

# Negative Pressure Wound Therapy With Instillation After Total Knee Arthroplasty: Initial Use of a Novel Silicone-Acrylic Drape

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## Background

- When a patient presents with a wound covered with non-viable tissue and fibrinogen, wound cleansing becomes an essential step in the treatment protocol.
- In our practice, negative pressure wound therapy with instillation and dwelling (NPWTi-d)\* of a topical wound solution is a key tool in this process.
- When applying NPWTi-d, an adhesive drape is used to create a seal over the wound.

## Purpose

- Recently, we have begun using a novel silicone-acrylic drape<sup>§</sup> in place of the standard acrylic drape.
- We report our initial usage of this hybrid drape in conjunction with NPWTi-d on a patient with a non-healing wound subsequent to total knee arthroplasty.

## Case

- A 61-year-old female presented with delayed surgical wound healing after undergoing total knee arthroplasty.
- Fluid collection distal to the knee required revision and incision and drainage, resulting in a superficial open wound (**Figure 1**).
- A non-adherent alginate dressing<sup>†</sup> was initiated for 7 days in preparation for surgery (**Figure 2**).
- Surgical debridement and pulse lavage were performed in the operating room, followed by application of NPWTi-d with the hybrid drape (**Figures 3-5**).

## Figures



**Figure 1.** Initial appearance of the open wound, without communication with the joint space.



**Figure 2.** Presence of non-viable tissue after 7 days of non-adherent alginate dressing,



**Figure 3.** Surgical debridement and pulse lavage was performed.



**Figure 4.** Placement of NPWTi-d dressing and silicone-acrylic drape.



**Figure 5.** Creation of a seal and application of NPWTi-d.



**Figure 6.** Wound appearance after 3 days of NPWTi-d with silicone-acrylic drape and standard foam dressings.



**Figure 7.** Wound appearance after 6 days of NPWTi-d, with transition to foam dressings with through-holes on Day 3.



**Figure 8.** Wound appearance upon follow-up on Week 5.

## Case (Cont'd)

- NPWTi-d consisted of instillation of normal saline with an 8-minute dwell time, followed by 3.5 hours of -125 mmHg. **No fluid was instilled into the joint space.**
- The goals of therapy were to decrease wound depth and support the growth of healthy granular tissue.
- Standard reticulated open cell foam (ROCF) dressings<sup>‡</sup> were used for 3 days (**Figure 6**).
- On Day 3, these were changed to ROCF dressings with through-holes\*\* (**Figure 7**).
- After 6 days of NPWTi-d, the goals of therapy had been achieved, and the patient was discharged home with standard NPWT.<sup>§§</sup>
- NPWT was continued for 2 weeks, followed by 2 weeks of advanced wound care dressing<sup>††</sup> applications. The wound was mostly closed upon follow-up at Week 5 (**Figure 8**).

## Conclusions

- Application of NPWTi-d supported a quick transition to outpatient care.
- We observed that use of the silicone-acrylic drape adequately created a seal while allowing for easy repositioning after initial placement around anatomically difficult areas.
- The gentle adhesion of the drape also allowed for patient comfort at dressing changes and during wear time.
- We intend to incorporate this novel drape into our regular use of NPWTi-d for wound cleansing.

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