The "Bluie," a Simplified Method for Applying a Vacuum-Assisted Closure Dressing in Residual Limbs and Complex War Wounds

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Abstract

An impervious plastic stockinet can facilitate application of a vacuum-assisted closure dressing in complex, traumatic wounds. This article reviews our technique.

Vacuum-assisted closure (VAC) technology has revolutionized management of soft-tissue injuries in both civilian and military trauma.[1-4] For VAC dressing to function correctly, an airtight seal must be maintained around the wound sponge. A seal is usually obtained by wrapping adhesive plastic sheets, supplied with the VAC sponge package, around the adjacent, uninvolved skin. Obtaining an adequate seal can be a problem when the VAC must be placed around the contour of a residual limb or when the extremity has several wounds that require multiple nonadjacent dressings. An alternative, time-saving method involves using an impervious plastic stockinet that expedites VAC application in residual limbs and complex extremity wounds. In this article, we describe a simplified VAC application method and review our early experience with this technique.

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Technique

Complete operative débridement and irrigation are performed, and a VAC sponge is secured to the wound (Figures 1, 2). After removal of the cotton liner, the plastic stockinet is placed over the limb and secured proximally with an elastic dressing (eg, Coban; 3M, St. Paul, Minn). Then, a suction tube is placed through a small hole made in the stockinet (Figures 3, 4). Suction is applied, and the "bluie" (so named because of the color of the stockinet) is complete (Figures 5, 6).

Method

A prospective evaluation was conducted over a 4-week period at the 10th Combat Support Hospital in Iraq. VAC dressings were applied to 7 patients with a plastic stockinet instead of the standard plastic sheets supplied in the VAC sponge package. After surgery, the patients were followed so that problems with the VAC seals could be identified and appropriate progression of wound healing could be monitored.

> **"...using an impervious plastic stockinet expedites VAC application in residual limbs and complex extremity wounds."**

Results

Seven patients, 3 with open fractures of the extremities and multiple soft-tissue wounds and 4 with traumatic

Figure 1. Operative debridement and irrigation.

Figure 2. Vacuum-assisted closure (VAC) sponge is secured to wound.

Figure 3. Plastic stockinet is placed over limb and secured.

Figure 4. Suction tube is inserted through a small hole in the stockinet, and an air-tight seal is ensured.

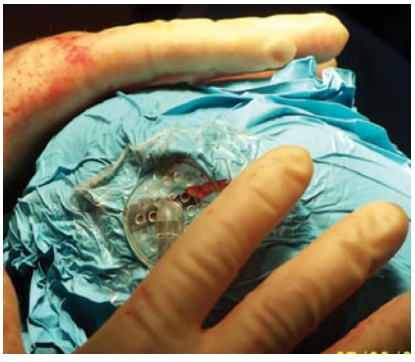

Figure 5. Suction is applied.

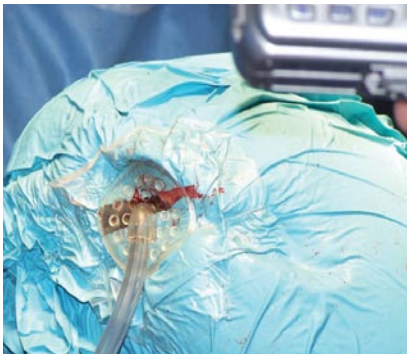

Figure 6. The "bluie" is complete.

amputations (1 below-the-knee, 2 above-the-knee, 1 transhumeral), were treated with the bluie. Application time was less than 5 minutes in all cases. There were no postoperative VAC dressing leaks, and the wounds granulated appropriately.

Conclusions

Obtaining an adequate seal can be time-consuming and cumbersome, particularly around the end of a residual limb or in complex combat wounds of the extremities. We have found that using an impervious stockinet, instead of the plastic sheets supplied in the sponge package, wrapped over the wound sponge and secured with an elastic dressing (Coban), greatly expedites application of a VAC dressing and results in a reliable, functional seal and excellent wound maturation.

"Application time was less than 5 minutes in all cases."

Authors' Disclosure Statement

The authors report no actual or potential conflict of interest in relation to this article.

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