UTILIZING PURE HYPOCHLOROUS ACID (*p*HA)-PRESERVED* WOUND CLEANSER AS A PRIMARY DRESSING: A CASE SERIES

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INTRODUCTION

Abdominal wound dehiscence is estimated to occur in 0.5–3.4% of abdominopelvic surgeries, and even more concerning, has a mortality of up to 40% (Shanmugam, 2015). Post-surgical abdominal wound can increase morbidity, hospital length of stay, healthcare costs and readmission rates (Shanmugam, 2015). According to Shanmugam et al (2015) "postoperative wound dehiscence cases from the Nationwide Inpatient Sample demonstrate 9.6% excess mortality, 9.4 days of excess hospitalization and $40,323 in excess hospital charges relative to matched controls".

Negative pressure wound therapy (NPWT) has been a standard treatment option for managing abdominal wounds because it helps to remove wound drainage, infectious material, reduce edema, which helps lower intra-abdominal pressure, and reduce the risk of abdominal compartment syndrome (Wang, 2017). In many patient settings, it is hard to decide what to use once the wound is clean and granular, or until a NPWT therapy device becomes available. A topical dressing such as Kerlix™ gauze moistened with pHA cleanser is cost effective, and it is easy to apply. The pHA cleanser acts as an antimicrobially preserved non-cytotoxic wound dressing that promotes wound healing by providing moisture to the wound and promoting autolytic debridement (Robson, 2019). Cleansers such as the pHA are based on chemistries that are recommended in several guidelines, many of which suggest hypochlorous acid containing cleansers are ideal wound healing cleansers (IWII guidelines 2022, Eriksson 2022. pHA cleansers also provided at a pH of 3.5 to 5.5 which is ideal for wound healing (Nagoba, 2015)

BACKGROUND

Three patient cases are used to demonstrate the effectiveness of utilizing the pHA cleanser as a primary dressing to aid in the closure of chronic abdominal surgical wounds. All three wounds were treated for months prior to incorporating pHA based wound dressings into the treatment regimen.

METHOD

Patients selected in this case series had a chronic post-surgical abdominal wound. Each patient selected in this series was treated in the outpatient wound care setting. pHA cleanser was utilized as a wound cleanser as well as a primary dressing in two of the three cases, a regime that led to wound closure. The third patient was referred with NPWT which was removed within two weeks and replaced with pHA cleanser soaked gauze dressings until wound closure was achieved.

RESULTS

All three of these patients had chronic abdominal wounds that healed after admission to the outpatient wound setting. The common treatment modality was the pHA based cleanser, used as a cleanser and primary dressing. These patients experienced an improvement in their quality of life because they were not required to take additional oral antibiotics, IV antibiotics, and hospital readmission or undergo additional surgery to achieve wound closure.

DISCUSSION

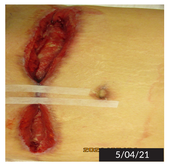
Patients who suffer a post-operative abdominal wound have a high risk for the development of infection (Shanmugam,2015). The pHA based cleanser is a versatile relatively non cytotoxic solution that reduces bioburden and promotes wound healing.

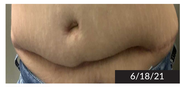
CASE 1 | SEPSIS AFTER ABDOMINOPLASTY

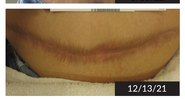
- 26-year-old female patient was referred to wound care and reports she went on vacation approximately 8 weeks post abdominoplasty. At that time of her vacation there were still open areas along the incision that were draining a small amount of serosanguinous drainage and the patient was cleansing and dressing these areas as instructed by her surgeon.
- About 24 hours after the patient arrived at her vacation destination she reported fever, chills, and body aches. The patient was admitted to the ICU and started on IV antibiotics, and then had emergency surgery to remove necrotic tissue from the abdominal surgical site which was found to be the source of infection that led to septic shock.
- 2 weeks after the patient was admitted to the ICU she was discharged with plans to follow-up at an outpatient wound care clinic within 24 hours of her arrival home. The patient was discharged with Dakin's moist wet to dry packing to travel.
- On 4/30/21 the patient was seen at the outpatient wound care center.
- The patient is obese, non smoker, non diabetic

WOUND MANAGEMENT

- Vashe soaks to cleanse (4x4 moist with Vashe® Wound Solution and inserted into wound base and tunnels, soak time 5 min 2 x week)
- Sharp debridement
- Wound NPWT application 125 mmHg continuous (dressing changes reduced to 2 x per week related to pain with NPWT dressing removal)
- 3 weeks after NPWT application the NPWT dressing was removed and replaced with 1 x per day Vashe moistened Kerlix wound packing, ABD pad and tubinet gauze to secure dressing.







OUTCOME

- Patient was seen 2 x week until wound closure was achieved 6 weeks after being admitted to outpatient wound care department.
- At week 3 patient reports a significant reduction in pain and drainage.
- Patient did not require additional surgery or oral/IV antibiotics

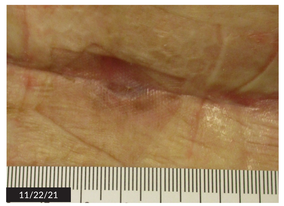
Date	Measurement (CM)
4/30/21	3.5X30.4X5.1 TUNNELS: 3:00=2.8 AND 11:00=2.4
5/4/21	3X30.1X2.8 TUNNELS: 3:00=2.5 AND 11:00=2.2
5/25/21	0.9X30.4X1 TUNNELS: 3:00=0.6 AND 11:00=0-HEALED
6/4/21	0.3X28X0.3 TUNNELS: 3:00=0 HEALED
6/18/21	HEALED: PATIENT DISCHARGED

CASE 2 | ABDOMINAL SURGERY DEHISCENCE

- 73-year-old female patient reports to the wound care center with a postsurgical abdominal wound secondary to a robotic hysterectomy . The patient reports a history of uterine cancer and reports she developed a seroma that led to a wound dehiscence 1 week post surgery. The patient's husband has been packing the wound with saline moistened gauze twice daily for the past 3 weeks since the wound opened.
- The patient also had a past medical history of stage IV kidney disease and obesity. The patient was a nondiabetic, non-smoker.
- The patient reports that her surgeons have explored the wound are, flushed it out and recently debrided the wound, however it is not healing.
- The initial wound measurements were 0.5 x 2.1 x 2 cm, After further assessment and I&D the depth measures 4.3 cm with undermining from 2:00-4:00=3.2 cm.

WOUND MANAGEMENT

- Wound NPWT Intermittent 5/2 setting at 125 mmHg
- Wound dressings changed 2 times per week
- Wound cleansed with Vashe soaks (Vashe moistened 4x4 gauze was inserted into wound area and left to soak x 5 minutes)
- NPWT was used for 3 weeks, Vashe moistened plain packing was used to dress the wound 1x day until wound closure is achieved.
- Wound closure achieved 8 weeks from initial wound care visit-discharge.
- Challenges to wound progression: patient was undergoing concurrent chemotherapy



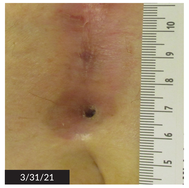
Date	Measurement (CM)
9/22/21	0.5X2.1X4.3 UNDERMINING: 2-4:00=3.2 CM
10/1/21	0.3X1.6X2.3 UNDERMINING: 2-4:00=2.4 CM
11/4/21	0.2X0.3X0.8 CM UNDERMINING: HEALED
11/22/21	0X0X0 HEALED, PATIENT DISCHARGED

CASE 3 | ABDOMINAL

- 55-year-old female patient has a nonhealing abdominal wound that has been open for approximately 5 months. The patient reports she had benign tumors removed from her abdomen and the surgical incision dehisced a few weeks after surgery leaving a fairly deep cavity. The patient reports she has been going to a local wound care center and using Di-Dak-Sol ® to cleanse the wound, iodoform packing and an ABD to accommodate drainage, dressing is secured with Montgomery straps, dressing changed by home health daily. The patient reports she has had 2 referrals, one to a plastic surgeon and the other to a general surgeon to discuss treatment options to discuss wound closure. Both surgeons recommend a second surgery to resect the wound area and primarily close the abdomen. The patient is hesitant to undergo another abdominal surgery and self refers to this outpatient wound care center for a second opinion.
- Past medical history of type II diabetes, morbid obesity, Non-smoker.

WOUND MANAGEMENT

- Vashe wound cleanser
- Vashe moistened Puracol ® (collagen) packing, foam, ABD, Montgomery straps to secure-patient reports skin breakdown with frequent removal of adhesive.
- Home health-daily dressing changes



OUTCOME

- No additional surgery
- Wound healed 8 weeks after initial wound care visit

Date	Measurement (CM)
3/9/21	0.4X0.4X4 CM 12:00 TUNNEL=3 CM
3/31/21	0.2X0.1X1.4 TUNNEL:CLOSED
4/28/21	0X0X0 HEALED, PATIENT DISCHARGED

*Vashe Wound Solution®, Urgo Medical North America, Fort Worth.

Poster was created with support from Urgo Medical North America

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