Innovative Use of Gentian Violet/Methylene Blue (GV/MB) Impregnated Polyvinyl Alcohol (PVA) and Polyurethane (PU) Foams in a Complex Wound Care Case

Linda Concepcion BSN, RN, WCC, Holy Cross Hospital, Fort Lauderdale, FL

Introduction

Management of complex wounds is challenging enough but becomes even more daunting following major abdominal surgery complicated by infection and fistula formation. Fistulas contribute to continuous drainage, increase risk of infections and delay wound healing.

This case follows a patient post-Whipple procedure, whose recovery was hindered by intra-abdominal abscesses requiring multiple surgical washouts. The resulting wound was further complicated by an enterocutaneous fistula (ECF) with persistent drainage. This case study explores the use of gentian violet and methylene blue (GV/MB) impregnated polyvinyl alcohol (PVA) and polyurethane (PU) foams in managing a complex wound with a fistula.

This case underscores the complexity of managing surgical wounds complicated by a fistula. The use of GV/MB-impregnated foam dressings offered multiple benefits: antimicrobial action, atraumatic wound contact, increased granulation tissue formation and exudate management.

Case Study

Initial goals of care included infection control, management of exudate, protection of the periwound skin and containment of the ECF effluent. A Wound Management System (WMS) was applied to isolate the fistula and collect effluent. The wound base was managed using GV/MB impregnated PVA foam initially and covered with dry kerlix gauze. As the wound progressed, GV/MB impregnated PU foam was used. Dressing changes were performed every 1 - 2 days, based on the amount of exudate. The WMS was changed 1 - 2 times a week. Interventions included daily wound assessments, measurements, and photography to monitor progress.

Results

Over the course of 4 months, there was a significant reduction of wound size and increased granulation. The combination of using GV/MB impregnated PVA and PU foam dressings, in conjunction with a WMS, effectively stabilized the wound environment, minimized risk of infection and supported ongoing wound closure. The ability to transition from the GV/MB impregnated PVA foam to the PU variant based on wound depth, exudate level, and tissue type supported a seamless continuum of care throughout the wound healing process.

Conclusion

The patient was discharged to home with home health services on 11/23/24. Wound measurements at this time: 8.0cm X 5.0cm X 0.8cm; pain level: 3/10. GV/MB PU covered with ABD pad and secured with tape. Independently ambulating and changing dressing q 2 - 3 days and PRN. Through individualized wound care and support of home health services, both the wound and the fistula gradually resolved. This case illustrated the complexity of managing a surgical wound complicated by a fistula. The use of GV/MB impregnated foam dressings promoted wound healing by providing antimicrobial protection, supporting granulation and managing exudate.

30 yr old male with PMH of insulinoma s/p resection in 2017 and recurrent episodes of hypoglycemia. Patient had a mass at the head of the pancreas and underwent a Whipple procedure with extrahepatic bile duct resection.

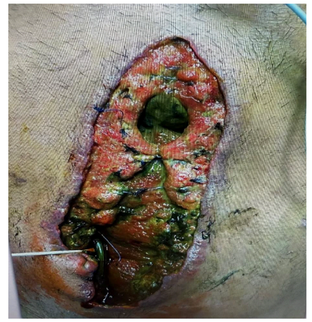
Baseline: 8/13/24

Wound size: 29cm x 12.5cm x 2.0cm

Pain level:10/10

100% granular tissue with exposed muscle and sutures exposed with ECF.

9/3/24



Wound size: 24.0cm x 15.0cm x 2.0cm

Pain level: 10/10

100% red granular tissue with muscle and sutures exposed with ECF.

Tx changed to GV/MB PVA foam covered with rolled gauze and WMS attached to wall suction.

9/4/24

Wound size: 24.0cm x 15.0cm x 2.0cm

Pain level: 7/10

Increased granulation tissue ECF.

Pt was transferred on 9/7/24 due to nutritional insufficiency and readmitted to our facility on 10/15/24.

GV/MB PU foam applied with WMS with intermittent wall suction.

10/18/24

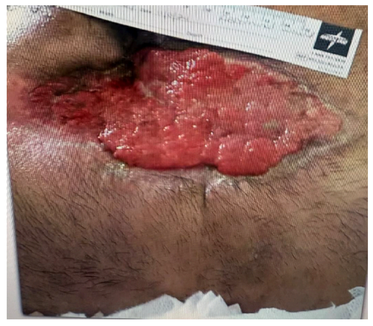
Wound size: 24.0cm x 16.5 x 1.0cm

Pain level: 5/10

Hypergranulation tissue with ECF. Decreased effluent.

Patient independent using wall suction intermittently. WMS changed 1 - 2 times weekly.

10/24/24



Wound size: 16.3cm x 8.9cm x 1.0cm

Pain level: 4/10

Increased red granulation tissue with decreased output from ECF. Attached edges.

GV/MB PU dressing with WMS. Patient using wall suction intermittently. WMS changed weekly. GV/MB dressing change q 2 - 3 days.

11/18/24

Wound size: 8.0cm x 5.0cm x 0.8cm

Pain level:4/10

Epithelial tissue present. Decreased output from ECF.

GV/MB PU dressing with WMS. Patient using wall suction intermittently as needed. WMS changed weekly. GV/MB dressing change q 2 - 3 days.