

Porcine Skin Grafts

THE BENEFITS OF HOMOGRAFT skin on burn wounds in restoring the water vapor barrier, decreasing protein losses in wound exudate, decreasing wound sepsis, relieving wound pain, increasing epithelialization in second degree burns, and for use after eschar separation to produce healthy, clean granulations for autografting have been known for many years.

Because of its limited availability, the initial users left the homograft skin in place until it was rejected. The rejection mechanism negated the initial beneficial results. The rejection process was eventually avoided by the use of homograft skin as a temporary biological dressing which was replaced at intervals of one to five days.

Whenever the demand for a temporary biological dressing arises, despite the urgency, it is often difficult to obtain an adequate supply of suitable tissues whether from living donors, cadavers or tissue banks.

This need for human skin substitutes for burn victims prompted many investigators to search for materials from animal sources. Porcine skin heterograft was found to be an excellent substitute for homograft skin. Since the early 1960's, porcine skin has been used only to a limited degree in the care of burn patients because of the cost and the many problems encountered in harvesting skin from live pigs or from hides obtained from local slaughtering houses.

In 1969, the Burn Treatment Skin Bank, Inc., in Phoenix, Arizona, was organized to supply fresh porcine dressings. With the normal 24-hour air express delivery time, the Burn Treatment Skin Bank has become a heterograft skin bank for the entire United States medical community.

Porcine skin is cut with a pneumatic dermatome in strips 3 inches wide by 4 feet long by .015 inches thick. The strips are treated with Betadine® (povidone-iodine) and neomycin solutions, rolled on sterile gauze backing, and sealed in double plastic bags. It is then stripped on ice in insulated containers and should be

stored at 4° C. It is recommended that the skin be used within ten days after processing.

The use of porcine skin as a temporary biological dressing for burns has become a widely accepted practice. It is applied as one would apply homograft skin. However, because it is readily available, surgeons have been able to extend its uses—for example, over donor sites, on second degree burns and over mesh grafts. It has also been used effectively in treating open soft-tissue wounds, surgical infections and wounds where primary closure is delayed.

In contrast to homograft skin it may be left in place for extended periods of time because it does not become vascularized and does not elicit a significant inflammatory response.

There is no doubt that the commercial availability of porcine skin for the treatment of large skin wounds will aid in the saving of many lives.

ANGELO CAPOZZI, M.D.

REFERENCES

- Song IC, Bromberg BE, Mohn MP, et al: Heterografts as biological dressings for large skin wounds. *Surg* 59:576-582, Apr 1966
Baxter CR: Homografts and heterografts as a biologic dressing in the treatment of thermal injury. First Annual Congress of the Society of German Plastic Surgeons, Munich, 1970

Hypospadias

LONG-RANGE STUDIES evaluating various techniques of hypospadias repair and management have pointed out certain important conclusions. The objective is to produce a full length penile urethra, expansile and extensible, without chordee, providing a urethral channel of adequate bore. There should be no pockets or adnexal components in the newly formed urethra.

The most common type, distal or frenular hypospadias is repaired as a single stage procedure done at age four and a half to six years. This is a modified circumcision, utilizing a portion of the prepuce to elongate the foreshortened urethra out to the distal glans. In the penile, peno-scrotal and perineal types, when the chordee is severe and the genitalia hypoplastic, a two-stage operative plan is indicated. The first operation is done at age one to three