



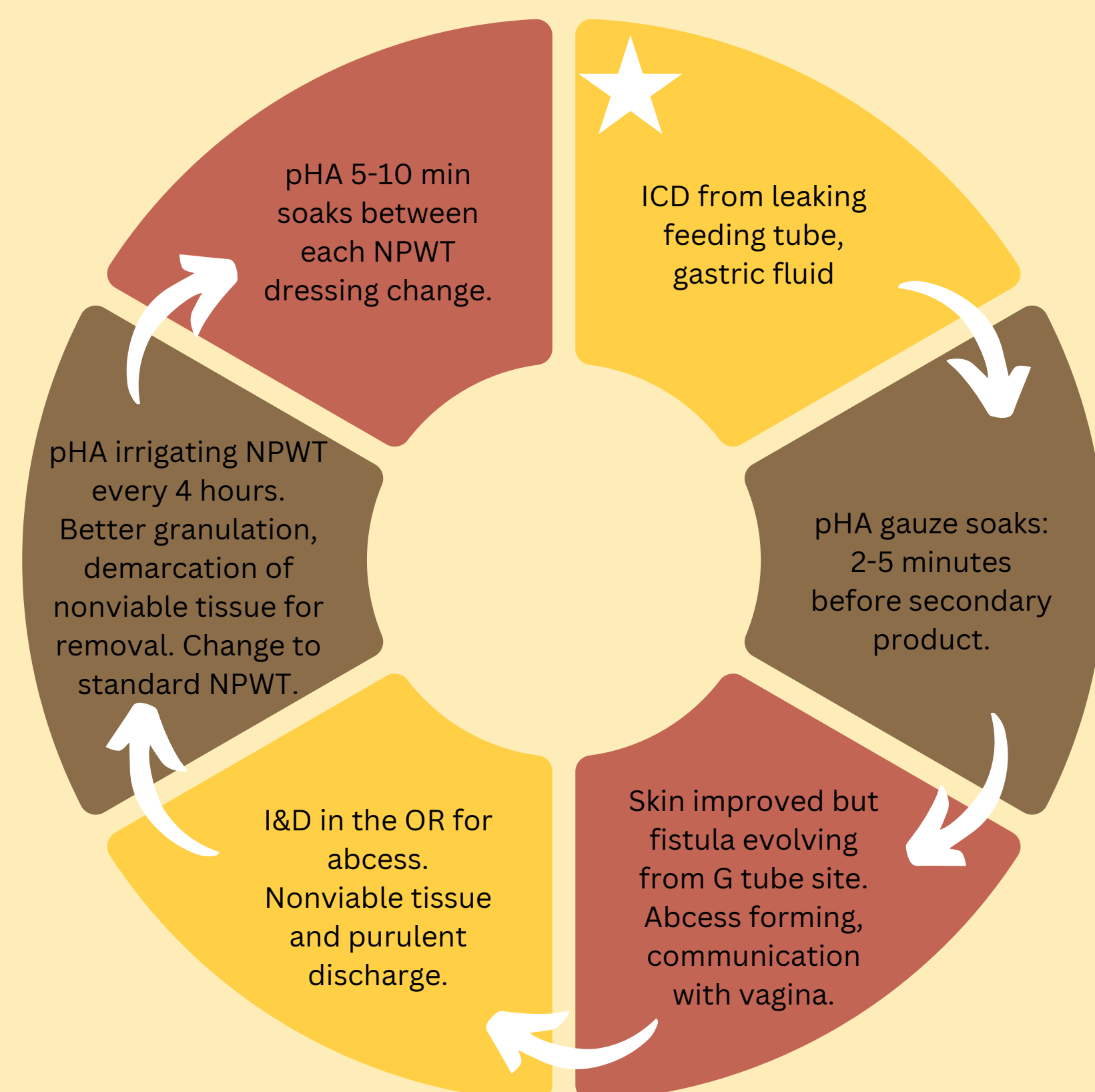
A collaboration among the University of Minnesota, University of Minnesota Physicians and Fairview Health Services

Managing complex skin breakdown utilizing pure hypochlorous acid (pHA) in multiple modalities for improved wound healing

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Introduction

The management of body fluid induced skin breakdown is complex and defined as the condition Moisture Associated Skin Damage (MASD) or Incontinence Associated Dermatitis (ICD). More recently, these terms were better defined as the condition Irritant Contact Dermatitis (ICD). Management of ICD is difficult due to the wide range of products available. Additionally, many products can lead to harmful side effects when used for prolonged periods of time. This case study presents one cleanser that was used successfully throughout the continuum of care from initial breakdown on the external tissues to the irrigation of tissues within the body. Specifically, pure hypochlorous acid (pHA) was used as a cleanser for ICD of the periwound area, followed by its use as an instillation fluid combined with negative pressure therapy after surgical debridement.



Methods

A 72-year-old woman with a history of adenocarcinoma of the gastric/esophageal junction was admitted to the ER for intractable nausea/vomiting. She had a mild protein calorie malnutrition and weakness requiring placement of a feeding tube which subsequently leaked. The presence of caustic gastric fluid leak led to a breakdown in her skin's integrity. Initial treatment of the ICD included soaks with pHA to assist the irritated tissue in returning to a healthy pH level and various secondary treatments beginning with cyanoacrylate, to pouching, to a zinc based cloth overlay. Non-operative efforts to adjust the balloon volume and exchange the tube yielded no improvement, and the tube was removed after week three. Multiple attempts to pouch and protect the skin were complicated by a five-week total gastric leak causing extensive ICD. Continued attention to the skin with pHA soaks and a "crusting" technique helped heal the epidermis. However, an abscess cavity formed below and that communicated with the vagina. Laparoscopic small bowel and enterocutaneous fistula resections were performed. Continued necrosis of adipose required a return to the operating room for debridement down to fascia. This wound was outputting feculent material so instillation negative pressure wound therapy (iNPWT) was selected as best practice.

Irritant contact dermatitis (ICD) from G tube leak. Utilized pHA soaks and crusting/pouching at first. Pouch could not keep seal so pHA soaks and zinc ointment utilized with absorbent pads after G tube removal.



10/23/23

11/10/23

11/14/23



pHA soaks able to help correct ICD to skin. Gauze soaked with pHA felt cool to inflamed skin with zero pain for patient.

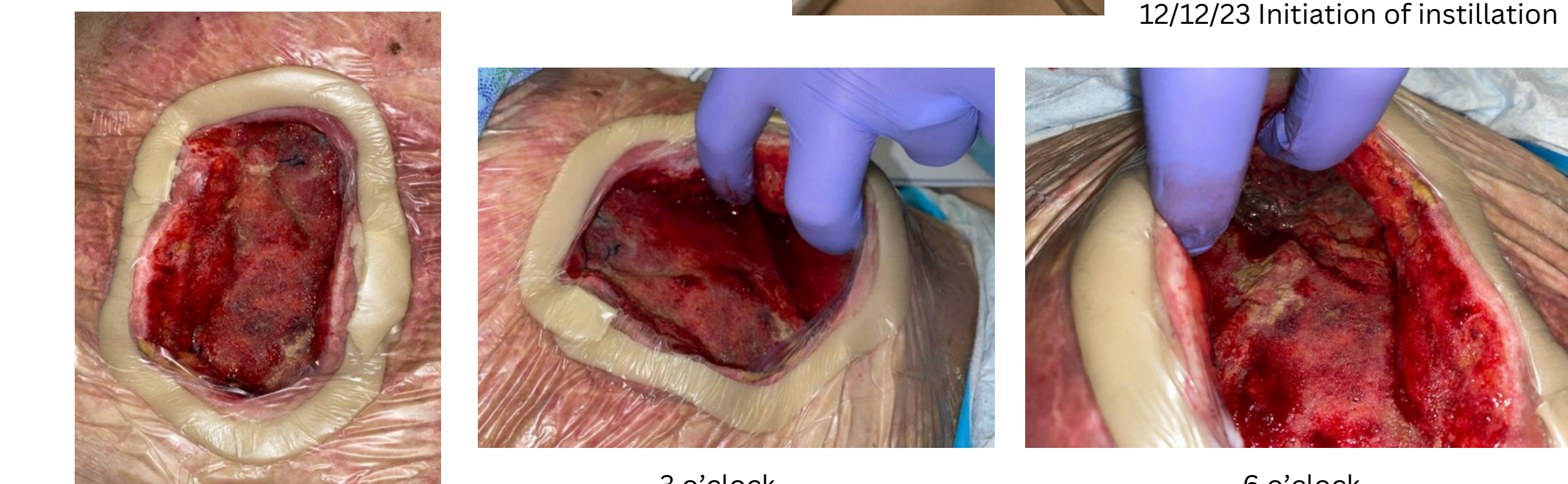
G tube site continued to leak, effluent noted out of vaginal area. Pt taken to OR for an I&D. Standard negative pressure therapy started (NPWT). Drainage was feculent so irrigating NPWT was started.



12/1/23 (OR 11/20 I&D)

12/12/23 Initiation of instillation

pHA used as primary irrigant. 30cc fluid, 10 minute dwell, 2 hour cycle, -125mmHg. Noted nonviable tissue at the 3 and 6 o'clock. Irrigation continued which helped demarcate nonviable tissue; surgery able to bedside debride.



12/15/23

3 o'clock

6 o'clock

Irrigation continued which helped demarcate nonviable tissue; surgery able to bedside debride.



1/5/24

3 o'clock

6 o'clock

Patient transitioned to traditional NPWT foam with pHA soaks in between dressing changes. Patient able to transition to transitional care unit (TCU).



1/9/24

3 o'clock

6 o'clock

Results

The pHA was initially used as a topical skin cleanser for the extensive ICD and then switched to the primary irrigant for iNPWT therapy to provide a closed system irrigation. Subjectively, the patient reported a cool sensation during pHA soaks to the irritated epidermis, reduced pain, and reduced odor with topical application. Periwound photographs showed decreased inflammation and reduction in overall open wound surface area. With iNPWT, the wound photographs showed increased granulation, reduced undermining, and a healthier appearing fascia.

Conclusion

Prolonged use of pHA with this patient yielded no adverse events. PHA can be utilized in both pre and post phases of surgical care to streamline and reduce waste while improving patient outcomes for complex wounds and skin surface dermatitis.

Acknowledgements

I would like to recognize my beautiful patient's willingness to share her story to educate other medical professionals. She was able to experience her first great-granddaughter before she reached her end of life just months after our time together.

References

