

# EVALUATION OF A NEW POLYMERIC MEMBRANE FINGER DRESSING ON TRAUMATIC FINGER AND TOE INJURIES

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## INTRODUCTION

At our teaching hospital we have many different specialties. The Department of Plastic, Reconstructive, Esthetic and Hand Surgery is well known so most traumatic hand injuries from the region get referred to us.

Open wounds of the fingers pose a number of potential problems, even when described as simple or superficial. There is always risk of infection, injury to underlying structures or chronic tenderness/pain. Treatment recommendations must take into consideration wound size, geometry, depth, location, duration, contamination, associated injuries, age of the patient, and patient cooperation as well as other factors. In general, stiffness is the most common single problem following treatment of a finger injury. We use a variety of different wound dressings when treating traumatic finger injuries, the most common ones being paraffin gauze or hydrocolloids.

## AIM

To evaluate a new polymeric membrane dressing (PMD) shaped as a finger dressing that is designed to be rolled onto the digits at our hand surgery clinic. We looked at ease of use and patient comfort as well as healing and time savings related to dressing changes.

## METHOD

We had 5 patients, four with traumatic finger injuries and one with a toe injury. One of the finger patients had 2 fingers partially amputated, one had a full and a partial finger amputation, one had full thickness wounds and one had a thumb injury. Suitable sizes of the polymeric membrane finger dressings (PMFDs) were chosen and changed 1-2 times a week. The patients were given extra dressings so they could perform the changes at home if needed. The patients were followed for two months.

## RESULTS

The finger dressings were very easy to apply and stayed in place well without sticking to the wound surface and resulting in painful dressing changes. All the patients found these both comfortable to wear as well as protective due to the perfect fit and cushioning effect. Within the first hours of application pain levels reduced to the extent that the patients could move their fingers in an almost normal manner which seemed to reduce the swelling and make the rehabilitation time shorter. We noted that the debridement and cleansing effect was much faster than anything we had previously used. The thumb and toe wounds closed within the two evaluation months.

## DISCUSSION

A larger population is needed in order to draw absolute conclusions, but our limited evaluation indicates that the wounds seem to heal faster than with traditional dressings we have previously used. PMFDs do not adhere to the wound, and in combination with the cleansing effect had a positive effect on pain reduction during wear time as well as dressing change. The only limitation that was encountered was the sizing and it would have been ideal to have more sizes to choose from. The lack of bigger sizes that was available is one of the reasons that our test population is rather small, especially when treating thumb injuries. (Note: The manufacturer is in the process of producing two larger sizes so this dressing will soon come in 5 sizes).

\*PolyMem® Finger and Toe Dressings with and without Silver. Manufactured by Ferris Mfg, USA. Ferris Mfg. contributed to this poster design and presentation.



Surgical amputation of small finger after saw injury. 9 days post op; ring finger inflamed and partially necrotic. Previous dressings, vaseline gauze were extremely painful. PMFD treatment starts 12 Dec and patient reports almost instant pain relief as well as very easy dressing changes. Wound closed 2 months after initial trauma. Photo on the left shows wound fluid the shape of the wound; this is an indicator of dressing change.



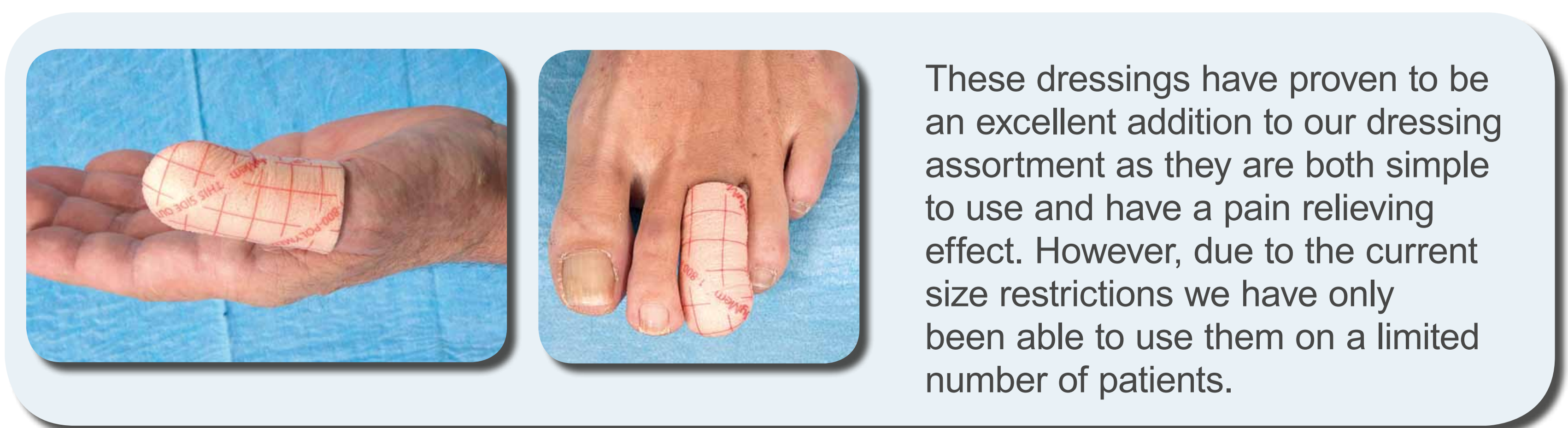
Fracture of end phalanx after drill injury. Exploration surgery 4 weeks after trauma resulting in exposed tendon. Antibiotics due to Streptococcus and Staph aureus infection. Start with polymeric membrane finger dressings 17 November with rapid pain relieving and wound healing results. Due to the comfort and perfect fit of the dressing the patient continued working in spite of his injury that took 3 months to fully heal.



Traumatic amputation of ring and small finger. Surgical debridement of bone tissue and wound edges performed with the goal of healing by secondary intention. PMFD not possible in the initial phase due to extensive swelling (dressing sizes too small) so a silicone mesh was applied. Three weeks later, 22 November, PMFDs were applied for the first time. The patient reported a dramatic reduction of pain when using PMFD compared to the silicone mesh.



Lawn mower accident resulting in deep and superficial damage of ring and small finger. Initially started treating with hydrocolloids which resulted in a very bad odour and macerated fingers together with extremely painful dressing changes. Started using PMFD four days post injury, 3rd July with positive results. The patient could easily change his own dressings and hardly felt any pain when using his hand. Wound closer 5 weeks post injury.



These dressings have proven to be an excellent addition to our dressing assortment as they are both simple to use and have a pain relieving effect. However, due to the current size restrictions we have only been able to use them on a limited number of patients.