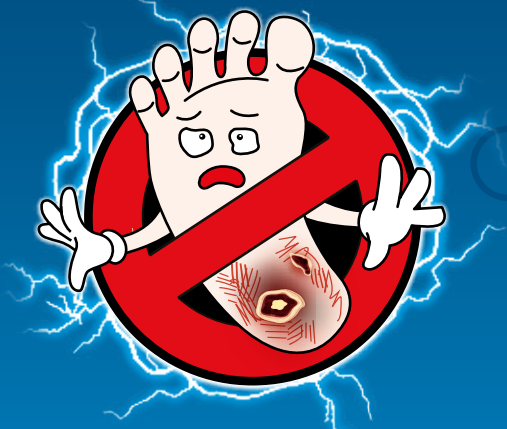


# M.O.I.S.T CONCEPT WOUND CARE WITH A STAGED PROTOCOL FOAM DRESSING; A CASE REPORT

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## Introduction

Plantar foot abscesses are relatively uncommon. Patients with DM are particularly susceptible to foot infection because of neuropathy, vascular insufficiency, and diminished nociception. Diabetic patients lose the protective sensations for temperature & pain, impair awareness of trauma such as abrasions, blistering or penetrating foreign bodies. Motor neuropathy can result in foot deformities that can contribute to local pressure from footwear which result in ulcer formation. The wound infection may begin superficially but with delay in treatment and immunodeficiency state, it can spread further to contiguous subcutaneous tissues and even deeper structures thus warrant for surgical drainage / debridement<sup>1, 2</sup>. Post operative wound care is a challenge, as the healthcare practitioner needs to be in-sync with patients regarding timely review of wound, appropriate cleansing and dressing, as well as early recognition and active treatment of wound complications. The acronym M.O.I.S.T describes a concept for the topical treatment of chronic wounds however it is applicable for acute wounds. The M.O.I.S.T concept evolved from the refinement of T.I.M.E clinical decision tool. Each letter of M.O.I.S.T describes an element of wound management which is Moisture balance, oxygen balance, infection control, supporting strategies and tissue management<sup>6</sup>. The M.O.I.S.T concept implementation to wound care can help in a holistic wound approach by healthcare practitioner. Reporting a case of post surgical debridement of plantar foot abscess which was managed with staged protocol foam dressing (Retrotech Dressing - Methylene Blue + GentianViolet + ZrAg + surfactant 4 in 1 Foam) and offloading management.

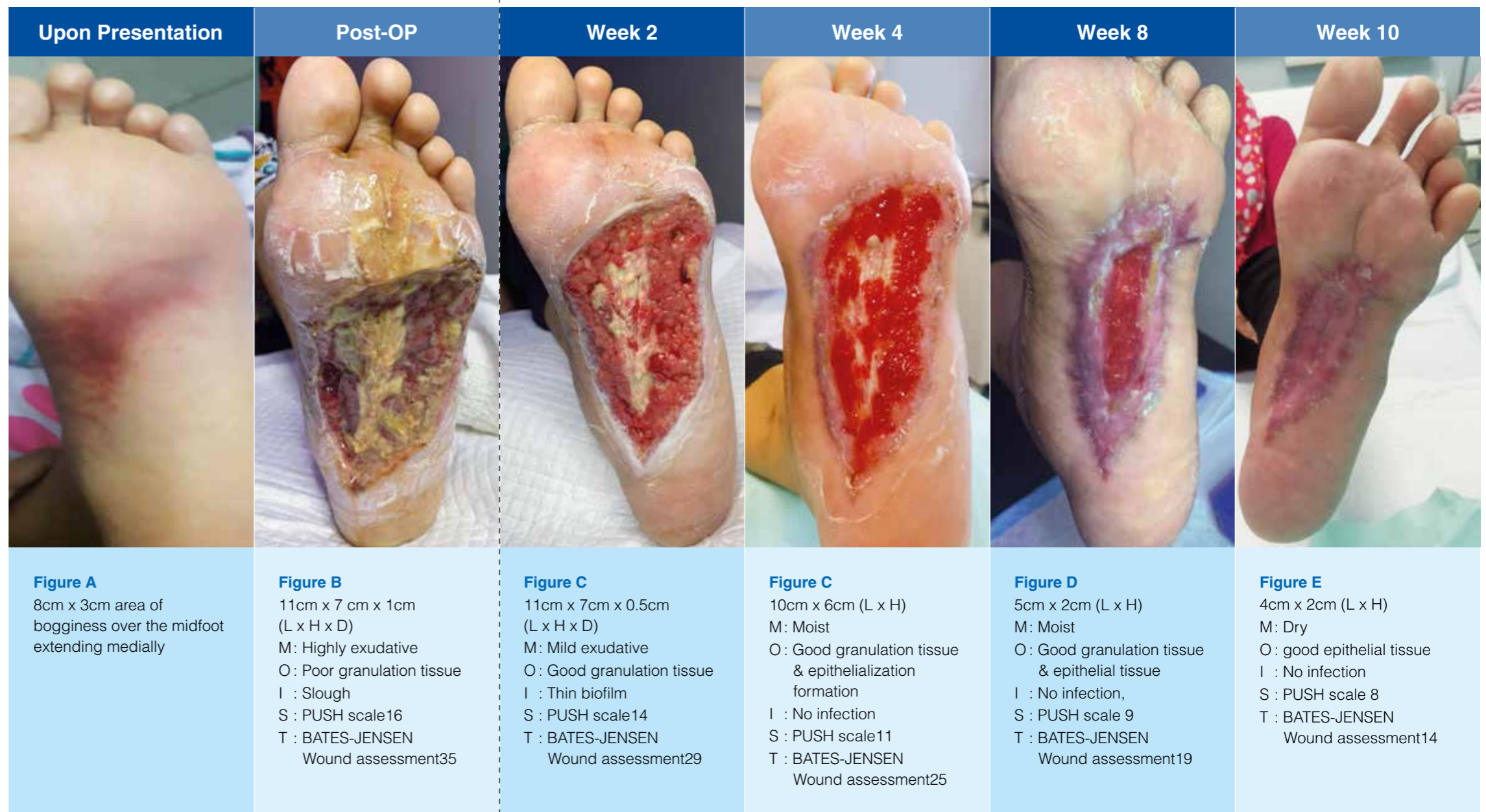
## Case Study

A 41-year-old lady, allergic to seafood with newly diagnosed diabetes mellitus (DM) not on medication was treated for plantar foot abscess. She presented with plantar foot swelling for 10 days (Figure A). She underwent surgical debridement and intravenous antibiotics for 1 week and discharged home with regular normal saline and paraffin gauze dressing as outpatient, however wound not improving (Figure B).

Wound assessment is done based on the M.O.I.S.T concept. Intraoperative pus culture sensitivity grew *Staphylococcus aureus* and tissue culture no growth. Wounds were cleaned with superoxide solution (SOS), 4 in 1 foam dressing, add on bio-cellulose gel and calamine zinc barrier cream (prevent skin irritation) for 2 times per week (4 days interval). The wound showed good progress with healthy granulation tissue formation and epithelialization (Figure E).

## Discussion

The wound was assessed using the M.O.I.S.T concept for wound bed preparation. As the postoperative shows (Figure B) heavy exudate with thick biofilm, slough tissue and poor granulation tissue; the wound is cleansed with SOS with desloughing using gauze. Bio-cellulose gel thin layer applied over the wound bed and cover with 4 in 1 foam dressing as primary dressing. Calamine zinc barrier cream were used around the wound region and a DIY offloading method using donut gauze dressing and crutches ambulation. This method was continued twice a week with a 4 days interval for 2 weeks. Improvement in exudate and biofilm control can be seen (Figure C). Subsequently, Bio-cellulose gel was changed to Ovine collagen lotion; wound granulation tissue improves after 2



weeks usage (Figure D) and it was also applied to the peripheral wound. Post 4 weeks of wound care, the percentage decrease in wound area is about 55% which shows marked improvement in the management of the biofilm and slough; subsequently result in increasing granulation and epithelial tissue.

RTD is a broad-spectrum antimicrobial foam combining Methylene blue and silver with Gentian violet and surfactant which have antifungal properties integrated in a highly absorbent polyurethane foam. These could inhibit a conducive environment for bacterial growth<sup>7, 8, 9</sup>. Bio-cellulose gel adds a natural acid into the wound to provide antimicrobial action and provides abundance of nutrients, enzymes, vitamins to the wound. This antioxidant nutrition effect for the wound helps create an optimum environment for healing<sup>3, 7</sup>. Ovine collagen lotion content (type I - 97% and type III - 3%) are very similar to human skin major structural protein. Collagen lotion formula application could strengthen the tensile strength of newly healed tissue and encourages epithelialization. A healthy periwound will facilitate keratinocyte cell migration and proliferation at the wound edge to speed up closure<sup>4, 5</sup>.

In this case we were looking at the components of M.O.I.S.T for wound management. Moisture balance as exudate is vital to support wound healing but too little or too much moisture can

delay healing. Oxygen balance is vital to improve tissue perfusion and local oxygenation of the wound bed. Infection control follows the wound hygiene principles including regular cleansing and debridement. This is essential for overt and covert infection control. 'S' is the supporting strategy to create a supportive wound environment to stimulate healing by using collagen lotion formula (Ovine Collagen + Glycerin + H.A). Tissue management goal to remove devitalized tissue and debris hence healthy granulation and epithelial tissue formation. The method and products used for cleansing and debriding should depend on the clinician competency, treatment setting and patient acceptance. Methods include autolytic, biological, mechanical, sharp, surgical and enzymatic debridement. As for this case mechanical debridement using gauze and enzymatic debridement using Bio-cellulose gel.

## Results

Above wound is assessed and managed based on the M.O.I.S.T components to ensure optimum wound bed preparation for better wound healing. The wound showed marked improvement in 8 weeks as the wound area decreased by 55% and speed up wound healing process (Figure E).

## Conclusion

The combination therapy exhibited good synergistic action on the wound healing process. Using the M.O.I.S.T concept as wound assessment tool to manage in preparing the wound bed was effective. There were no adverse reactions or allergies. Patient was comfortable with these combinations. However, the sample size (n=1) has limitation on overall effectiveness. A much larger study needs to be conducted to show statistical significance of the combination therapy.

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