regeneration* 12:600-606

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