Early Experience Using Biodegradable Temporizing Matrix For Reconstruction Of Chronic Wounds

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Background:
Available dermal regeneration templates used in chronic wounds are costly and of animal origin with different degrees of processing. Biodegradable Temporizing Matrix* (BTM) is bilamine fully synthetic biodegradable polyurethane foam covered by a silicone layer. (1) BTM was originally developed for the treatment of acute burns. (2) (3) As it is impervious to bacteria and the breakdown products are antibacterial we proposed that BTM may be a helpful tool for management of chronic wounds.

Methods:
As part of our quality assurance evaluation, three of our initial cases were reviewed. Adequate sharp debridement was performed and protective absorptive dressings applied simultaneously with BTM application. Venous patients received multilayer compression and diabetic patient received offloading with total contact cast as per our standard of care.

Results:
Engraftment and formation of neodermis was noted after 2-4 weeks. Separation of the silicone layer at this time was subsequently followed by spontaneous re-epithelization. This was expected for Case 2 due to its smaller size, but was not expected for Case 1 and Case 3 where size of the wound was larger.

Conclusions:
BTM has proven a useful treatment strategy for management of chronic wounds presented. There is a need to further explore this option in randomized controlled trials and in other types of chronic wounds.

Patient 1:
71 yo with venous leg ulcer with severe and advanced stasis changes. Poorly compliant with clinic visits, started to be compliant after significant worsening of the wound, but he responded poorly to treatment with weekly debridement, compression and collagen dressings. On 10-18-19 after he had complete debridement and BTM application followed by rapid spontaneous epithelization subsequent weeks. After 11/28/2019 patient quit coming to the clinic and subsequently he reported by phone that his wound was healed.

Patient 2:
71 yo diabetic, smoker, history of CVA, carotid artery disease, chronic alcoholism and recurrent DFU’s, multiple toe amputations. He presented to our clinic on 9/12/2018 with DFU right forefoot present x 1 year. He was started on treatment with total contact casting, weekly debridement and silver dressings with no progress for 6 weeks. On 10/03/2018 BTM was placed. Patient continued to be followed with weekly cast changes. Silicone layer was removed after 3 weeks from application and wound was covered with non adherent border dressings. Wound was healed at 7 weeks after application.

Patient 3:
70 yo with history of COPD, non Hodgkin’s lymphoma, radiation dermatitis, erythoderma, venous stasis. Also a complex history of cutaneous T cell lymphoma (granulomatous mycosis fungoides) Patient treated for multiple cutaneous lesions and also wounds with chemotherapy and radiation on multiple occasions. On his right leg he has developed a large venous leg ulcer right next to an ulcerated granulomatous lesion (June 2018). He was treated with low dose total skin irradiation course in July 2018. His leg ulcers were treated with compression and absorptive dressings. BTM was placed on 10/11/2018. compression wraps and absorptive dressings were continued during weekly clinic visits. Silicone layer was removed at 4 weeks and wound continue to improve to complete healing at 16 weeks after BTM application.

References:

* NovoSorb™ Biodegradable Temporizing Matrix (BTM; PolyNovo Ltd, Port Melbourne, Victoria, Australia)