

EXPERIENCE OF USING POLYMERIC MEMBRANE SILVER CAVITY DRESSINGS ON A MISDIAGNOSED CHARCOT FOOT



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INTRODUCTION

A 38 year old woman with uncontrolled type 1 diabetes and neuropathy contracted a red swollen lower leg. Her family physician initially diagnosed it as DVT. Improper footwear, constant walking and non-existent off-loading lead to an ulcer formation on the sole of her foot; first then was the patient referred to the orthopaedic clinic where she was diagnosed with a Charcot foot.

The orthopaedic clinic treated her with systemic antibiotics for her Pseudomonas infection, she also had daily foot baths with diluted povidone and the wound was dressed with cadexomer iodine. Five months later the wound was still deteriorating and the option of amputation was discussed; by then the malodorous wound was 7 x 6 cm and 4 cm deep with exposed bone. It was constantly macerated due to huge amounts of purulent exudates. It was at this time she was referred to our wound clinic.

The patient did not feel that much pain, just a diffuse aching sensation; she was very embarrassed over the malodour combined with the copious amounts of exudate from the wound which made her feel very self-conscious whenever she went out. Due to the location and wetness of the wound she only wore clogs.

AIM

Our main concern was to protect the exposed bone, control the infection and manage the exudates in order to minimize maceration and save the foot from amputation.

METHOD

We continued with systemic antibiotics due to the ongoing Pseudomonas infection. Strict immobilization with a total cast was not possible due to patient compliance as well as the initial need for twice daily dressing changes. However, no weight-bearing measures were taken by constructing a specialised off-loading shoe.

During the first weeks we changed the dressings twice daily due to the copious amounts of exudates. We used polymeric membrane cavity dressings* (PMCDs) with silver in her deep wound and covered them with a standard polymeric membrane dressing** (PMD).

PMCDs wick exudate directly away from the wound surface while facilitating autolytic debridement by loosening the bonds between slough and wound bed. The liquefied slough is absorbed into the dressing and excess fluid wicks through the filler into the absorbent polymeric membrane cover dressing. Both the filler and the cover dressing contain glycerine to soothe and hydrate the wound, and a surfactant to continually cleanse the wound. The silver version of these dressings has additional antimicrobial properties. PMDs have a documented effect on reducing inflammation.

RESULTS

After 5 days we could observe new granulation tissue covering the exposed bone. The macerated wound edges began to stabilize and become dryer. It was a conscious decision from our side not to debride the dry edges as we did not want to enlarge the wound; we were confident that the PMDs were capable of debriding all non-viable tissue.

The odour of the wound had diminished within a week. After six weeks a negative wound swab allowed us to discontinue the antibiotics. We also stopped using the silver PMCD and switched to the regular pink version of the cavity dressing.

After a total treatment time of less than four months the deep ulcer had completely healed.

DISCUSSION

We saw fast, almost immediate, results when it came to cleansing, reduction of aching, odour and wound healing. The rapid improvement of the wound had a negative side effect, the patient became more mobile and was out walking every day instead of off-loading her foot according to our recommendation.

Despite the fact that we chose to change the dressings twice daily the first few weeks, the total time of dressing change was shorter than the previous dressing regime where daily foot baths were included.

We often treat severe wounds with different aetiologies at our clinic. During the past years we have found that polymeric membrane dressings have increased our healing rate results for all types of wounds.



Day 1 The wound has been continuously deteriorating for the past five months at the orthopaedic clinic and now measures 6 x 7cm and 4cm deep with bone contact. The wound is extremely malodorous and produces copious amounts of exudates which is very distressing for the patient. As a last resort, since amputation had been discussed, she was sent to the wound clinic where polymeric membrane silver cavity dressings were initiated. Dressing changes twice daily due to the high exudate level.



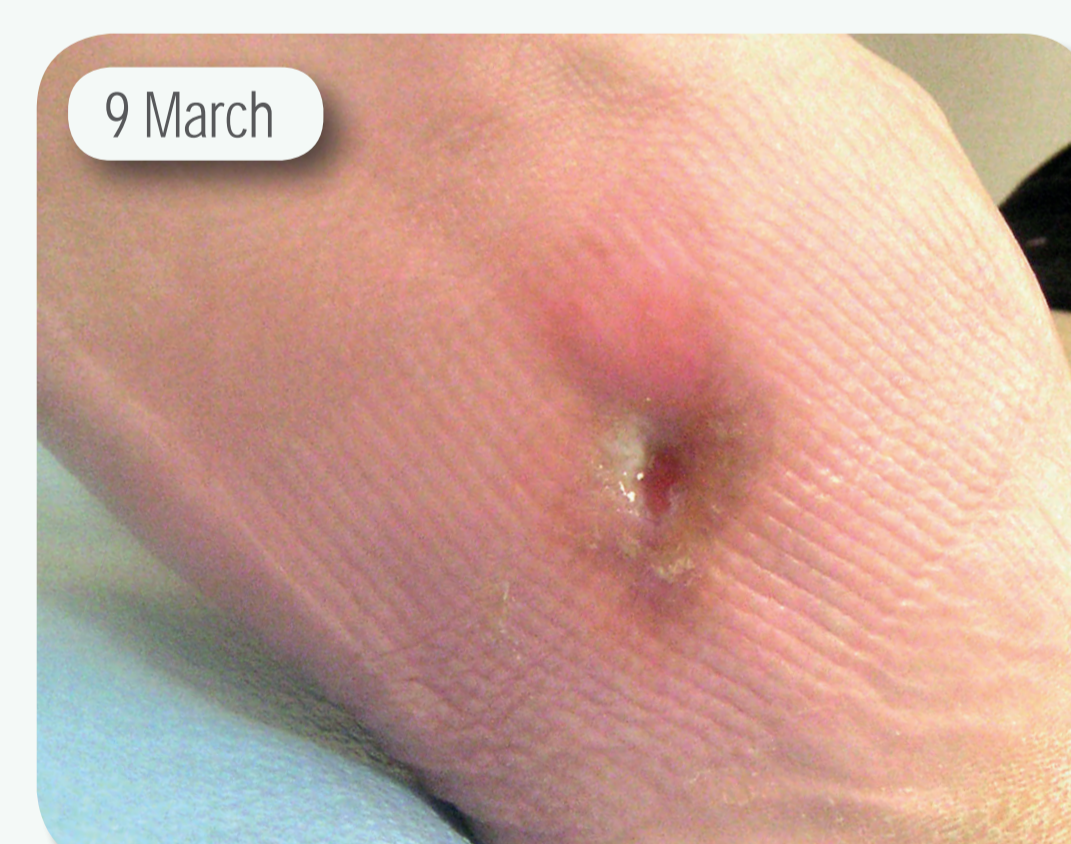
Day 5 Most of the deep slough has been debrided by the dressing and the formerly exposed bone seems to be covered with newly formed granulation tissue. We continue to change the dressings twice a day but since no additional cleansing or debridement is required these changes are performed very rapidly. The wound edges are beginning to dry out but we choose not to debride them as we do not want to risk enlargement of the wound.



Day 26 We stopped using the silver version of the PMCD and switched to the regular pink version. Dressing changes once a day. In spite of our recommendations to off-load the patient is out walking every day; she is so happy that she no longer smells and can use shoes as opposed the clogs she had been using the past six months. Antibiotics discontinued after a wound swab showed absence of Pseudomonas one week after this visit.



Day 52 The cavity is only 0,5 cm deep now. There is still some hyperkeratosis on the wound edges but we continue to leave it alone as the PMDs help soften and dissolve the dried edges without the need of sharp instruments.



Day 76 The wound is only a few millimetres wide. The last few weeks dressing changes have been performed only three times a week, often by the patient herself who only comes to us once a week. The last few open millimetres of the wound took almost a month to close.

4,5 months to complete closure with the help of Polymeric membrane dressings



Bibliography

1. Tamara E Milne, Joseph R Rogers, Ewan m Kinnear, Helen V Martin, Peter A Lazzarine, Thomas R Quinton, Frances M Boyle, " Developing an evidence based clinical pathway for assessment, diagnosis and management of acute charcot- neuro-atrophy ; a systemic review, Journal of foot and Ankle research, 2013, 6, no. 29
2. Beitz AJ, Newman A, Kahn AR, Ruggles T, Eikmeier L. A polymeric membrane dressing with antinociceptive properties: analysis with a rodent model of stab wound secondary hyperalgesia. The Journal of Pain. Feb 2004;5(1):38-47