Stasis ulcer treatment with compression dressing

JESS R. YOUNG, MD AND BARBARA A. TERWOORD, LPN

■ A compression dressing system is an easily learned and effective alternative to the Unna boot for treatment of venous stasis ulcer. The treatment is well accepted by patients and appears to have efficacy comparable to that achieved with the boot, but without the problems associated with the boot, such as maceration, poor fit, and inability to observe and bathe the skin.

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VENOUS STASIS ulcers afflict some 500,000 Americans[1] and cause an estimated loss of 2 million work days annually.[2] For a patient with recurrent stasis ulcers, the cost over a lifetime has been estimated to be around $40,000.[3] If a patient must be hospitalized repeatedly, this cost could be multiplied many times.

Compression dressings and the Unna boot have been the primary treatment modalities for venous stasis ulcers. The Unna boot is a soft cast, usually changed weekly, that promotes venous return and prevents edema of the leg.

The compression dressing method, which uses an absorbent dressing under a compression support stocking, has been proposed as a viable alternative to the Unna boot. We report our experience with the use of this treatment method.

From the Department of Vascular Medicine, The Cleveland Clinic Foundation

Address reprint requests to B.A.T., Department of Vascular Medicine, Desk S60, The Cleveland Clinic Foundation, One Clinic Center, 9500 Euclid Avenue, Cleveland, Ohio 44195.

DESCRIPTION

The compression dressing method consists of an absorbent dressing (Allevyn) held in place by a lightweight compression liner (*Figures 1* and *2*). During the day, when the patient is active, the compression liner is covered by a heavy support stocking with a posterior zipper (*Figure 3*). The stocking is removed at bedtime.

The dressing, made of foam-like hydrophilic polyurethane, is placed over the ulcer. It can absorb 10 times its weight in drainage, and has a nonadherent feature that protects against maceration of the adjacent skin.

The compression liner is a lightweight knee-high stocking which exerts 10 mmHg compression. It keeps the dressing in place and has a smooth surface over which the higher compression support stocking is applied.

The heavy support stocking is placed over the compression liner. This open-toe knee-high stocking has a posterior zipper which makes the application easier. It provides a 30-mmHg gradient pressure and helps to reverse venous hypertension. The compression liners and heavy support stockings are available in small, medium, large, and extra large sizes.

The compression dressing method requires patient participation and thorough instructions (*Table 1*). The dressing and compression liner are applied daily at bed-

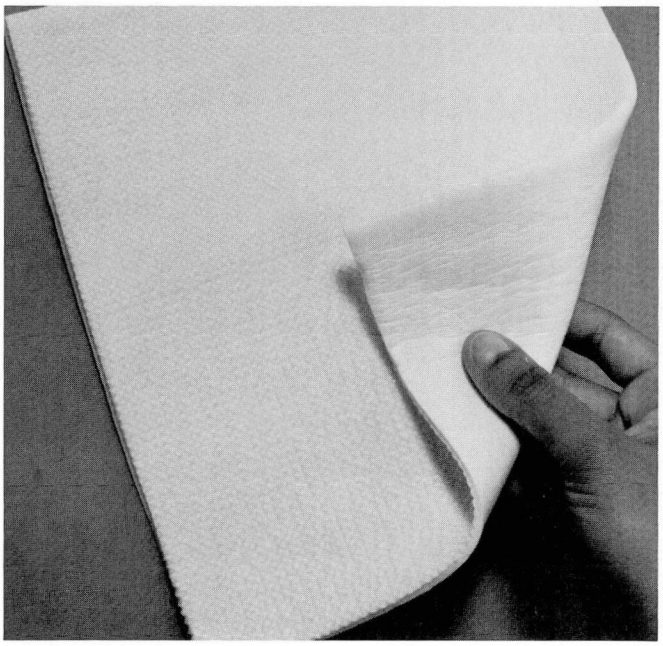

FIGURE 1. Allevyn, a hydrophilic polyurethane dressing, designed to absorb discharge from the stasis ulcer and surrounding skin.

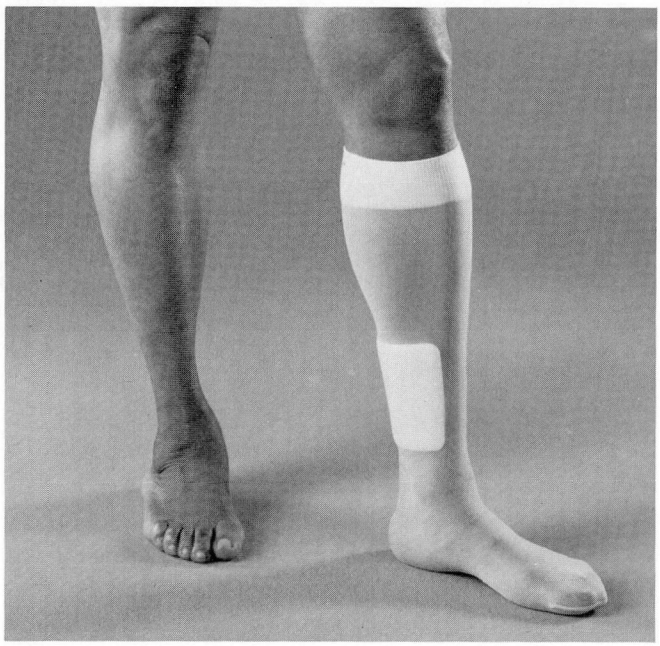

FIGURE 2. The Allevyn dressing is held in place by a light-weight compression liner stocking.

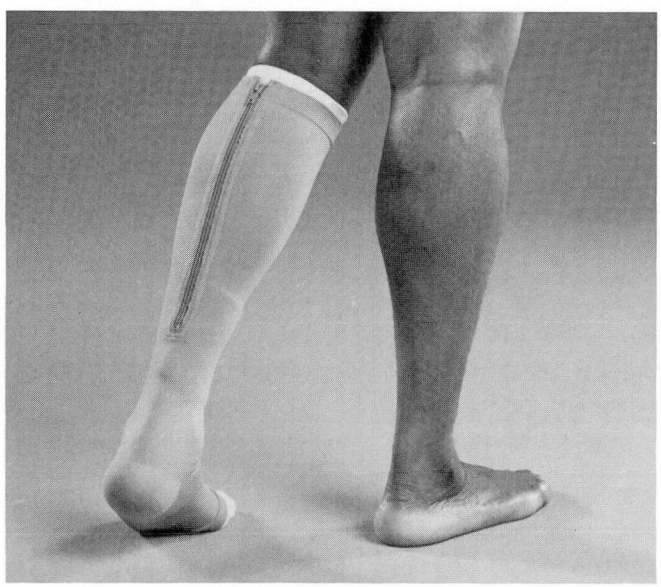

FIGURE 3. The liner stocking is covered by a heavy, zippered support stocking.

time, and the patient adds the heavy support stocking before arising in the morning.

PATIENT RESPONSE

We have used the compression dressing method for 50 patients, many of whom had had previous experience with the Unna boot.

All patients but one considered the compression dressing method superior to the Unna boot. One patient had more confidence in the Unna boot since it had been successful for him in the past, and asked to be switched back to the boot.

Our small sample size precludes reaching a conclusion about speed of healing compared with other regimens, although the method did not appear to delay healing and several ulcers healed faster than expected.

The use of a hydrocolloidal dressing (Intrasite, Smith and Nephew Medical, Massillon, Ohio) in conjunction with the compression dressing was associated with greater than expected maceration of healthy skin surrounding the ulcer. The apparent cause was contact between the skin and the gel formed by the dressing. After observing this in three patients, we used the hydrophilic polyurethane dressing exclusively on subsequent patients. Contact dermatitis, possibly caused by the hydrophilic polyurethane dressing, developed in one patient.

All patients (with the exception noted above) were pleased with this system of ulcer care, particularly be-

TABLE 1
PATIENT INSTRUCTIONS: COMPRESSION DRESSING TREATMENT

Apply a new compression dressing every day at bedtime, following these steps:
1. Bathe the leg and ulcer with mild soap and water, rinse, and dry well, especially between the toes.
2. Apply a moisturizing cream to the leg and foot, avoiding the ulcer.
3. Cut a piece of the absorbent dressing twice the size of the ulcer, rounding the corners, and place it over the ulcer.
4. Place a clean compression liner over the dressing.
5. Go to bed or, if it is not yet bedtime, elevate the legs higher than the level of the heart. Do not elevate the legs during sleep.
6. Apply the heavy support stocking before getting out of bed in the morning.

cause it allowed removal of the dressing for bathing the leg. In addition, skin rashes that occasionally occur with the Unna boot were avoided. Daily removal of the dressing permitted frequent inspection of the ulcer for signs of improvement or worsening, which could be reported immediately. Because the dressing is less bulky, it was more aesthetically pleasing and permitted patients to wear ordinary shoes.

Patients who use this modality must be compliant, able to follow directions, and able to apply the heavier compression stocking over the liner stocking.

COMPARISON WITH UNNA BOOT

The two mainstays of treatment of venous stasis ulcers have been wet to dry compression dressings (saline or 3% boric acid) and the Unna boot.[4] The wet to dry compression dressings are used for excess drainage from the ulcer. The boot is applied when the drainage subsides.

Despite our application of 500 to 1,000 Unna boots per year, this treatment modality is associated with problems: a 3- to 6-month training period for the nurses who apply the boot, bulkiness that interferes with patient comfort and aesthetics, improper fit if edema decreases after the boot is fitted, skin maceration and even infection between weekly boot changes, and inability to observe and bathe the skin when the boot is in place.

In contrast, a nurse can learn how to apply the compression dressing in a few hours. Patient satisfaction is better because the dressing is less bulky, the daily change of dressing decreases the likelihood of maceration with excessive drainage, and, because of the consistent compression, poor fit and poor control of edema are less likely.

The comparative costs of the two treatment modalities are difficult to calculate. A daily hydrophilic dressing for an ulcer an inch or less in diameter costs about $32 per week. For a 1- to 2-inch ulcer, the cost would be double. The average weekly cost—including the hydrophilic dressing, the liner stocking, and the heavier elastic stocking—for an ulcer 1 inch or less in diameter is about $40. The estimated cost of materials used in an Unna boot application is about $20 to $25 weekly, but it takes a nurse about 60 minutes to remove an Unna boot and apply a new one, while the patient can change his or her own compression dressing in 10 to 15 minutes. Most of our patients with Unna boots must be seen and the boots changed weekly; most of our patients with compression dressings can be seen every 2 to 3 weeks.

FOLLOW-UP

We are using the compression liner and support stocking to treat 15 patients who have minimally exudative ulcers; a wet-to-dry or a dry dressing is placed over the ulcer. The omission of the hydrophilic dressing halves the weekly cost of treatment. The results to date have been favorable.

ACKNOWLEDGMENTS

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