

Managing Complex Category 4 Pressure Ulcers in Spinal Cord Injury: A Case Study Using MaxioCel

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Introduction

Pressure ulcers remain a major challenge in spinal cord injury patients, particularly those with multiple comorbidities and reduced mobility.¹ Category 4 pressure ulcers of the ischial tuberosities are especially complex due to their depth, risk of infection, and difficulty achieving offloading in wheelchair-dependent patients.

This case study describes the wound management of John (pseudonym), a 62-year-old male with a history of autonomic dysreflexia, quadriplegia, scoliosis, vitamin B12 deficiency, and chronic osteomyelitis. John was wheelchair-bound and lived at home with his mother and brother who assisted with his care. He was referred to the tissue viability service for assessment of **non-healing bilateral pressure ulcers**.

Method

Both wounds were assessed as Category 4 pressure ulcers. The ulcer to his right ischial tuberosity measured **13 cm × 3.5 cm × 1.8 cm**. The ulcer to his left ischial tuberosity measured **5 cm × 4.3 cm × 2.5 cm**.

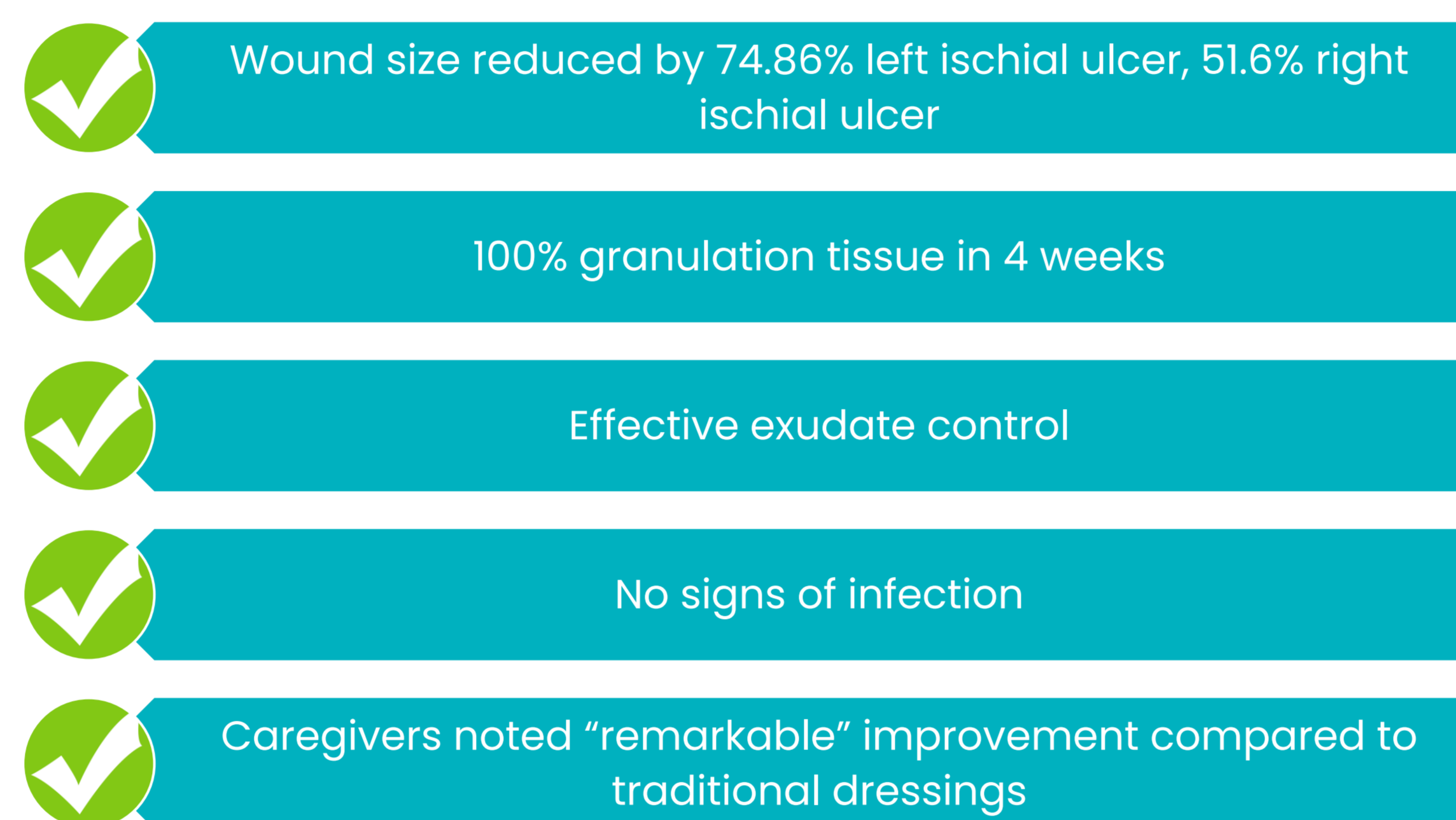
Both ulcers were moderately exuding and contained mixed slough and granulation tissue. Previous treatments, including **advanced wound dressings and Negative Pressure Wound Therapy (NPWT) had limited success**. The aims of treatment were to aid autolytic debridement, manage exudate and reduce bioburden.

A new management regimen was commenced including wound cleansing with an irrigation solution, applying **MaxioCel as a primary dressing**, and covering with a superabsorbent non-adhesive dressing. Dressings were changed twice weekly or as clinically indicated, and integrated with offloading strategies and nutritional support.

Results

After 4 weeks, the left ischial ulcer **reduced by 74.86%**, and the right ulcer **by 51.6%** (Fig 1). Both wounds showed 100% granulation tissue with effective exudate control and no signs of infection. The nursing team found **MaxioCel easier to use** than previous dressing regimens.

The patient expressed satisfaction, noting visible progress after a prolonged period of non-healing, and requested that his case be formally documented. Compared with more costly interventions such as NPWT, **MaxioCel proved to be highly cost-effective while achieving better healing outcomes**.



"MaxioCel has truly been a turning point in his wound care journey, and I'm delighted to have seen such positive outcomes in a case that had previously been very challenging."

– Bethany Nightingale, Specialist Nurse



Case Study

- 62-year-old male referred to the tissue viability service for assessment of non-healing bilateral pressure ulcers.
- Patient has a history of autonomic dysreflexia, quadriplegia, scoliosis, vitamin B12 deficiency, and chronic osteomyelitis.
- Previous treatments, including advanced wound dressings and Negative Pressure Wound Therapy (NPWT) had limited success.
- 4 weeks after MaxioCel was introduced, the left ischial ulcer reduced by 74.86%, and the right ulcer by 51.6%.
- Both wounds showed 100% granulation tissue with effective exudate control and no signs of infection.
- Both nurses and patient were equally impressed with MaxioCel's results. The patient requested a formal case study be carried out due to the success.

Discussion

MaxioCel is a chitosan-based dressing, enhanced by Bioactive Microfibre Gelling technology, that promotes healing in chronic wounds through multiple actions. It controls minor bleeding, absorbs and retains exudate to prevent maceration, maintains moisture balance aiding autolytic debridement and attracts and traps bacteria via positively charged chitosan fibres. MaxioCel stimulates healing by supporting fibroblast activity and reducing excess MMPs.

Patients with spinal cord injury are at high risk of developing pressure ulcers due to immobility, impaired sensation, and autonomic dysfunction, particularly in ischial and sacral regions, where sustained pressure is difficult to relieve in wheelchair users. Management requires a holistic, multidisciplinary approach that integrates wound bed preparation, pressure redistribution, nutritional optimisation, and infection prevention. John's case highlights the importance of selecting dressings that support healing while also being practical for carers and community nursing teams to implement.

Conclusion

MaxioCel proved effective for complex category 4 pressure ulcers in a spinal cord injury patient. The rapid transition from mixed slough and granulation to fully granulating tissue within four weeks represents **a positive outcome, particularly after limited response to previous therapies**.

Clinical improvements, patient satisfaction and nurse endorsement underscore **MaxioCel's value in real-world practice**.

Fig 1 **Wound Surface Area Change From Initial Assessment to 4 Week Assessment**

