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Case Report

The Innovative use of modified vacuum dressing in post vulvectomy wound

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Abstract: We present a case of a patient who had a vulvectomy for large genital warts that could not be primarily closed but was successfully managed with a modified approach of the vacuum dressing until it was closed, allowed to heal, with a cosmetically acceptable outcome to the satisfaction of both the team and the patient.

Keywords: Vulvar warts, Vulvectomy, Vulvar wound management, Wound Vacuum dressing

INTRODUCTION

Genital warts (condyloma acuminata) are a common presentation in a gynaecology outpatients department. They are caused by the Human Papillomaviruses (HPV). Subtypes 6 and 11 are the commonest causes of benign genital disease. However, subtypes 16,18,31,33,35 can also cause disease.(1) Genital warts can cause debilitating disease in both genders of any age. The management of genital warts varies from medical to cryotherapy or electrocautery to surgical intervention. Surgery is the mainstay treatment for vulvar cancer and large vulva warts. Wound complications such as infection and breakdown are commonly described. However, postoperative complications after a vulvectomy can occur in 26–85 % of the cases.(2)

Thomas (3) describes the use of vacuum dressing as a sophisticated development in the management of wounds following a surgical procedure. The rationale is that the use of Negative Pressure Wound Therapy (NPWT) assists with the drainage of blood or serous fluid from the wound or operation site. The practice of exposing a wound to sub-atmosphere pressure for an extended period to promote debridement of necrotic material and wound healing was first described in orthopaedic patients. In this orthopaedic study, they reported the results of 15 open fracture patients who had efficient cleaning and conditioning of the wound, with the marked proliferation of granulation tissue.(3) The application of the NPWT should be goal-directed toward improved wound healing. Between consecutive dressings, if there is no improvement, the NPWT should be terminated.(4)

THE USE OF VACUUM DRESSING

The application of vacuum dressing, also known as negative pressure dressings, has been shown to accelerate debridement and promote healing in many different types of wounds.(3) It is believed that a negative pressure of approximately 125mmHg in a cyclic fashion assists wound healing by removing interstitial fluid, decreasing localised oedema, and also increasing blood flow to the wound.(3) In Obstetric and Gynaecological wounds, the application of the semipermeable dressing sealed with an adhesive sheet connected to a portal pump at continuous or intermittent suction of 50 to 175mmHg has shown to draw wound edges together and facilitated tissue remodelling at cellular level.(5) Currently available at our center (Chris Hani Baragwanath Academic Hospital) is V.A.C therapy from KCI and Renasys negative pressure wound therapy from Smith & Nephew. Both systems have been used and showed benefits that included shortened hospital stay and outpatient management, minimal dressing changes for nursing staff, better pain control, easy mobilization and wound granulation and healing allowing for secondary closure in cases where it was deemed necessary. However, these materials are not easily accessible due to the cost implications, and therefore the modified approach when these materials are not available is invaluable.

At our center we use Drawtex® wound dressing as a first-line dressing for different wound types. This hydro conductive wound dressing has three modes of action namely- capillary, hydro conductive, and electrostatic. These actions manage and control excessive wound

exudate, facilitate removal of wound debris, draw bacteria from the wound bed and create an environment for endogenous wound healing or wound closure procedures. (3) The suction or vacuum is then used on wounds, with a Drawtex®, sourced from the standard wall suction. This is often challenging as the pressures are often not regulated or controlled but rather measured against the patients' pain and comfort levels.

In traumatic wounds, this approach to wound management was reported to have allowed the patient to return to normal activities of daily living early including a return to employment, reduced mean number of dressings, reduced time between injury (in traumatic wounds) and wound closure, and reduced hospital stay. These dressing types were safely delivered through hospital wall suction.(6)

CASE REPORT

We present a case of a 20 years old nulliparous female who was HIV positive. She was a patient who had congenital HIV and was on HAART since birth. She was virally suppressed with no treatment-related complications. She presented with large, extensive, and obstructive genital warts with histological confirmation of a benign lesion (condyloma acuminate).

These extensive and obstructive warts were surgically managed with a simple vulvectomy without anal sphincter and urethral involvement. The surrounding skin appeared unhealthy and with minimal subcutaneous fat. Due to the size and extensiveness of warts, malignancy could not be completely ruled out even though histology assessed them as benign. Therefore, a reconstruction flap could not be used to repair the defect. There was delayed wound healing due to secondary infection and necrosis. The wound care team opted for a trial of vacuum dressing until the wound appeared healthy and ready for secondary closure. The Drawtex® vacuum dressing was applied for two cycles of 4 days with wound improvement between wound changes. This was followed by wound closure in the theatre. The Drawtex® vacuum was applied in the theatre after wound closure and exposed on day 3. The vulva wound healed well with no breakdown and minimal fibrosis as noted on day 4 and day 10 of review at an outpatient department. Wound dressing and progress are shown in Figure 1 (a-f)

DISCUSSION

It is not common practice in our setting to use negative pressure dressing on other Obstetrics and Gynaecology surgery complications related to wounds and there is also a challenge with creating an adequate seal around urinary catheter/urethra and allowing for bowel emptying when there is no diverting colostomy on such patients. Surgery has been the mainstay treatment for vulvar cancer and large vulva warts and often complications such as infection and

Fig 1: Wound dressing and progress. (a) day 1 presentation to wound care team. (b) second application of modified vacuum dressing. (c) wound review post second application of modified vacuum dressing. (d) secondary closure in threatre. (e) application of modified vacuum dressing in threatre. (f) day 17 after secondary wound closure.

breakdown occur in 26–85%.(2) Negative pressure wound therapy (NPWT) has been shown to improve wound care, gentle to the patient, control infection, and promote healing where traditional local wound dressings fail.(2) Combining the actions of two different wound dressing styles and using a different suction method in a wound such as a vulva is not often employed. However, with the practical experience of using the KCI V.A.C wound therapy on non-genital sites, on other patients with a good outcome, we explored these options on the vulva wound of this patient. The patient consented to the trial of this non-standard treatment. This method was executed by trained and skilled staff in our unit who ensured an airtight seal around a rectal tube and foleys catheter.

At initial assessment, the wound had minimal induration, no features of necrotizing fasciitis; wound edges-clear and regular with minimal scar tissue. Inflammation and infection were noted and the wound bed had a thick slough with foul-smelling exudate, no granulation tissue, and some sutures from vulvectomy still in situ. Urine sample microscopy revealed an Escherichia Coli (ESCCO) infection.

A multidisciplinary team approach with the allied team (Dietician, Physiotherapy, and Social Worker) and nursing care with a plan of oral antibiotics, pain management, and betadine sitz baths for three days were undertaken. Patient nutritional status was optimized to facilitate healing, mobility was initiated to promote perfusion and healing, and the nursing team carried out wound care. These strategies worked well as the wound healed with edges approximating and the patient was taken for secondary wound closure. Wall suction dressing with Drawtex® was applied intraoperatively and kept for three days.

The review of the wound showed good apposition and granulation tissue. The patient was counselled on wound care at home and discharged to return on day four after discharge for wound assessment and again on day ten for removal of sutures. Outpatient wound care was done weekly and the remaining sutures were removed on the second week after discharge. The patient recovered fully with minimum scarring and less cosmetic damage four weeks after discharge from the hospital.

CONCLUSION

This case report describes a patient who had extensive obstructive condyloma acuminata, managed initially by a simple vulvectomy, followed by complex wound failure and secondary infection. Use of negative pressure wound therapy is rare in vulvar lesions. This case report describes a positive outcome using the principle of negative pressure dressing, as well as modified wound dressings, which significantly assisted in wound healing, pain control, easy mobilization, reduced need for repeated dressing, shortened hospital stay, and better cosmetic outcomes.

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