The Double Opposing Semiocclusive Drain Dressing

S. Sean Kelishadi, MD; Matthew Zeiderman, BS; Darrell W. Freeman, MD; John Paul Tutela, MD; and Bradon J. Wilhelmi, MD, FACS

Accepted for publication August 4, 2015; online publish-ahead-of-print September 7, 2015.

Suction drainage with a Jackson-Pratt, Blake, or Hemovac drain is commonly employed for postoperative drainage of a variety of sites including the abdomen, pelvis, cutaneous tissue flaps, and skin grafts. Some patients may express complaints of discomfort and pain around the skin at the tube’s insertion site and/or where it is sutured in place.

There is no consensus in the literature on the ideal drain dressing; techniques vary and are mainly performed based on surgeon preference or accepted institutional norms. A simple, quick, and inexpensive method for minimizing patient efforts for drain dressing care and potentially, their discomfort, is described.

TECHNIQUE

After the suction drain has been placed and secured, two double opposing semiocclusive film dressings are placed around the suction tube at the site of insertion. At our facility, two 6x8 inch Tegaderm (3M, St. Paul, MN, USA) dressings are used. One of these clear semiocclusive dressings is placed on one side of the tube, with half of the dressing in contact with the skin and the other half supporting the tube (Figure 1A). The second is placed on the other side of the tube, directly opposite from the first dressing, again with half of it in contact with the skin, and the other half around the tube (Figure 1B). The dressings essentially “sandwich” the drain tubing to secure and support the drain while helping seal off the insertion site and skin from the external environment (Figure 1C). Care should be taken to ensure that these dressings adhere to the skin around the drainage tube insertion site. If a prosthetic device such as an implant or tissue expander lies within the drainage cavity, a chlorhexidine-impregnated disk (Biopatch; Ethicon, Inc., West Somerville, NJ, USA) may be placed around tube at the skin to add a locally delivered antimicrobial prior to sealing with the double opposing semiocclusive films. Usually this dressing is left alone and not removed until time for drain removal as long as it stays intact and appears clean; otherwise, it can be changed if needed.

DISCUSSION

Conventional techniques for dressing closed suction drainage catheters are performed in a variety of ways ranging from no dressing to wrapping a petroleum-based gauze around the tube and securing it with tape. In fact, very little consensus exists in the literature describing either the performance of, or the scientific rationale for an ideal drain dressing. Procedural manuals mainly describe a simple drain dressing technique placing a gauze around the drainage catheter; the gauze may be purchased with a preformed slit or it may be cut specifically to fit around the tube and then secured with tape.

In multiple studies, semiocclusive dressings have been found to (a) decrease pain, (b) reduce time to healing, and (c) decrease the incidence of infection when covering skin graft donor harvest sites. This rationale was the impetus for trying to find a way to apply use of these dressings in patients

From the Division of Plastic Surgery, University of Louisville, Louisville, KY.

Corresponding Author: Dr Bradon J. Wilhelmi, Department of Surgery, Division of Plastic Surgery, University of Louisville School of Medicine, 550 South Jackson Street, Louisville, KY 40202, USA. E-mail: bjwilh01@louisville.edu
with drains to (a) simplify the care regimen and (b) potentially decrease patient discomfort. The present authors have over 8 years’ experience using this technique in over 250 breast reconstruction and panniculectomy patients alone. The application of a double-opposing semicocclusive dressing is a simple, inexpensive solution to help minimize patient concerns about drain dressing care and potentially reduce the discomfort felt due to the use of a closed suction drain. The cost for the product used at our institution is $0.46, which equals roughly $1 (two semicocclusive dressings) for each drain.10 This double-opposing semicocclusive dressing “sandwich” acts to immobilize, support, and protect the drainage tube at the skin, and at the same time elevates it to a more neutral position, relieving the natural tension and pulling caused by gravity. By reducing repetitive trauma at the tube’s insertion site and/or frequent dressing changes, we expect patients to have less local irritation and thus improved satisfaction.

Additionally, conformability to the patient’s body makes this an easy dressing to use and the fact that it is transparent allows for simple evaluation of the drain site for local problems such as infection. The barrier effects of these dressings make them ideal for showering without contamination of the drain’s insertion site. The dressing’s reliable adherence to the patient’s skin eliminates the need for frequent dressing changes that can lead to maceration and irritation of the skin, and is usually removed in conjunction with the patient’s drains at the appropriate clinical setting. Therefore, this simplified approach has helped decrease the patient burden with respect to drain dressing care and anecdotally has resulted in fewer concerns regarding drain discomfort at the skin insertion site.

In more high-risk patients in whom the cavity being drained has a prosthetic device within its vicinity, a chlorhexidine-impregnated disk was added around the tube at the skin insertion site to further protect against infection; this strategy was applied from ICU literature pertaining to the use of these devices in decreasing central line infections.11,12 Our determinations are mainly based on what has worked in our practice with our patient population. Further studies designed to compare discomfort and satisfaction using validated questionnaires could help to more objectively define advantages with this technique vs other drain dressings. These studies could be expanded to not only include patients who have other dressings utilized vs the double opposing semicocclusive dressings, but also with and without local antimicrobial delivering disks in patients where concurrently implanted prosthetic devices are placed. However, in the meantime, our hope was to share with our colleagues a technique that has been of value to our daily practice.

Figure 1. This 48-year-old female patient required a closed suction drain with breast reconstruction. (A) Drain dressing initiation by placing the first of two double-opposing semicocclusive dressings. (B) Matching the second of the double-opposing semicocclusive dressings to the dressing already placed. (C) The double-opposing semicocclusive dressing over a chlorhexidine-impregnated disk.
CONCLUSION

The double-opposing semiocclusive dressing is an alternative a practitioner can utilize when dressing closed-suction drains.

Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding

The authors received no financial support for the research, authorship, and publication of this article.

REFERENCES

1. Williams J, Toews D, Prince M. Survey of the use of suction drains in head and neck surgery and analysis of their biochemical properties. J Otolaryngol. 2003;32(1):16-22.
2. Lee SE, Ahn YJ, Jang JY, Kim SW. Prospective randomized pilot trial comparing closed suction drainage and gravity drainage of the pancreatic duct in pancreaticojejunostomy. J Hepatobiliary Pancreat Surg. 2009;16(6):837-843.
3. Whitson BA, Richardson E, Laizzo PA, Hess DJ. Not every bulb is a rose: a functional comparison of bulb suction devices. J Surg Res. 2009;156(2):270-273.
4. Mimnaugh L, Winegar M, Mabrey Y, Davis JE. Sensations experienced during removal of tubes in acute postoperative patients. Appl Nurs Res. 1999;12(2):78-85.
5. Lippincott William, Wilkins. Physical treatments: wound care. Lippincott’s Nursing Procedures, 5th ed. Philadelphia, PA: Lippincott Williams and Wilkins. 2009. pp. 253.
6. Smith SF, Duell DJ, Martin BC. Wound care and dressings. Clinical Nursing Skills: Basic to Advanced Skills, 7th ed. Upper Saddle River, NJ: Pearson Prentice Hall; 2008. pp. 905-906.
7. Morris WT, Lamb AM. Painless split skin donor sites: a controlled double-blind trial of Opsite, scarlet red, and bupivacaine. Aust N Z J Surg. 1990;60(8):617-620.
8. Brady SC, Snelling CFT, Chow G. Comparison of donor site dressings. Ann Plast Surg. 1980;5(3):238-243.
9. Barnett A, Berkowitz RL, Mills R, Vistnes LM. Comparison of synthetic adhesive moisture vapor permeable and fine mesh gauze dressings for split-thickness skin graft donor sites. Am J Surg. 1983;145(3):379-381.
10. 3M™ Tegaderm™ Diamond Pattern Film Dressing 1684. http://solutions.3m.com/wps/portal/3M/en_US/3MC3SD/Wound-Care/Products/Wound-Care-Supplies/?N=6219+4294925390&rt=d. Accessed August 4, 2015.
11. Levy I, Katz J, Solter E, Samra Z, Vidne B, Birk E, Ashkenazi S, Dagan O. Chlorhexidine-impregnated dressing for prevention of colonization of central venous catheters in infants and children: a randomized controlled study. Pediatr Infect Dis J. 2005;24(8):676-679.
12. Mann TJ, Orlikowski CE, Gurrin LC, Keil AD. The effect of the Biopatch, a chlorhexidine impregnated dressing, on bacterial colonization of epidural catheter exit sites. Anaesth Intensive Care. 2001;29(6):600-603.