

# The Use of PolyMem® Silver in Non Healing Burns and Surgical Wounds

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## INTRODUCTION

Chronic wounds management is estimated to cost over £1 billion per year with the additional cost to patients of reduced quality of life (White 2006). Wounds are labelled as chronic when compromised healing is anticipated, usually in relation to complex underlying pathologies such as diabetes.

Chronicity in burn wounds is one of the least recognized areas of wound care. Often chronic burns, skin grafts and donor sites continue to be managed for many months as acute wounds. These wounds have similar problems in terms of quality of life, cost and nursing time as any other chronic wound, but often continue to be dressed with products considered to be "burn" products, e.g. Flamazine and Jelonet or other Vaseline derived products. There is little or no evidence or discussion about burn wound chronicity in the literature.

## Aim

This was a proof of concept evaluation of the potential use of PolyMem® Silver in a range of chronic burn related wounds to see whether further evaluation was required.

## METHOD

Polymeric membrane silver dressings (PolyMem® Silver) have a polyurethane matrix, with a semi-permeable thin film backing. These dressings contain components which draw and concentrate healing substances from the body into the wound bed to promote rapid healing while facilitating autolytic debridement. The liquefied slough is absorbed by the dressing, eliminating the need for manual wound bed cleansing during dressing changes. The surfactant, glycerol and starch copolymer work synergistically promoting wound cleansing and healing. The nanocrystalline silver particles are embedded in the foam matrix and are not released onto the wound surface (Burd 2007).

PolyMem® Silver was used on a non-healing burn, donor site and skin graft. All three wounds had been treated conventionally with modern wound care products but had failed to heal.

## RESULTS

The case studies demonstrate that PolyMem® Silver seems to be effective in managing complex non-healing burn and burn related wounds. All three of these wounds had been treated with numerous other modalities before PolyMem® Silver application was established. In these cases PolyMem® Silver proved to be effective at promoting wound healing as well as having good acceptability with both the patient and the nursing staff.

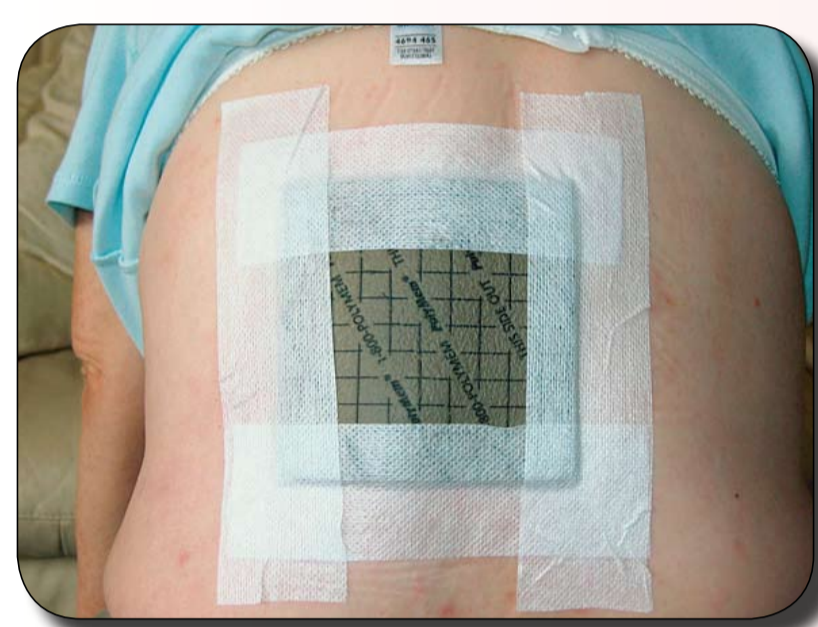
## DISCUSSION

Delayed healing, increased pain and odour in chronic wounds are factors often associated with infection (Vowden & Cooper 2006). It appears from above case studies and other documented experiences we had at our unit that PolyMem® Silver is beneficial for addressing these factors. A number of patients were finding pain problematic; in all cases the patients' pain experience was improved. Wounds can produce significant exudate, which can become dried and crusty on the surface, which can be painful when removed. The surfactant present in the dressing precludes this and diminishes the need for manual wound cleansing, which ultimately reduced pain. In addition, PolyMem® Silver did not cause any trauma to underlying skin when removed, the majority of patients found the dressing comfortable when in-situ, as well as on removal. All of our cases showed delayed healing, all closed after commencing with PolyMem® Silver. Another interesting factor is that none of the patients developed infections, a common problem in chronic non-healing wounds.

### NON HEALING BURN AFTER PHOTODYNAMIC THERAPY

Mrs H was a 62 year old lady, who had skin cancer and had photodynamic therapy to her back which unfortunately led to a full thickness burn. Additionally she had a myocardial infarction and her first assessment of her burn was whilst she was in the Intensive Care Unit on an intra-aortic balloon pump awaiting Coronary Artery Bypass Grafts (CABG). The wound was approximately two weeks old and had not had any previous dressing treatment, but had been managed with simple emollients. The surgeons were keen to take her to theatre and it was suggested that PolyMem® Silver may be appropriate for her wound.

Initial photo of the 2 week old full thickness burn with necrotic tissue.



Dressing in situ. The dressings were changed every 3-4 days.



Picture of burn at 2 weeks showing slough and some granulation, patient was experiencing no pain and there was no trauma on removal



Wound at 6 weeks 50% healed with some slough still present, patient still very happy with dressing, CABG donor site had broken down and patient wanted to use PolyMem® Silver on this area.



Wound at 10 weeks fully healed. Patient has since found out that she needs more Photodynamic therapy and already has requested that the burn created be treated immediately with PolyMem® Silver.

### FOUR MONTH OLD DONOR SITE

Mrs B was a 72 year old lady who underwent skin grafting for a full thickness burn to the side of her head. Unfortunately the donor site failed to heal at the normal time scale and numerous treatments were tried including: Acticoat Absorbent, Atrauman, Mepitel, and Flamazine. The donor Site was 4 months old when PolyMem® Silver was commenced.

4 month old donor site. Photo taken before PolyMem® Silver dressings are initiated.



After 5 weeks of treatment significant reduction. 40% of the donor site had epithelialized and the rest is granulating.



Wound after 7 weeks of treatment. The patient is happy with the dressing and pain is greatly reduced.



Wound after 10 weeks of treatment - almost healed.



Healed after 12 weeks of treatment - photo shows scar check at week 14.

### FAILED SKIN GRAFT

Mr F was a 76 year old man who was burning some rubbish in his garden and his trousers caught fire, causing a full thickness burn to his left lower leg. This was initially skin grafted, but some of the graft failed, he was re-grafted but again some of the graft failed and it was decided to treat the wound with PolyMem® Silver.



Grafted leg 6 weeks post grafting. Large areas of the graft have not taken.



Grafted leg after 2 weeks with PolyMem® Silver. The areas with graft loss have started to granulate. Patient now discharged and managed in own home. Happy with dressings as pain was reduced.



Grafted leg after 6 weeks. Almost completely closed.



10 weeks post treatment. Healed.

## CONCLUSION

These case studies have identified that PolyMem® Silver has the potential to be a useful adjunct in the management of this wound type. Further formal evaluations have been carried out on both acute burn wounds as well as chronic non-healing burn related wounds. The positive outcome from these evaluations has resulted in PolyMem® Silver being a part of our formulary.

## References

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