MANAGEMENT OF A DEHISCED SURGICAL WOUND IN AN OLDER PATIENT

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Wound dehiscence is characterised by the 'opening up' of a surgically closed wound (Dealey, 2005). Surgical wound dehiscence can occur for a variety of reasons, such as infection, obesity, smoking and poor nutrition (*Table 1*) and if left untreated can cause extensive delays in the wound healing process, potentially extending the patient's stay in hospital.

This adds to the risk of additional complications, such as hospital-acquired infections, deep vein thrombosis (DVT) if the patient is bed-bound, and pressure ulcers and can result in increased anxiety for the patient and their relatives and carers.

It is important that a holistic wound assessment is obtained in order to identify the factors involved in any dehiscence and to provide the patient with a comprehensive wound management plan.

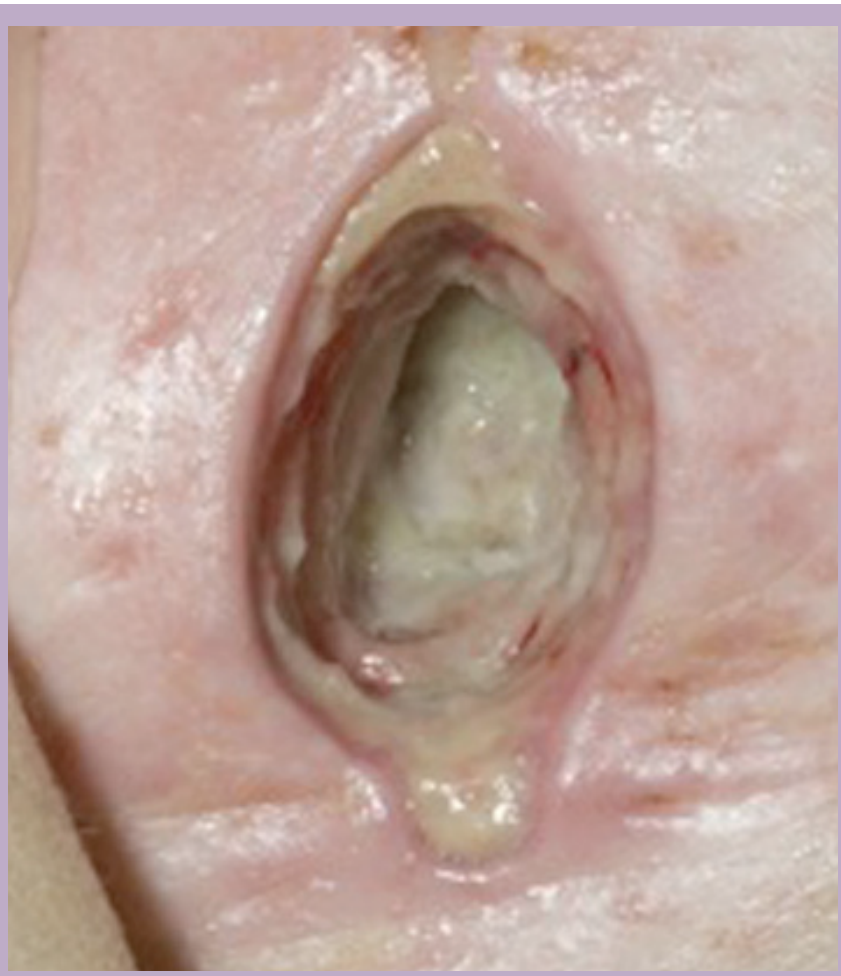

Figure 1. At first assessment, the patient's wound bed exhibited 20% granulation tissue, 80% slough and a high amount of serous exudate.

PATIENT DETAILS AND HISTORY

Ms D is a 68-year-old woman whose past medical history included a total abdominal hysterectomy due to ovarian cancer. This was followed by a course of chemotherapy.

Ms D was re-admitted under the surgical team after a computed tomography (CT) scan discovered a relapse of the disease with splenic involvement. A laparotomy (incision through the abdominal wall to gain access into the abdominal cavity) and a splenectomy (a surgical procedure that partially or completely removes the spleen) were performed. Unfortunately, however, the surgery was complicated four days later

by a small bowel perforation, which resulted in peritoneal contamination. Further surgery followed, which included the formation of an ileostomy.

Immediate post-operative treatment took place in the intensive care unit where Ms D received high-level care, including total parenteral nutrition (TPN) (intravenous feeding) to provide essential nutrients until enteral feeding (tube feeding) could be re-established.

The immediate recovery period was uneventful and Ms D was returned to a specialist colorectal ward. On the eighth day after her operation the TPN was discontinued, however Ms D's appetite was reduced and she was not keen to begin eating a normal diet. Following an dietician's assessment, she did agree to take supplements in the form of build-up drinks three times a day. Each drink provides 300 Kcal and contains protein and all of the vitamins, minerals, and trace elements needed for a nutritionally complete diet.

The surgical clips were removed by the nursing staff as planned — they reported that the wound was slightly red and inflamed but still intact. The following day, however the nurses reported that there was a small dehiscence at the wound site. The tissue viability nurse (TVN) was contacted to assess the wound and provide a plan of care to optimise the wound's healing potential.

Table 1

Factors that cause dehiscence

- Infection
- A failure to achieve haemostasis with subsequent haematoma development
- Poor nutritional intake
- Excessive exudate caused by an infection or localised oedema
- Poor quality vascular supply caused by a chronic or acute medical condition, an emboli, oedema, anaemia, obesity or smoking
- Mechanical stress on the wound caused by patient movement, obesity, oedema or localised pressure
- Patient interference

Table 2

Important components of a wound assessment (Burton, 2006)

- Anatomical position of the wound and type of surgery performed
- Wound dimensions (cms) supported with photography, tracings
- Tissue type in wound bed (necrosis, slough, granulation, epithelial tissue)
- Observe for other unusual things in the wound bed (sutures, bone, tendon, haematoma, metal work, etc)
- Exudate level and type
- Level of pain (use an appropriate tool to measure)
- Odour and likely cause of the odour (necrosis, infection, etc)
- Signs of infection (heat, swelling, pain, redness)
- Condition of surrounding skin (oedema, erythema, maceration, excoriation, healthy)

WOUND DEHISCENCE

Wound dehiscence usually occurs when the wound edges fail to 'knit' properly along a suture line. Doughty (2005) suggests this usually happens about 5–8 days postoperatively and is more likely if infection is present. Wounds can become partially dehisced, involving the superficial layers of the skin, or completely dehisced with deeper tissue involvement (Hahler, 2006). Common factors causing wound dehiscence are identified in *Table 1*.

Wound dehiscence should not be taken lightly as it can lead to the patient developing an infection that may require antibiotics or further surgery, a delay in wound healing, longer hospitalisation, pain, and psychosocial concerns such as anxiety, depression, social isolation, and for those of working age a potential loss of income.

Normal wound healing is a process that progresses through haemostasis, inflammation, cell proliferation, repair of the wound bed, epithelisation and modelling of scar tissue (Dowsett, 2008). Timmons (2006) maintains that healing is a process where these stages overlap. It is important to remember that this descriptive model of wound healing refers to acute wounds

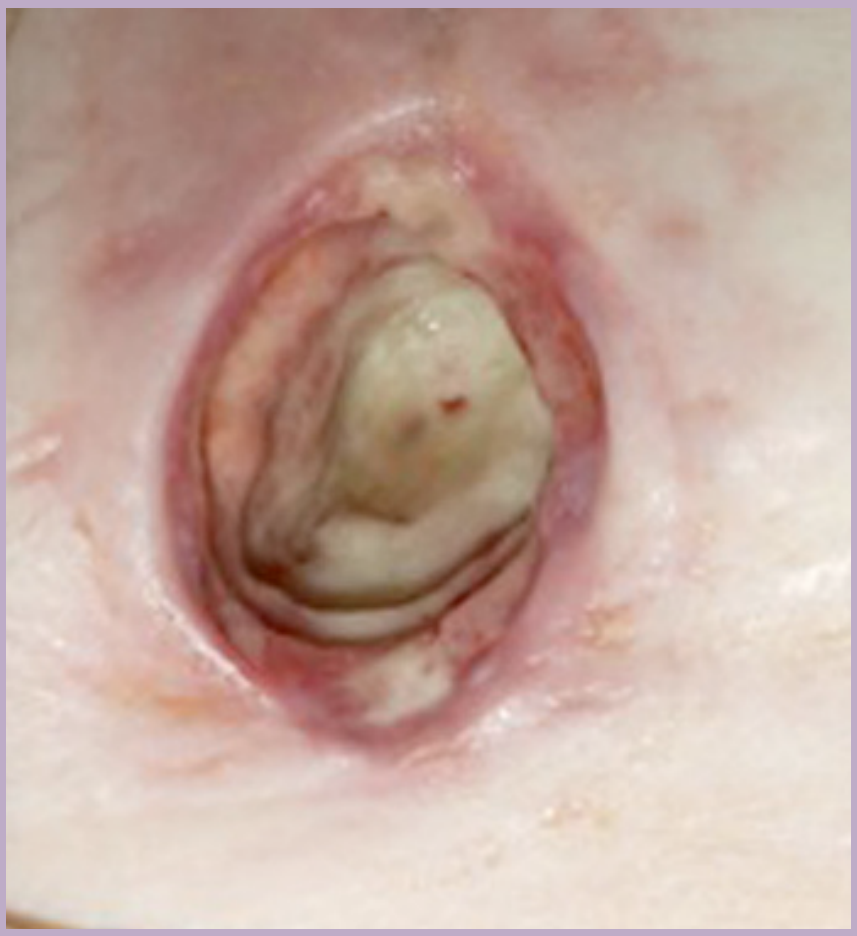

Figure 2. A review of the wound at five days demonstrated improvement with slow debridement of the slough.

that have a short, uneventful healing time. However, having an understanding of the physiology of normal wound healing allows clinicians to manage wounds appropriately when problems such as dehiscence occur.

ASSESSMENT

There are many different surgical procedures and techniques, which result in different types and sizes of wounds. There are also several wound classification systems, which in turn give the nurse an idea of how the wound should progress and in what timescale (Burton and Oldfield, 2009). Most acute surgical wounds heal by primary closure — where the wound edges are approximated and closed with staples, sutures, adhesives or paper strips (Moore and Foster, 2002).

The National Institute for Health and Clinical Excellence (NICE) (2008) suggests that acute wounds should be covered by an interactive dressing for the first 48 hours, allowing them to dry out and epithelialise, before the dressing is removed. These wounds should go on to heal completely within 8–14 days, coinciding with the suture or clip removal. However, healing below the skin's surface depends on the depth of the wound and the involvement of deep muscle layers. Therefore, complete healing under the skin can take a prolonged period of time.

There is no recognised universal system designed to specifically aid the assessment of surgical wounds. Therefore, when caring for a patient with an acute surgical wound, a holistic assessment that incorporates the patient's full history should take place. Factors to consider during this assessment should include:

- When the surgery took place?
- What type of procedure was it?
- Why did the patient need surgery?
- How acutely or chronically ill was the patient before and after surgery?
- Were there any complications during surgery?
- How great is the patient's ability to heal postoperatively?
- Has a wound assessment been carried out (*Table 2*)?

This holistic assessment provides information that will help nurses to develop and prioritise a management plan. This can be documented in the patient's records and on a wound assessment form. The assessment can also provide objective measurements of the wound and help in the development of treatment goals that should be agreed between the patient and staff.

At Ms D's initial assessment by the TVN, her wound measured 5 x 3 x 4cm deep (*Figure 1*). The wound bed exhibited 20% granulation tissue, 80% slough and a high amount of serous exudate, which was causing excoriation to the surrounding skin. Ms D stated that there was

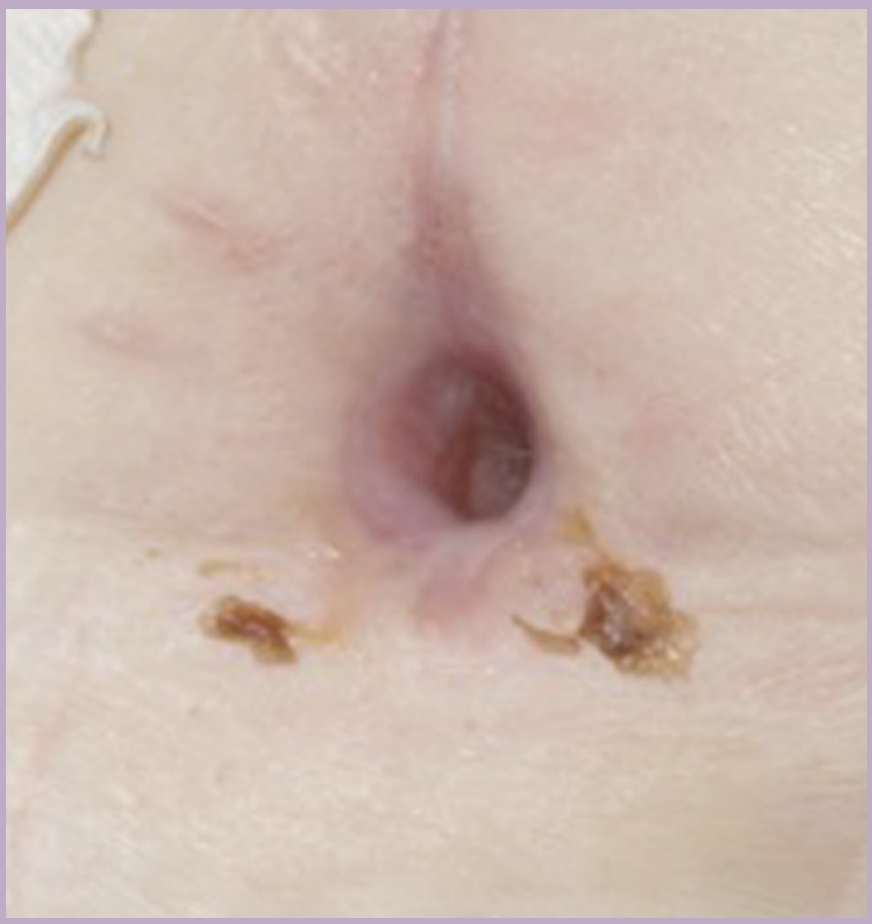

Figure 3. The wound six weeks after the patient's discharge.

no pain during the assessment and subsequent dressing change, and it was also noted that there was no offensive odour from the wound.

High amounts of pain, odour and exudate are typical signs of infection and would indicate the need for a wound swab to be taken for culture and sensitivity.

Other signs of infection include:

- Erythema
- Heat
- Oedema
- Abscess
- Discoloured or purulent discharge
- Delayed healing
- Discoloured bleeding
- Granulation tissue
- Wound breakdown associated with pocketing or bridging at the base of the wound.

These criteria should be considered when an unexpected delay in wound healing occurs, (Cutting et al, 2005). Following signs of infection, a wound swab is the most common sampling method used to identify the causative organisms and their sensitivity to antibiotics. However, routine swabbing without the signs of clinical infection has little value as it will not provide any information useful for treatment (European Wound Management Association [EWMA], 2005).

TREATMENT AND MANAGEMENT

Ms D's appetite was still poor and she was placed on a high protein diet. This was supplemented with build-up drinks (Fortisip; Nutricia) to ensure the additional nutritional intake needed for wound healing was being met. Build-up drinks such as Fortisip act as a therapeutic food and are manufactured as a ready-made milkshake-type drink. They are useful for patients with reduced appetite who cannot consume enough solid food to maintain a balanced diet or those with additional calorific requirements.

The TVN's wound care treatment plan was to protect the fragile surrounding skin from further excoriation and maceration, debride the slough that was present and control the exudate. Protection of the surrounding skin was achieved by using Cavilon™ No Sting Barrier Film (3M). This is an alcohol-free liquid barrier film that dries quickly to form a breathable, transparent coating on the skin. It is designed to protect intact, damaged or 'at-risk' skin from urine, faeces, and also provides peri-wound protection from exudate, other body fluids, adhesive trauma and friction. An application of Cavilon can last for up to 72 hours, and will not sting, even when applied to broken or excoriated skin.

After the application of Cavilon, the wound was lightly packed with Advadraw Spiral (Advancis Medical) and a standard Advadraw dressing (Advancis Medical). The spiral dressing is an absorbent, low adherent primary wound contact layer manufactured in a spiral ribbon shape. It has a rapid capillary action that wicks exudate

away from the wound.
The distinctive shape of Advadraw Spiral allows it to be easily cut and fitted directly into the wound bed, cavity or sinus. The end of the Advadraw Spiral was inserted through a standard Advadraw dressing, which has an integrated central wicking layer backed on each side with a permeable wound contact layer. This means that fluid from the wound bed, such as exudate, is rapidly absorbed into the pad. This migration of fluid from the wound bed removes and debrides slough from wounds and helps to remove bacteria.

Finally, the Advadraw was covered with a sterile non-adherent absorbent pad, which controls light-to-moderate exudate and protects the wound. This was secured with Mefix® (Mölnlycke), a soft and comfortable strapping made from a white permeable high tensile non-woven fabric. The strapping is hypoallergenic and provides strong adhesion but is easy to remove. The nurses were advised to change the Advadraw on a daily basis due to the high level of exudate, however it can be left in place for up to seven days.

The wound was re-reviewed by the TVN three days later and there was a slight improvement. The dimensions of the wound remained the same but the slough was debriding through the use of the Advadraw dressings.

A subsequent review of the wound at five days (*Figure 2*) showed a continued but slow improvement of the wound with the slough debriding slowly. Ms D was discharged into the care of the community team five days later. At this point the wound management objectives remained as before and the district nurses were happy to continue with this plan.

However, after three weeks the exudate levels had reduced significantly and when Ms D was reassessed by the district nurses the dressing was changed to Sorbsan® (Aspen Medical), an alginate dressing prepared from calcium alginate and suitable for mild to moderately exuding wounds. When in immediate contact with wound exudate, the surface of the dressing forms a soft hydrocolloid gel, which draws any bacteria into the dressing along with the wound exudate. The Sorbsan was packed into the remaining cavity to continue to control the reducing amounts of exudate and facilitate a moist wound healing environment.

Figure 3 was taken six weeks after Ms D's discharge and illustrates a much-improved wound due to the considerably reduced dimensions, the absence of slough and the reduced exudate levels.

CONCLUSION

It must be remembered that wound healing is complex and involves many factors, therefore timescales cannot be placed on the healing process as so much depends on the patient's history. In the case of Ms D, the wound exudate reduced as did the amount of slough and size of the wound. However, this process was delayed, perhaps due to her poor nutrition and complex clinical history. WE

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