

Open Abdominal Wound Care with Pure Hypochlorous Acid Solution: A Three Case Series

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Introduction

The open abdomen technique is applied in a wide variety of clinical situations including treatment and prevention of abdominal compartment syndrome, severe intra-abdominal sepsis, and trauma. Unfortunately, some abdomens are not closeable. In these cases, our practice is to bridge the exposed bowel with synthetic mesh and allow granulation tissue to form through the mesh to protect the bowel.

We present three open abdominal catastrophe cases to illustrate advances in therapy using pure Hypochlorous Acid (pHA) preserved wound cleanser* on open abdomen patients bridged with synthetic mesh. The cleanser has a pH (3.5-5.5) that is conducive for moist wound healing and is non-cytotoxic. We report our experience using pHA with and without negative pressure wound therapy with instillation (NPWT-i).

Methods

Daily or twice daily the wound manager** was opened to treat the wound and replace dressings. After removing the old dressings, pHA was poured onto the mesh and suctioned from the base of the dressing. A non-adherent contact layer was then placed directly on the mesh to prevent any sticking. Then moistened rolled gauze with pHA was applied to the open abdomen and the lid of the wound manager was replaced. The entire wound manager was replaced weekly or if any leaking occurred.

All patients had poly bacterial cultures and were treated appropriately with systemic antibiotic therapy as directed by the infectious disease team.

Results

Patient conditions included acute necrotizing pancreatitis, perforated stomach, and ischemic bowel. Patients ranged in age from 32 to 71 years old. All open abdomens formed healthy granulation tissue through the mesh with the intent to skin graft all patients. At this time one patient has discharged to an LTAC and two have received skin grafts and have discharge to home.

Discussion

We find that the technique of using pHA on open abdomen patients bridged with synthetic mesh provides an excellent environment for wound healing and skin grafting. In our experience patients with an open abdomen benefit from the use of pHA. We find this therapy effective and non-toxic to the abdominal organs.

Case 1



04/26/22: 32-year-old male with necrotizing pancreatitis. Synthetic woven mesh covering abdomen. Cleanse with pHA BID.



05/16/22: Cleanse BID with pHA. Moist gauze and wound manager.



06/01/22: NPWT-i with pHA at -75 mmHg. Epithelialized and scheduled for graft placement.



06/13/22: Post graft with standard NPWT, BID cleanse with pHA and lotion. Pancreatic abscess fistula pouched to protect graft.



08/10/22: In clinic with daily cleansing with pHA for graft, ostomy and drain sites.

Case 2



05/11/2022: 60-year-old male. Elective end colostomy 4/14/2022. Fecal peritonitis and bowel wall edema. Synthetic woven mesh applied.



06/14/2022: Wound manager with pHA dampened gauze applied BID to achieve epithelialization.



06/22/2022: NPWT-i with pHA solution.



07/14/2022: Spontaneous high output fistula.



07/27/2022: Split thickness skin grafts to open areas and around fistula. Cleanse skin and graft with pHA.

Case 3



05/12/2022: 71-year-old with GI bleed and abdominal compartment syndrome. Synthetic woven mesh closure.



05/12/22: Wound manager placed. Moist gauze with pHA inside wound manager, change BID.



06/14/22: Moist gauze with pHA inside wound manager, change BID. ABD binder.



07/20/22: Standard NPWT at -75 mmHg with dressing changes twice weekly



09/01/2022: Discharged to LTAC July 27th with instructions for daily cleansing with pHA