2000 Negative-pressure Dressings in the Treatment of Hidradenitis Suppurativa

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Negative-pressure dressings have been used in the treatment of a variety of open wounds, and as a bolster for skin grafts. The benefits of these dressings include increased oxygen tension in the wound, decreased bacterial counts, increased granulation formation, and the prevention of shear force on wounds. Also by the virtue of the diminished need for daily dressing changes, there are the additional advantages of enhancing patient comfort, decreasing nursing work, and diminished cost of wound care. Hidradenitis Suppurativa (HS) is a chronic infection of the apocrine sweat glands. Treatment options range from oral isotretinoin to radical excision. Wound closure may be achieved by secondary intention, skin grafting or flap closure. Complications may still arise and include disease progression and squamous cell carcinoma. Radical excision yields the best results in terms of disease eradication. The authors describe using the negative –pressure dressing in two cases of axillary HS to secure skin grafts firmly to the wound bed after radical excision of all involved tissues. Patients comfort and acceptance was high, and skin graft take was excellent. The dressings themselves are simple to apply and are highly effective.

Negative-pressure (also called sub-atmospheric, vacuum, or suction) dressings have been used in the treatment of chronic wounds, pressure sores, chest wounds after mediastinitis, and as a bolster for skin grafts. These dressings have even been helpful in contouring grafted skin to traditionally difficult locations, and after degloving injuries. The benefits of negative-pressure dressings are marked and include increased oxygen tension, decreased bacterial counts, increased granulation formulation, and prevention of shear force on wounds. This dressing also prevents fluid collection while simultaneously preventing desiccation of the wound. For all these reasons, this technique is extremely efficacious. In addition this dressing can be left intact for days at a time, enhancing patient comfort and decreasing nursing work.

Hidradenitis Suppurativa (HS) is a chronic infection of the apocrine sweat glands. Suggested treatments are highly variable and range from oral isotretinoin to intermittent drainage to radical excision. Radical excision yields the best results in the long term. Healing after excision can be achieved by secondary intention or by means of skin grafting or flap closure. Complete excision relieves patient suffering and may minimise complications of HS such as squamous cell carcinoma. In view of the diminished bulk and favourable long-term appearance, we prefer to use split-thickness skin grafts to reconstruct these defects.
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Achieving guaranteed skin graft success in this setting can be challenging because of a number of factors, including heavy bacterial contamination, substantial wound drainage, and complex wound topography. It is in this setting that the full benefits of a negative-pressure dressing are realised to promote granulation, wound contracture, and stabilisation of skin grafts.

We describe using the negative pressure dressing in two cases of bilateral axillary HS to secure skin grafts firmly to the wound bed after radical excision of the involved skin, subcutaneous fat, and associated apocrine glands. Patient comfort and acceptance was high, and skin graft take was excellent. An additional benefit of the negative-pressure dressing is that it allows mobility of the extremity without cumbersome or bulky dressings, to the extent that bilateral grafts can be placed with minimum post-operative short-term patient inconvenience.

Patient Reports

Patient 1
Patient 1 is a 30-year-old man with bilateral axillary HS of several years duration. He had undergone multiple drainage procedures for acute infections, and presented to the plastic surgery service desirous of definitive therapy. He submitted to radical excision of the involved tissue under general anaesthesia, and whirlpool therapy thereafter for wound care. A decision was made against primary skin grafting because of the frank purulence of the axillary wounds. Control of the sepsis was achieved rapidly, and a granulating base was visible by the fifth postoperative day (Fig A). For this stage conventional wet to moist dressings and whirlpool were used to prepare the wound base. Because we gained experience with the negative-pressure dressing, it is clear that it can also be used in place of conventional dressings to prepare the wound bed. The negative-pressure dressing less changing and thus enhances patient comfort while promoting granulation tissue. Once the wounds were deemed amenable to closure, grafting was undertaken with meshed split-thickness grafts harvested from the thigh. A negative-pressure dressing was fashioned from sterile foam sponges. Standard sterile "prep kit" presurgical scrub brushes were used. These are manufactured of medical-grade foam and arrive sterile with a split edge that accepts a standard Jackson-Pratt drain (Fig C). The skin graft is covered with a single thickness of Xeroform gauze followed by the sponge with incorporated drain. This construct was then covered with an loban occlusive dressing (Figs D, E). The drain was connected to continuous wall suction at negative 40-60mmHg for 7 days. A portable vacuum pump can also be arranged as required by the social situation for outpatient use. Although we fashioned our own dressing, the KCI Company (San Antonio, TX) has a complete product available for this; vacuum pump, dressing sponge, occlusive covering, and tubing distributed under the name "wound V.A.C." (vacuum assisted closure). After a few days, the drain can be connected to bulb suction for short periods, allowing trips away from wall suction or the vacuum pump. This was acceptable as long as continuous suction was maintained. At 7 days the dressings were taken down. Skin graft take was more than 95% bilaterally (Fig B). The grafts were left open at that time and were covered with a thin film of antibiotic ointment.

(Figures A to E and their descriptions can be found at http://ipsapp002.lwwonline.com/content/getfile/3832/4/10/fulltext.htm).

Patient 2
The second patient is a 36-year-old man with a very similar medical history as Patient 1. He likewise had a history of several years of intermittent infection of both axillae treated with intermittent surgical drainage procedures. He likewise presented requesting definitive treatment for his bilateral axillary HS. The clinical course was essentially identical to that of Patient 1. He had both axillae excised and then grafted
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when the wound appeared amenable to skin grafting. The negative–pressure dressing was left in place 7 days. The skin graft take was excellent, with more than 90% take bilaterally.

Conclusion
We presented the use of negative-pressure dressings in two cases of bilateral axillary HS to secure skin grafts firmly to the wound bed after radical excision of all involved tissues. Construction of the dressing is both inexpensive and rapid, with readily available materials, and the application is simple. Patient comfort and acceptance were high, and skin graft take was excellent.

References

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