

## Negative Pressure Wound Therapy in Malignancy: Always an Absolute Contraindication?

Lacey R. Pflibsen, MD; Salvatore C. Lettieri, MD; Erwin A. Kruger, MD; Alanna M. Rebecca, MD, MBA; Chad M. Teven, MD

Sir,

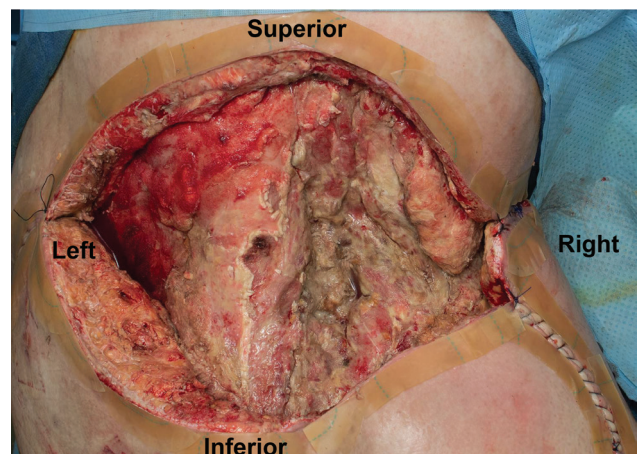
Negative pressure wound therapy (NPWT) has increasingly been a part of the armamentarium of plastic surgeons because it reduces edema, improves angiogenesis, and promotes granulation formation in a variety of settings. Historically, an absolute contraindication to the use of NPWT is active malignancy due to theoretical risks of increased tumorigenesis, cancer spread, and hemorrhage.<sup>1</sup> However, few studies have evaluated the effects of NPWT on malignant wounds. In contrast, there is evidence that NPWT is beneficial for palliation in malignancy.<sup>1-5</sup>

Recently, we treated a 30-year-old female patient with a massive perivascular epithelioid cell neoplasm of the paraspinal musculature and lumbosacral spine with metastatic spread to the lungs. After failed chemotherapy and radiation, she underwent palliative resection for ongoing bleeding of the fungating mass, which resulted in a large back wound (Figs. 1, 2). In the setting of several unfavorable factors, including wound size, body habitus, and poor nutrition, attempts at reconstruction were unsuccessful; the patient desired to be discharged home to be with family at the end of life due to strict visitor restrictions due to the coronavirus disease 2019 pandemic. Because the patient could not tolerate local wound care, NPWT was initiated after discussion and consent regarding its off-label use. Despite assistance from social work, the patient could not be discharged with NPWT, as her insurance provider refused coverage in the setting of malignancy. We write this viewpoint to argue that NPWT may be acceptable in malignancy when the intent is palliation.

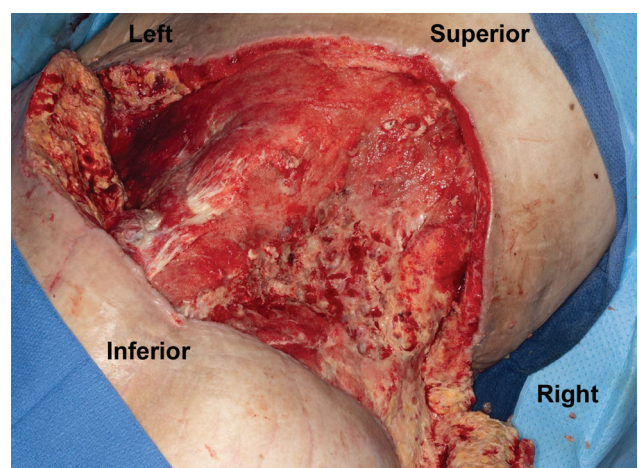
While infrequent, NPWT use in malignancy has been described as a palliative wound dressing and as temporary coverage before definitive closure. Compared with conventional wound care, NPWT may facilitate improved pain control and a reduction in drainage and malodor.<sup>1,2</sup> NPWT has also shown to be beneficial in reducing the size of malignant wounds, allowing for eventual closure.<sup>3-5</sup> This has similarly been demonstrated in radiated

metastatic wounds.<sup>4</sup> Further, Makler et al<sup>3</sup> used NPWT to promote ingrowth of a dermal regeneration template in a previously irradiated and infected full-thickness calvarial wound from metastatic squamous cell carcinoma. At 6 weeks, there was significant integration of the dermal regeneration template, allowing for closure of the wound.

Indeed, several previous studies have demonstrated that NPWT may be of benefit in malignancy settings when used with a palliative intent. In patients at the end of life, measures that reduce pain, malodor, drainage of wounds, and limit trips to the operating room may improve quality of life. Further, although studies are limited and are not necessarily assessing for this, NPWT application



**Fig. 1.** Image taken after resection of massive perivascular epithelioid cell neoplasm of the paraspinal musculature and lumbosacral spine and implementation of traditional dressings.



**Fig. 2.** Improved wound bed after 5 weeks of NPWT.

*From the Division of Plastic and Reconstructive Surgery, Department of Surgery, Mayo Clinic, Phoenix, Ariz.*

*Received for publication June 10, 2020; accepted June 10, 2020.*

*Copyright © 2020 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.*

*Plast Reconstr Surg Glob Open 2020;8:e3007; doi: 10.1097/GOX.0000000000003007; Published online 14 August 2020.*

to malignant wounds has not been shown to stimulate tumorigenesis or hemorrhage.<sup>1-5</sup>

The use of NPWT for malignant wounds may have utility as a palliative therapeutic intervention to reduce complications associated with the wounds and to increase patient comfort. Dedicated studies are necessary to further evaluate the safety and efficacy of NPWT in malignancy.

**Chad M. Teven, MD**

Mayo Clinic

Division of Plastic & Reconstructive Surgery

5779 E. Mayo Blvd.

Phoenix, AZ 85054

E-mail: [teven.chad@mayo.edu](mailto:teven.chad@mayo.edu)

#### DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this article.*

#### REFERENCES

1. Riot S, de Bonnecaze G, Garrido I, et al. Is the use of negative pressure wound therapy for a malignant wound legitimate in a palliative context? “The concept of NPWT ad vitam”: a case series. *Palliat Med.* 2015;29:470–473.
2. Ford-Dunn S. Use of vacuum assisted closure therapy in the palliation of a malignant wound. *Palliat Med.* 2006;20:477–478.
3. Makler V, Litt JS, Litofsky NS. Palliative coverage of cranial defect following failed cranial flap for advanced squamous cell carcinoma: case report. *J Palliat Med.* 2018;21:109–113.
4. Patel RS, Wang SSY, Ramos MRD, et al. Vacuum-assisted closure: an effective technique to manage wound complications after Metastatic Spine Tumour Surgery (MSTS)—a case report. *Int J Spine Surg.* 2019;13:544–550.
5. Cai SS, Gowda AU, Alexander RH, et al. Use of negative pressure wound therapy on malignant wounds—a case report and review of literature. *Int Wound J.* 2017;14:661–665.