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NovoSorb™ Biodegradable Temporizing Matrix (BTM) in the Complex Wound: A Retrospective Three-Year Review
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Introduction

• A complex wound is a wound that exposes functionally important structures following debridement.
• NovoSorb™ Biodegradable Temporizing Matrix (BTM) is an entirely synthetic matrix, made from polyurethane open-cell foam, used in the closure of complex wounds.1
• In a complex wound, the BTM matrix is applied following wound debridement and before split-thickness skin grafting (STSG) to provide “dermal” structure in anticipation of the graft.2

Objective

To review all cases treated with NovoSorb™ BTM at the LVHN regional burn center regarding:
1. Complications of treatment
2. Success of wound closure
3. Post hospital discharge outcomes

Methods

• Institutional Review Board (IRB) approval and informed consent was obtained.
• Retrospective chart review of 33 patients identified as receiving application of BTM to a complex wound at the LVHN burn center, from June 2017 through May 2020.
• Data collected via EPIC chart review and stored in REDCap:
  – Patient demographics
  – Complex wound description
  – BTM data
  – STSG data
  – Post-op visit information
• Statistical analysis completed in Excel.

Results

Complex Wounds
Locations: Head, neck, trunk, upper arm, lower arm, hand, thigh, lower leg, and/or foot
Causes: Burn, infection, trauma, or amputation

Demographics
Complex wounds 37
Patients 33
Male 20 (61%)
Female 13 (39%)
Age Range 3 months to 72 years

Reason for BTM Application to Complex Wound

Complications of Treatment
Reapplication of BTM (for extra dermal support): 3 (8%)
Infection of BTM: 6 (15%)
Exposed structure 22% (6)
Following allograft removal 70% (26)
Failed STSG 5% (2)
Other

Table 1. Complications relating to the BTM treatment in the complex wound.

Success of Wound Closure*

Primary graft success: 35 (97%)
Secondary graft needed: 1 (3%)
Time between BTM and STSG:
Min: 7 days
Max: 43 days

Table 2. Success of wound closure relating to STSG.

Post Hospital Discharge Outcomes
Decreased range of motion or gait abnormalities:
Contracture: 12 out of 28 (10%-80% contracture)
Reopened wounds: 12 out of 32
Patient and Observer Scar Assessment Scale (POSAS) Rating
Average: 32
Min: 16
Max: 57

Table 3. Complex wound outcomes evaluated from follow up office visits 13 days to 2.75 years post hospital discharge following STSG. Not all follow up information was available for every complex wound. Information was presented when available.

Conclusion

In the past 3 years of use at the LVHN regional burn center, BTM has proven to be a successful bridge to STSG, in complex wounds, with a primary STSG success rate of 97% and a low infection rate, with all infections treated locally. The post-hospital discharge outcomes are generally good due to the complexity of these wounds and the worse outcomes, such as amputation, that would have preceded without the use of this dermal matrix. Finally, BTM proved useful in both pediatric and adult patients, as well as in use on a variety of different locations throughout the body.

References: