

Management of a patient with a coccyx ulcer in a nursing home

KEY WORDS

- ▶ Ageing
- ▶ Care homes
- ▶ Nanova
- ▶ Skin tears

Older people are at increased risk of developing pressure ulcers. They are also more likely to have comorbidities that increase the challenges of managing such a wound. This article reviews a complex case in which a 77-year-old woman with dementia and incontinence developed an ulcer on her coccyx. The ulcer became infected several times and proved resistant to several types of treatment before negative pressure wound therapy with Nanova™ was instigated.

The skin thins as we age and, therefore, older people are at a greater risk of developing skin tears and pressure ulcers (LeBlanc and Baranoski, 2011). Pressure ulcers generally occur on bony prominences, especially among those who are unwell and immobile (Bangova, 2013). The International National Pressure Ulcer Advisory Panel (NPUAP), European Pressure Ulcer Advisory Panel (EPUAP) and Pan Pacific Pressure Injury Alliance classification (PPPIA) of a pressure ulcer is 'localized injury to the skin and/or other underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear' (NPUAP et al, 2014).

It is estimated that 20% of people in nursing and residential homes have pressure ulcers (Clarke et al, 2002). Most pressure ulcers are preventable, so it is important that healthcare professionals and carers have knowledge of their causes, prevention and management. This article describes the management of a pressure ulcer on the coccyx of an older person living in a care home. The case was complicated by the patient's dementia, which had an impact on her level of understanding, decision-making abilities and compliance with treatment. In addition to this, she had a low body mass index, which increased her risk of developing further ulcers, needed an air mattress, which she had rejected, and experienced considerable pain during dressing changes.

MEDICAL HISTORY

Mrs A is a 77-year-old woman who receives 24-hour care in one of Bassetlaw's nursing

homes in Nottinghamshire. She has a history of Parkinson's disease, dementia and hypertension. She takes medications for Parkinson's disease, hypertension and pain. She is doubly incontinent and wears products provided by the NHS. She scored 12 on the Braden scale and prior to referral had not had skin damage. Mrs A has meals provided for her by the care home and is able to independently feed herself, but often chooses to eat puddings or chocolate rather than a balanced meal. The dietetics services prescribed oral supplements and fortification as she had a low body mass index and weighed 43 kg.

Mrs A was first referred to the tissue viability service on 15 December 2014 by the care home, which requested advice on pressure ulcer prevention. The tissue viability nurse visited the following day. On arrival, Mrs A was being nursed on a high-specification Tri-Flex foam mattress on a profiling bed at floor level, as she would often roll out of bed onto a crash mat. Mrs A was bedbound, as she would become distressed if she was taken out of her bedroom and sat in a recliner chair. The tissue viability nurse advised a full replacement airflow mattress; however, Mrs A had declined a new mattress on multiple occasions. A skin inspection was carried out that identified a Stage 3 pressure ulcer on the coccyx that measured 20 mm × 20 mm × 5 mm and was covered by thick fibrous slough. No other pressure damage was evident. Mrs A was extremely thin and had very protuberant bony prominences. KerraPro™ pressure-reducing pads secured by

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Comfast™ tubular bandages were advised to protect the sacrum, hips, spine, elbows and heels, as Mrs A did not like heel protectors and would often remove them.

Due to her Parkinson's disease and dementia, Mrs A often demonstrated challenging behaviour, as she found it extremely difficult losing her independence and having to rely on carers for activities of daily living. She was often non-concordant in the mornings, refusing care interventions, and sometimes demonstrated aggressive behaviour. This behaviour was exacerbated at times of acute illness or infection. Care home staff and visiting health professionals felt that Mrs A's challenging behaviour was due to confusion and anxiety. In the afternoon, by contrast, Mrs A had more lucid periods, would be more accommodating of care requests and demonstrated that she had mental capacity. At these times, she would have coherent conversations and be able to retain and relay information provided to make informed decisions. Once this situation was highlighted, future visits were planned for the afternoon where possible.

INITIAL TREATMENT PLAN AND REVIEW

Despite being repositioned and care home staff providing the rationale (that lying on her back would increase pressure on the ulcer and make it worse), Mrs A would often roll onto her back. Due to incontinence and loose stools, it was decided to avoid adhesive dressings in the first instance. Her skin was cleaned with Prontoderm® cleanser to reduce the bacterial load. Flamazine® 1% cream was applied to the ulcer and excoriated skin — due to burns from urine and faeces — as prophylaxis against infection. Once absorbed, 50/50 soft paraffin ointment was used to moisturise the skin at each pad change. Pressure ulcer prevention advice was provided in both verbal and written form to the patient and care home staff.

The tissue viability nurse reviewed Mrs A's case 7 days later. There was no significant change in the pressure ulcer and Mrs A continued to decline a replacement mattress. A new treatment plan was advised consisting of Octenilin® irrigation followed by the application of Cavilon™ barrier cream to protect the periwound edge. The ulcer was then

covered with Comfeel® Plus Transparent dressing. The care home was advised to change the dressing every 3 days and monitor the wound for signs of maceration.

INFECTION MANAGEMENT

In January, the care home became concerned that Mrs A's ulcer had become infected as it was malodorous, discoloured and heavily exuding. The results of a wound swab confirmed the presence of Coliform bacteria, for which the GP prescribed a 7-day course of flucloxacillin. The tissue viability nurse altered the treatment regimen by adding Aquacel® Ag as top dressing and changing the secondary dressing to Cutimed® Siltec B.

PAIN MANAGEMENT

The Aquacel AG and Cutimed Siltec B dressing was changed every other day for a month. Despite the infection resolving, the patient was experiencing increased pain, so the GP changed her analgesia to a 10µg buprenorphine patch every 7 days and co-codamol 8/500mg 4 times a day. Her risk score was re-checked and remained the same. This pain relief proved ineffective so the GP prescribed morphine sulphate 10mg/5ml as required (maximum 4 times daily). Despite high risk of pressure damage, however, the patient still declined to upgrade her mattress, so remained on a high risk foam

Mrs A was reviewed on 17 February, by which time her condition had significantly deteriorated. Her pain and discomfort were obvious; she screamed when the dressing was removed and shouted out when the cavity was gently packed, despite receiving morphine sulphate before the dressing change. The grade 3 pressure ulcer had increased in size to 20mm × 30mm × 30mm, was covered in slough, and was wet and fibrous in appearance. There were active signs of infection a 7-day course of antibiotics was prescribed. At this time, Cutimed® Sorbact® gauze ribbon was used to gently pack the cavity, Aquacel® Extra™ to absorb exudate and Mepilex® Border foam dressing to minimise trauma to the surrounding skin. The nurses at the care home were advised to change the dressings on a daily basis for 1 month.

After a long discussion with Mrs A about the importance of upgrading her mattress, she agreed



Figure 1. Culture from a swab identified the presence of *Coliform* bacterial infection



Figure 2. Photograph taken before the Nanova dressing was applied

to trial an airflow mattress. The care home manager was advised by the tissue viability nurse to purchase a Duke mattress, which is designed to treat pressure damage and has small cells, providing increased comfort for patients who are extremely thin, but a higher specification airflow replacement mattress was purchased instead.

IMPROVEMENT FOLLOWED BY DETERIORATION

At her tissue viability review in April, a marked improvement was noted and the care home staff members were advised to continue with the dressing regimen. The ulcer was 20 mm × 20 mm × 20 mm and covered

with granulation tissue. Mrs A's pain was better controlled, she was eating and drinking well, had put on 1 kg in weight and tolerated the airflow mattress well.

In June, Mrs A fell out of bed, fracturing her left arm, so her airflow mattress was moved to the floor to prevent further injury. The margins of her pressure ulcer had increased in size and the granulation tissue was not healthy in appearance. To address this, the nurses were advised to obtain a wound swab to rule out infection, and support and guidance were provided to the care home staff to ensure the cavity was being packed and dressed correctly.

MOVED TO A NEW CARE HOME

In August 2015, Mrs A was transferred to a care home closer to her husband and was re-referred to the tissue viability service. All pressure ulcer prevention measures had been initiated at this time, however, the airflow mattress had been set incorrectly. The care home manager immediately changed this and produced labels for the devices to avoid the error recurring.

The pressure ulcer had increased in depth, but the base of the wound still had healthy granulation

tissue (*Figure 1*) so treatment was changed to Octenilin irrigation, Cavilon barrier film, Sorbsan Ribbon and Mepilex Border, with daily dressing changes. It was felt that this would make packing the cavity easier for the nurses.

At the start of September, there was a decline in Mrs A's general health, which was thought to be due to the patient changing care homes. Mrs A became quite withdrawn and did not eat well. However, she soon built up a good rapport with the care home staff, her dietary intake slowly improved. Mrs A was registered with a local GP surgery that changed her buprenorphine patch to a fentanyl 12 µg/hour patch, which was to be changed every 72 hours, and paracetamol 1 g 4 times daily.

NEGATIVE PRESSURE WOUND THERAPY

With the consent of Mrs A and the care home manager, a joint appointment was made to ascertain whether Mrs A would be suitable to receive negative pressure wound therapy to stimulate healing. The treatment was explained to all parties and the decision was made to trial Nanova™.

A week later, at the first review appointment, the ulcer had reduced in size to 20 mm × 20 mm × 20 mm and was covered with healthy granulation tissue (*Figure 2*). The nursing staff received education regarding the correct application of Nanova and were given contact details in case they needed advice. Black foam was used to fill the 20mm-deep cavity and Cavilon film was applied to the periwound edge to prevent trauma or maceration. The pump was compressed three times to initiate the negative pressure. The nurses were advised to check the pump at each 2-hourly repositioning of the patient and document whether the device was still working correctly.

As expected, the exudate levels initially increased, so the dressing had to be changed after 2 days. The nurse noted slight bleeding, therefore Silflex® silicone dressing was used to prevent adherence of the foam to the newly-developed granulation tissue. Nanova was reapplied and the dressing was changed every 3 days. Care home staff noted that dressing changes were more manageable and Mrs A's pain reduced, but she still received pain relief before each dressing change.

Two weeks after the implementation of Nanova, the nurse had no concerns about the dressing,

it had been tolerated well and stayed *in situ*. Mrs A found the dressing comfortable and no longer required pain relief prior to dressing changes. There was less exudate, healthy granulation tissue was present, and the depth and width of the ulcer had significantly improved. The nurses noticed slight maceration at the periwound edge that may have been due to the black foam being cut slightly too large. The nurses were therefore advised to ensure they cut the foam to the right size and protected the wound edge with Cavilon to reduce maceration.

Due to a delay in ordering Nanova, the care home staff temporarily dressed the ulcer daily with Sorbsan ribbon and Mepilex Border. There were no signs of infection and healthy granulation tissue was present but the pressure ulcer had increased to 25 mm × 20 mm × 5 mm.

In November, 4 weeks after reinstating Nanova, the pressure ulcer measured 22 mm × 12 mm × 2 mm (Figure 3) and the black foam was discontinued. It was decided Mrs A would only require a further month of Nanova treatment. She was more concordant with activities of daily living and her appetite increased.

A month later, the ulcer measured 15 mm × 12 mm with 98% epithelialisation tissue. Due to the anatomical location of the pressure ulcer and the risk of infection, the decision was made to continue the treatment regimen to reduce the wound margins further and encourage epithelialisation.

On 22 January 2016, Mrs A's ulcer was 8 mm × 8 mm, there were no signs of infection and little exudate. Nanova was replaced with Promogran Prisma™ to encourage and stimulate rapid healing. The nurse was advised to moisten the Promogran Prisma dressing prior to application, ensuring that the periwound edge was protected from moisture damage with Cavilon. Promogran Prisma dressing was replaced every 3 days for 1 week and secured with Tegaderm™ foam adhesive.

On 29 January, the pressure ulcer was no longer exuding, but the wound edge continued to look macerated (Figure 4). The ulcer was cleaned with Octenilin to reduce the bacterial load and moisturise the wound bed and Dermovate® steroid cream was applied to dry the wound and encourage the remaining granulation tissue to



Figure 3. After 6 weeks of negative pressure wound therapy, the ulcer was significantly smaller



Figure 4. Seven weeks after starting negative pressure wound therapy, the ulcer had reduced in size to 6 mm × 4 mm



Figure 5. After 14 months, the ulcer had healed

epithelialise. Cavilon cream was used to seal in the steroid and encourage greater absorption. The nurses were advised to repeat this regimen twice-daily for 5 days, then reduce the steroid cream to once daily for 3 days, and then apply it on alternate days for a further 3 days before discontinuation.

The ulcer had healed in February (Figure 5). The nurses were advised to continue using foam cleansers to prevent the skin of the buttocks drying out, as the newly-formed scar tissue was vulnerable to pressure and moisture, and to apply Cavilon barrier cream twice daily. In April, Mrs A's skin remained healthy, there was no evidence of deterioration, the scar tissue was strengthening well and the patient was discharged from the service.

PREVENTION AND MANAGEMENT OF ULCERS IN OLDER PEOPLE

International guidelines advocate that aged skin be protected from injury associated with pressure and shear forces (NPUAP et al, 2014). When patients are immobile and bedbound, the bed surface, tight bedcovers or pressure and friction generated through movement can be sources of external pressure (Bangova, 2013). The reduction of pressure through the use of appropriate mattresses, regular repositioning and looser covers should thus be considered.

In this case study, Mrs A's risk of ulceration was assessed using the Braden scale for predicting pressure sore risk. In patients at risk of ulceration, a comprehensive skin assessment should be carried out as soon as possible (during the first healthcare professional visit in community settings). It should include skin temperature, oedema and change in tissue consistency in relation to the surrounding tissue (NPUAP et al, 2014). Localised pain should also be assessed. Skin assessments need to be increased in frequency if there is any deterioration in the patient's condition and all findings should be documented (NPUAP et al, 2014).

When assessing and planning care for older adults, the individual's cognitive status should be considered. This is important when conducting a comprehensive assessment, developing a pressure ulcer prevention and/or treatment plan and educating the patient regarding skin changes (NPUAP et al, 2014). In Mrs A's case, due to her dementia, nursing visits were planned in the afternoons when possible, as this was when she was most compliant and able to retain information she was given about her condition.

Regular assessment of the efficacy of continence products is important, as skin problems occur more often with double incontinence (le Lievre, 2002). Faecal incontinence causes an increase in skin pH, excessive hydration and increased permeability, which can lead to skin breakdown (le Lievre, 2002). In this case study, the patient was doubly incontinent and was prescribed products on the NHS to manage this. In incontinent patients, it is important to correctly differentiate pressure ulcers from other skin injuries, such

as incontinence-associated dermatitis (IAD) (NPUAP et al, 2014). On initial consultation, the tissue viability nurse had ruled out IAD as the ulcer presented as a typical pressure ulcer and was non-blanching.

To prevent the development of a pressure ulcer, skin should be kept clean and dry, a pH-balanced cleanser should be used promptly following episodes of incontinence, a barrier product should be used to protect the skin from exposure to excessive moisture and an individualised continence management plan should be developed (NPUAP et al, 2014). Barrier products are useful in protecting periwound areas, as well as healthy skin, and were used to protect the skin surrounding Mrs A's ulcer.

CONCLUSION

Mrs A's pressure ulcer was a complex wound and the first 8 months of treatment were extremely difficult due to the frequency of dressing changes required, the associated pain and recurrent infections. The pain increased Mrs A's anxiety prior to dressing changes, leading to a general loss of appetite, and required strong pain relief. Once negative pressure wound therapy with Nanova was started, Mrs A's dressing changes reduced to every 3 days and were more comfortable. Her general health and quality of life improved at this time, and her appetite returned, which aided wound healing, her analgesia was reduced, and she allowed carers to assist with activities of daily living. In this case, negative pressure wound therapy not only provided a good healing wound environment, but also improved Mrs A's quality of life. WUK

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