

Healing The Heel

Early experience of BTM at a regional hospital

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Introduction

Novosorb Biodegradable Temporarily Matrix (BTM) was developed for managing complex wounds requiring dermal reconstruction. [1] A 2mm thick open-cell polyurethane foam with a non-degrading sealing membrane it is designed to provide a scaffold structure for neodermis formation before eventual split-thickness skin grafting (STSG). [1] Most evidence for BTM use has come from studies conducted at tertiary burn centres and specialized plastic surgery units. The majority have focussed on STSG survival rates among their patient populations. [2]

Background

78yo Māori woman (MW) planned for a split skin graft on her left heel post acral melanoma resection. However, her BTM lined wound was 95% epithelialized at three months so no graft was needed.

MW had a protracted diagnosis and treatment of her melanoma. An inguinal node mistaken for a lipoma lead to a delayed diagnosis before an inguinal node dissection with no primary identified.

During an annual surveillance skin check four years later a lesion on her left heel was biopsied as an invasive melanoma of at least 2.7mm depth. No lesion in this area had been present on previous thorough skin checks.

The decision was to treat as the primary lesion with a wide local excision of 20mm margins radially and down to the periosteal layer. With good depth of the heel a thin rim of fat was left on the bone and BTM was stapled in the defect.



Photo 2: BTM at time of delamination



Photo 3: Wound at three months with 95% epithelisation

Management

BTM was to be used for several reasons. The area was difficult to graft due to the bony prominences and the depth of the excision, the patient has a background of Type II Diabetes Mellitus, previous inguinal dissection, was overweight and had cellulitis post diagnostic punch biopsy – all likely to impede graft healing. Secondary intention was not felt to be appropriate due to the size of the defect in a functionally important area.

MM was reviewed in the outpatient clinic three weeks post op with the BTM found to be granulating well. Delamination was successful. She was counselled on closure by secondary intention vs split skin graft. With a whanau holiday planned she deferred grafting.

When she was reviewed at three months it was found that the area had undergone epithelialisation of 95% of the defect. It was explained to the patient that this was an excellent result and that no grafting was needed. The only abnormality noted was a small area of purulence which was incised, a few mls of pus removed and washed with chlorhexidine. No further infection presented itself.

MM continues to undergo surveillance for any recurrence of her melanoma for the next 5 years.

Discussion

BTM was a fantastic choice in this patient who had a greatly increased risk of graft failure initially.

The patient factors that increased her risk of graft failure were her advanced age, previous inguinal node dissection and microvascular complications due to diabetes.

The wound factors that made a successful graft unlikely was the 20mm margins and the dissection down to the periosteum. Additionally, the heel is a difficult area to offload pressure and minimise disruption of grafting. Finally, she had a recent history of cellulitis following the punch biopsy taken in primary care.

BTM mitigated these factors and created a much less hostile environment for healing. In fact, it created such an environment that the patient was able to heal without any further procedures.

Conclusion

This case study demonstrates that BTM has a very useful role in a complex wound. BTM can be used to avoid grafting altogether, creating a positive environment for creating new epithelialisation and in this patient allowed a family holiday and mobilisation soon after placement with no ill effects.

Additionally, as the demand for operating theatre time continues to exceed the access, minimising how many procedures patients require such as decreasing skin grafting rates is excellent use of resources.

Overall, the uses for BTM are only just being fully explored.

References

Novosorb® BTM: History, Production and Application in Challenging Wounds. Frontiers in Bioengineering and Biotechnology. 2024. Rajaram R et al. Systematic Review and Meta-Analysis of Biodegradable Temporarily Matrix Application for Complex Wound Reconstruction. Journal of Burn Care & Research : Official Publication of the American Burn Association. 2025. Grande PK et al.



Photo 1 : acral melanoma post punch biopsy, prior to wide local excision and BTM placement