

Henry Ford Health System

## Henry Ford Health System Scholarly Commons

---

Surgery & Anesthesia Research Celebration Day 2021 Surgery & Anesthesia Research Celebration Day 2021

---

6-4-2021

### Improving Nipple Survival in Large Volume Breast Reduction Using Negative Pressure Wound Therapy

Ricardo Engel

Henry Ford Health System, [rengel1@hfhs.org](mailto:rengel1@hfhs.org)

Yitzchok Greenberg

Henry Ford Health System, [ygreenb1@hfhs.org](mailto:ygreenb1@hfhs.org)

Aamir Siddiqui

Henry Ford Health System, [ASIDDIQ1@hfhs.org](mailto:ASIDDIQ1@hfhs.org)

Follow this and additional works at: <https://scholarlycommons.henryford.com/sarcd2021>

---

#### Recommended Citation

Engel, Ricardo; Greenberg, Yitzchok; and Siddiqui, Aamir, "Improving Nipple Survival in Large Volume Breast Reduction Using Negative Pressure Wound Therapy" (2021). *Surgery & Anesthesia Research Celebration Day 2021*. 5.

<https://scholarlycommons.henryford.com/sarcd2021/5>

This Poster is brought to you for free and open access by the Surgery & Anesthesia Research Celebration Day at Henry Ford Health System Scholarly Commons. It has been accepted for inclusion in Surgery & Anesthesia Research Celebration Day 2021 by an authorized administrator of Henry Ford Health System Scholarly Commons.



# Improving Nipple Survival in Large Volume Breast Reduction Using Negative Pressure Wound Therapy

Ricardo Engel, BS; Yitzchok Greenberg, MD; Amir Siddiqui, MD  
Department of Plastic Surgery, Henry Ford Health System; Detroit, MI



## Background

In large volume breast reductions, a **primary** concern is survival of the nipple-areolar complex. Long pedicles can have unreliable vascular supply, leading to nipple ischemia and necrosis.<sup>1,2</sup> Large volume breast reductions are therefore **often** managed with free nipple grafting onto a vascularized wound bed.<sup>1,3,4</sup> Free nipple grafting presents its own disadvantages of loss of sensation, pilomotor function, and lactation.<sup>3,5,6</sup> We present an alternative technique to free nipple graft for large volume breast reductions (>1000 g). In cases where vascular supply of a long pedicle was equivocal, incisional negative pressure wound therapy was applied over the pedicled NAC to improve blood flow and promote healing. NPWT has previously shown to be effective in reducing wound complications in reduction mammoplasties; however, focused on the inverted T incisions and not the NAC.<sup>7,8</sup>

## Methods

- Patients were included if >18 years of age, non-smoking, no history of breast surgery, and preoperative sternum-to-nipple measurement >35 cm or nipple-to-inframammary fold measurement >20 cm.
- All patients underwent inferior pedicle technique with Wise pattern skin incision. The NAC was assessed for vascularity by clinical assessment of quantity and character of bleeding at the distal margin of the pedicle. In 12 cases this was equivocal. Rather than using free nipple graft technique, incisional negative pressure wound therapy was applied to the NAC for 7 days.
- Single-use, portable pumps without exudate cannister (PICO, Smith and Nephew Medical Ltd., UK) were used (Figure 1C).

## Figures and Tables



**Figure 1:** A) preoperative macromastia, B) intraoperative pedicle length, C) negative pressure wound therapy placement on bilateral nipple-areolar complexes, D) postoperative results

	Mean	Range
Age	35.8	19-49
Body mass index (kg/m <sup>2</sup> )	37.6	29-50
Preoperative SN-N distance (cm)	40.5	35-45
Preoperative N-IMF distance (cm)	19.2	15-25
Intraoperative pedicle length (cm)	19.4	15-22
Weight resected (g)	1361.3	1084-1768

**Table 1:** Patient characteristics and operative measurements. N=24 breasts.

SN-N: sternal notch-to-nipple

N-IMF: nipple-to-inframammary fold

## Results

- Table 1 highlights patients' preoperative characteristics and operative measurements.
- None of the 12 patients (24 breasts) in this series experienced NAC ischemia or necrosis.
- Only 2 patients experienced delayed wound healing which was successfully managed by local wound care.
- Nipple sensation was maintained for 20/24 (83%) of breasts treated with negative pressure wound therapy.

## Conclusion

This study demonstrates the utility of NPWT in NAC survival for at-risk patients. While FNG is often performed for large volume mammoplasty with long pedicles due to more reliable vascular supply, our case series suggests that using NPWT over the NAC in pedicled reductions may be a viable alternative. NPWT likely augments healing by limiting edema in order to improve tissue perfusion and remove inflammatory mediators.

## References

1. Hawtof DB, Levine M, Kapetansky DI, Pieper D. Complications of reduction mammoplasty: comparison of nipple-areolar graft and pedicle. *Ann Plast Surg.* 1989 Jul;23(1):3-10.
2. Wise RJ, Gannon JP, Hill JR. Further experience with reduction mammoplasty. *Plast Reconstr Surg.* 1963 Jul;32:12-20.
3. Hoopes JE, Jabaley ME. Reduction mammoplasty: amputation and augmentation. *Plast Reconstr Surg.* 1969 Nov;44(5):441-6.
4. Nahabedian MY, Mofid MM. Viability and sensation of the nipple-areolar complex after reduction mammoplasty. *Ann Plast Surg.* 2002 Jul;49(1):24-31
5. Ahmed OA, Kolhe PS. Comparison of nipple and areolar sensation after breast reduction by free nipple graft and inferior pedicle techniques. *Br J Plast Surg.* 2000 Mar;53(2):126-9.
6. Craig RD, Sykes PA. Nipple sensitivity following reduction mammoplasty. *Br J Plast Surg.* 1970 Apr;23(2):165-72.
7. Galiano RD, Hudson D, Shin J, van der Hulst R, Tanaydin V, Djohan R, Duteille F, Cockwill J, Megginson S, Huddleston E. Incisional Negative Pressure Wound Therapy for Prevention of Wound Healing Complications Following Reduction Mammoplasty. *Plast Reconstr Surg Glob Open.* 2018 Jan 12;6(1):e1560. Erratum in: *Plast Reconstr Surg Glob Open.* 2018 Mar 23;6(2):e1720.
8. Tanaydin V, Beugels J, Andriessen A, Sawor JH, van der Hulst RRWJ. Randomized Controlled Study Comparing Disposable Negative-Pressure Wound Therapy with Standard Care in Bilateral Breast Reduction Mammoplasty Evaluating Surgical Site Complications and Scar Quality. *Aesthetic Plast Surg.* 2018 Aug;42(4):927-935. Epub 2018 Feb 13. Erratum in: *Aesthetic Plast Surg.* 2018 Apr 2.