A Case Report on the Effective Usage of Helicoll Skin Substitute with Negative-Pressure Wound Therapy (NPWT) in the Treatment of Full Thickness Wound.

Introduction:

In US, 30 million children and adults are affected by Diabetes. It leaves a huge hole in the economy, costing $322 billion annually.[1,2] Adapting to advanced treatment interventions has been demonstrated to improve cost and patient outcome. In this article, we highlight the use of an innovative advanced collagen wound contact material as a tissue matrix intervention in NPWT for superior wound healing. The use of this technique in wound management is to instantly remove the exudative fluid and simultaneously encourage the faster healing of the wound.

Case Study:

Patient and the Clinic Info:

Patient: 51-Year-old, Male, Diabetic
Wound size: 4.7 cm x 6.7 cm size full-thickness wound of 8 mm deep
Location of the Wound: On the back of the body between the shoulders
Treatment month: July 2017
Treated Clinic:

Palo Alto Medical Foundation Wound Clinic, Sutter Health
Attn.: Charles Lumboy, NP-C, CWON-AP,
Surgeon: Tej Singh
Wound Clinic Director: Susan Zobac, MPT
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Procedure for using Helicoll in conjunction with the Wound Vac:

1: Prior to using the Wound Vac, Helicoll was soaked in normal saline for 5 to 10 min and using a sterile scalpel blade or using a fine tipped scissors, incisions of approximately 0.5 cm long with 1 cm distance was made throughout the membrane.
2: Helicoll was applied over the debrided wound and then the excess areas of membrane were removed using sterile scissors. To aid the transport of fluids, slit openings may be made in the collagen membrane prior to applying on to the wound directly.
3: An Adaptic (non-adherent porous dressing) was applied and all the excess overflowing areas over the wound were trimmed.
4: The routine application of the sponge and other application procedure of the Wound Vac were followed.

The whole purpose of Negative pressure therapy is to not only help remove the fluids and increase the blood flow – but also increase the intimate contact between the exposed cells of the wounded area with the biologically active tissue regenerative collagen membrane (Helicoll).

Clinical Outcome:

The application of HELICOLL in combination with the Wound Vac (NPWT) resulted in

a. significant reduction of exudation in two days,
b. the cell debris outflow is reduced and it is evidenced by the reduction of redness in the fluids on the second day of application
c. the full-thickness wound depth reduction was significant on 45th day after Helicoll application

Conclusion:

Due to the ability of Wound Vac to make Helicoll adhere well with the open wound bed, a significant increase in the rate of wound healing was observed.

Fig 1: Pump used to create Negative

Fig 2: Wed 5th July 2017 - two days before Helicoll application the depth was significant

Fig 3: Fri 7th July 2017 - Helicoll Preparation prior to application – made 1 cm slit openings, 1 cm apart using a sterile scalpel

Fig 4: Application of sponge at the suction site over the wound before connecting the tubing and sealing

Fig 5: Wound Vac in full function with sealed sponge

Fig 6: Wed 12th July 2017 - 5th day after removing secondary dressing leaving adaptic and Helicoll intact. Shows remarkable vascularization and granulation evidencing faster healing

Fig 7: Fri 14th July 2017 – Just prior to the 2nd application of Helicoll after removing the black sponge, Adaptic and remnants of Helicoll.

Fig 8: Mon 17th July 2017, 3rd day after the 2nd & final application of Helicoll resulting in complete wound healing

References:

1. American Diabetes Association. 2018. The Staggering Costs of Diabetes. Retrieved from http://main.diabetes.org/dorg/images/infographics/adv-cost-of-diabetes.pdf

2. Dall M et al. The Economic Burden of Elevated Blood Glucose Levels in 2012: Diagnosed and Undiagnosed Diabetes, Gestational Diabetes Mellitus, and Prediabetes. Diabetes Care 37:3172-9.