# Management of Infected Dehisced Abdominal Wounds with Adjunctive Negative Pressure Wound Therapy and Instillation of a Topical Wound Solution: Case Series

### Background

- Complications following body-contouring procedures may include delayed wound healing, secondary wound dehiscence, postoperative hematoma, or seroma.<sup>1,2</sup>
- Full-thickness abdominal surgical wound dehiscence following abdominoplasty or liposuction is a severe postoperative complication that requires immediate treatment and can lead to prolonged hospital stay, high incidence of incisional hernia and subsequent reoperations.<sup>3</sup>
- Negative pressure wound therapy with instillation and dwelling (NPWTi-d) of a topical wound solution has been shown to aid in automatic cleansing of the wound surface, solubilizing devitalized tissue, removing infectious exudate, and reducing bacterial load.4,

### Purpose

 We report our experience with NPWTi-d to adjunctively manage three massive, infected dehisced abdominal wounds following abdominoplasty or liposuction.

Case 1. 35-year-old female presented with infected abdominal wound dehiscence post elective abdominoplasty 5 weeks prior. Previous attempt to clean and re-close draining incision at outside facility 2 weeks prior had failed.



A. Dehisced abdomina wound at presentation

E. After 2 weeks,

wound was clean

and primarily

ends

sutured at both



B. Real-time fluorescence wound imaging showed light growth of P. aeruginosa



F. Negative pressure therapy over closed incisions; NPWT over wound



C. Incision was reopened, and wound was surgically debrided with removal of devitalized tissue. Two NPWTi-d systems were applied until wound volume decreased.



G. Therapy changed to NPWT and collagen; wound depth filled in at 5 weeks.



D. At first dressing change. Drainage decreased and wound covered with granulation tissue



wound is reepithelialized

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NOTE: Specific indications, contraindications, warnings, precautions, and safety information exist for these products and therapies. Please consult a clinician and product instructions for use prior to application. Rx only.

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# Methods

• Each wound was managed using a multidisciplinary approach.

 NPWTi-d\* was applied with hypochlorous acid solution via a reticulated opencell foam dressing with through holes (ROCF-CC) in 3 full-thickness surgically dehisced abdominal wounds following elective body-contouring surgery.

• Systemic antibiotics were administered, and sharp surgical debridement was performed prior to or in conjunction with NPWTi-d application.

NPWTi-d settings included instilling hypochlorous acid every 2.5 to 3.5 hours with a 10-15 minute dwell time between cycles of continuous negative pressure at -150 mmHg (**Table 1**).

• Imaging technologies (non-contact real-time fluorescence wound imaging and non-contact near infrared spectroscopy studies) were used at each dressing change to guide clinical decision making.

• Dressings were changed 3 times/week.

• NPWTi-d was discontinued when the wound was clear of infection, at which time patient was transitioned to outpatient care with conventional NPWT.

Table 1. NPWTi-d settings and outcomes results

Case #	1	2	3
NPWTi-d settings			
Solution instilled	HA	HA	HA
Volume instilled initial	50	65	140
visit (mL)			
Dwell time (minutes)	10	15	15
NPWT time (hours)	3.5	2.5	3.5
NPWT pressure (mmHg)	150	150	150
Intensity	medium	high	high
Outcomes			
NPWTi-d duration	1.6	1.0	1.0
(weeks)			
Time to closure (weeks)	11.7	7.9	12.9

H. At 11.7 weeks.

**Right lower** quadrant



A. At presentation







B. After 4 days of NPWTi-d





C. At 3 weeks, edges are healthy and advancing



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### Results

- At admission, infection was confirmed for all wounds, and percent surface area slough coverage was 15%-50%.
- Following the initial surgical debridement, wound volume ranged from 130.6 cm<sup>3</sup> to 1,186.1 cm<sup>3</sup>.
- Average time to infection clearance/patient discharge was 8.7 days (range: 7-11 days), and wounds were healed in 7.9 to 12.8 weeks.

## Conclusions

- Rapid conversion in each case to a non-infected wound with clean granulating wound base allowed for quick transition from hospital to outpatient care.
- NPWTi-d facilitated hydromechanical debridement as evidenced by removal of devitalized tissue through the ROCF-CC dressing.
- Following NPWTi-d, all wounds progressed to closure without further sequelae.

### Cases

Case 2. 39-year-old female presented with severe wound dehiscence in several areas of lower abdomen post elective fleur-de-lis abdominoplasty 1 month prior. History of weight loss post gastric bypass surgery.







D. Wound closed at 7.9 weeks



Application of dressing to right and left distal abdomen



E. Hydrocolloid placed on wound edges to minimize leaks, then ROCF-CC foam placed



G. 2 TRAC pads connected to foam



dressing Foam placed on top of drape as bridge to connect right and left wounds



H. Negative pressure applied at -150 mmHg

# References

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50-year-old female with medical history of hypertension, heart Case 3. failure with reduced ejection fraction and diabetes mellitus type 2 (controlled). Admitted with severe sepsis with septic shock secondary to necrotizing fasciitis of abdomen following elective liposuction procedure at outside facility 3 weeks prior.



A. After 3 rounds of excisional debridement and washout; 25-50% slough cover; NPWTi-d applied via 2 systems due to massive wound volume



B. Imaging showed moderate growth of *B. fragilis* and *M. morganii* and light growth of Gemella morbillorum



C. After 2 weeks, edema reduced and wound filled with granulation tisssue. Transitioned to NPWT w/ weekly application of collagen



D. At 3 weeks



E. Epithelializing at 6 weeks