

Using Mechanically Powered Disposable Negative Pressure Therapy Over Closed Incisions in the Outpatient Setting

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Background

- Closed incision negative pressure therapy (ciNPT) helps hold incision edges together, removes fluid and infectious materials, and creates a barrier against external contamination.¹
- ciNPT should be applied immediately post surgery and the dressing may remain in place for up to 7 days.
- Patients at a higher risk of postoperative complications may benefit from additional days of negative pressure therapy over the closed incision in an outpatient setting.
- Mechanically powered, disposable negative pressure wound therapy (dNPWT) is a lightweight outpatient option to extend duration of NPT over closed incisions.

Purpose

- Outcomes with use of ciNPT* followed by dNPWT† over closed surgical incisions of 5 patients with complex wounds are presented.

Methods

- Systemic antibiotics were administered as appropriate.
- All wounds were surgically debrided to remove devitalized tissue.
- Placental allograft membrane[‡] was applied to each wound in the OR prior to closure to optimize cellular proliferation and healing.
- Wounds were surgically closed via flap reconstruction or primary intention.
- ciNPT therapy was applied at -125 mmHg over the closed incision in the operating room and the patient was discharged between postoperative days 1 and 3; the dressing was left in place for 7 days, then ciNPT was discontinued.
- A non-adherent protective layer was placed over the closed incision followed by application of dNPWT at -125 mmHg for 2 weeks; dressings were changed regularly.

Results

- Patient demographics, wound etiology and outcomes are listed in **Table 1**.
- One patient was non-compliant with smoking cessation and splint usage and required a repeat flap procedure that resulted in eventual wound healing.
- The remaining 4 patients healed without further dehiscence or infection.
- Three of the cases are shown in **Figures 1-3**.

Conclusions

- For all of these complex cases, extended closed incision management with dNPWT helped facilitate positive incision healing outcomes following surgical closure.

Reference

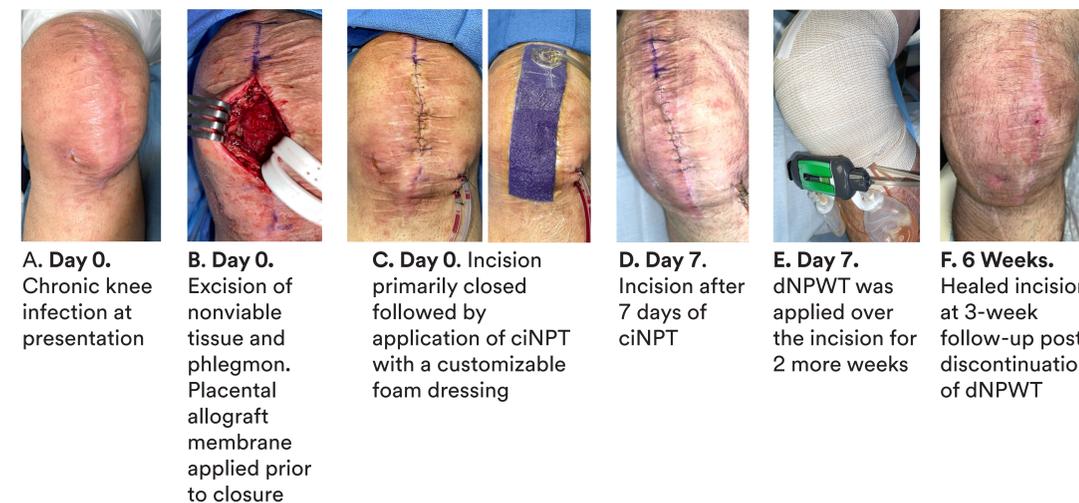
1. Wilkes RP, Kilpadi DV, Zhao Y, et al. *Surg Innov* 2012;19:67-75.

Case Studies

Figure 1. A 58-year-old male presented with a chronic non-healing wound on his left elbow following trauma. Patient has had chronic drainage and pain since previous unsuccessful excision and flap closure 6 weeks prior.



Figure 2. A 47-year-old male presented with a chronic infection in his left knee post total knee arthroplasty (TKA) 1 year prior with washout and hardware removal 1 month later. Six months after TKA, patient suffered patellar dislocation, requiring surgical repositioning. Since then, patient has had chronic drainage and pain.



Case Studies (Cont'd)

Figure 3. A 57-year-old male presented with a pressure injury on his left hip.



Table 1. Patient demographics, wound type, comorbidities and wound closure method.

Case #	Sex	Age	Wound type	Comorbidities	Closure method
1	M	58	Chronic non-healing wound on the left elbow secondary to trauma	RA, tobacco use	Flap, repeat flap
2	M	57	Pressure injury on left hip	HTN, CAD	Flap
3	F	72	Right thigh tissue defect post excision of lipoma	HTN	Primary suture
4	M	19	Chronic wound on lower back, secondary to pilonidal disease	Obesity, tobacco use	Primary suture
5	M	47	Chronic infection of left knee post total knee arthroplasty	HTN	Primary suture

RA= rheumatoid arthritis; HTN= hypertension; CAD= coronary artery disease