Use of a Glycerine-Based Gel Sheeting in Scar Management

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Abstract
This report shows that a glycerine based gel sheeting is very effective for management and prevention of hypertrophic and keloid scars. Using it as a wound dressing during the healing process effectively prevented the reoccurrence of hypertrophic and keloid scars after excision. The semipermeable gel sheeting is less expensive than silicone, comfortable for the patient, and is easy to use.

Hypertrophic and keloid scars are problematic and are known to be more of a problem with the darker skin patients. They can be painful and present serious problems of mobility and limited range of motion for many patients. They can also be unsightly and cosmetically highly undesirable. Hypertrophic scars are defined to be scars that remain within the confines of the original wound and some of them may spontaneously regress over a period of months or years while others continue to grow, contract and become a serious problem. In contrast keloids extend beyond the wound margins and usually continue to grow. Patients susceptible to keloid formation can experience them from any type of skin break from a simple scratch or surgical incision to a major burn. Some of the most common causes arise from ear piercing and vaccinations.

Many methods of treatment have been used to treat these scarring problems. Over the last 20 years one of the major treatments has been the application of pressure by applying stretch garments and during the last 12 to 15 years the scar is often covered with a gel sheeting as well. Initially, these gel sheets were made of silicone and they have successfully reversed the growth of the scars. The mechanism of action is not known. The use of silicone sheeting has some disadvantages; it is expensive, some patients have allergic reactions (skin irritation), it must be removed and the skin and sheet washed twice a day, it does not breath, it may macerate the skin in warm weather, and it can not be applied to open wounds.

A glycerine based hydrogel sheeting was introduced to the market in 1988 as a cast and splint padding and also as an occlusive wound dressing. It is about 1/8" (3mm) thick and is covered with a soft, slick surface, stretch fabric on one side and is available in several sizes up to 8x16" (20x40cm). It is mildly adhesive, which helps position and stabilize the pad, but it must be secured by some method, such as tape, elastic bandage, or tight fitting clothing (pressure garments work well). It is semipermeable, which allows moisture to evaporate through the dressing and is very comfortable. The product can be safely placed over wounds, especially those prone to scarring and thus facilitating early intervention and often total prevention. This product needs to be removed and cleaned only once a day by simply cleaning the surface and the cost is approximately 1/4 that of silicone.

For this report we used the glycerine based gel sheeting on 34 patients either to manage the scars or to prevent formation of hypertrophic and keloid scars. Indications for use were for scars less than 18 months old, newly healed wounds, and prophylactic
treatment following surgical resection of existing hypertrophic or keloid scars. Treatment for new scars began as soon as visual evidence indicated the formation of hypertrophic or keloid scar might occur. Patients were encouraged to wear the sheeting for at least 12 hours per day (most facilities encourage 24 hour wear time, removing only to bath.) Noticeable flattening and softening of the scar and reduced itching was expected by the end of 2 weeks with expected trial period to last 12 weeks. If no improvement or skin irritation developed in 1 month, the patient was reassessed.

Results
After 3 to 6 months evaluations, 27 of 29 patients (97%) experienced significant softening and flattening of their scars. No hypertrophic or keloid scars developed on patients who used the sheeting prophylactically. In addition, patients reported relief of troublesome burning and itching after 1 or 2 days of initial application. The glycerine sheeting also was well tolerated, with no reported irritation of healed scars and patients were generally compliant with therapy, which indicated a high degree of comfort. There was one complaint of irritation on one large, painful, partial-thickness burn. However, as the burn healed, the patient experienced no further pain and no scarring occurred. Compression was prescribed in addition to the sheeting for three patients (two had facial injuries with uneven scars, and the third patient had a large burn on the arm and was at risk for contracture). The sheeting appeared to be effective on the remaining patients without concomitant use of compression.