

Successful Microdermagrafting Using the Meek-Wall Microdermatome

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MICRODERMAGRAFTING is not a new concept. Many attempts have been made using different methods and technics. Up to the present time no practicable application of this method has been made. If a piece of split-thickness skin is placed upon a recipient area, the

1 inch square yields 16 inches of growing margin. If 256 squares are made from each square inch, 64 inches of lateral growing surface are obtained. This demonstrates the well known principle that the smaller a body is, the greater is its surface in relation to its volume.

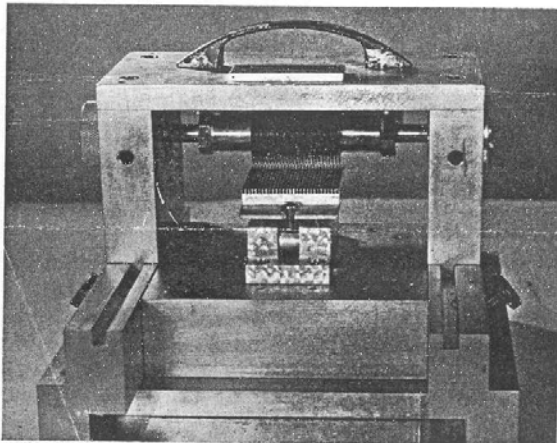


FIG. 1. The Meek-Wall microdermatome shown in its cutting position. The cutter is driven by an electric motor.

transplant grows from the periphery outward. On the basis of this statement, it follows that the ideal for re-epithelizing a denuded area in a minimum amount of time is to provide the greatest possible growing margin to the area. To determine the growing surface of a square piece of skin, it is necessary simply to obtain the sum of the four margins, e.g., a 1 inch square yields a 4 inch growing margin. If this original square is cut into successively smaller squares, the available growing margin increases by geometric progression, e.g., a 1 inch square cut into four smaller squares yields 8 inches of margin; when each of the four smaller squares is cut into four still smaller squares, the original

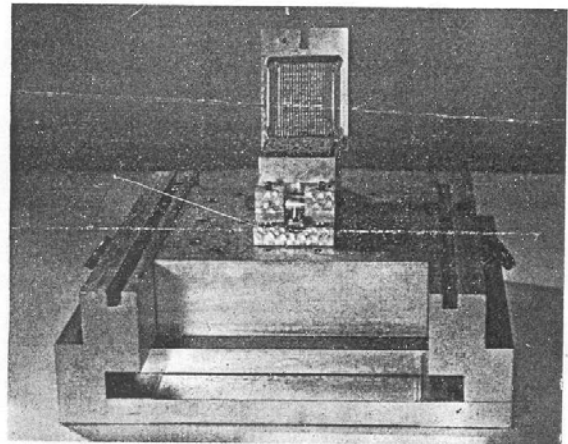


FIG. 2. The Meek-Wall microdermatome showing the grill raised. The split-thickness graft is placed on the cork pad and is held in place by the grill for cutting. After one cut is made the cork is turned 90 degrees and the second cut is made, completing the procedure for cutting the small squares.

Thus it is obvious that a technic which makes the maximum application of this principle is a desirable contribution to the field of skin grafting. The case often arises in which the need for skin is great but the size of the donor site is small.

CASE REPORT

D. J., a fourteen year old girl, was admitted to the Aiken County Hospital on January 17, 1958, with burns involving approximately 25 per cent of the total body surface. Most of the burned areas were on the abdomen, thighs and hands.

Minor débridement was performed in the emergency room and the entire burned surface was covered with dermaplast. No other dressings were applied at this time. Dermaplast was used as needed until general débridement was performed ten days later in the operating room with the patient under general anesthesia. After this débridement furacin® dressings were applied. Microderma-grafting was performed on February 1, 1958.

The following technic was used for the micro-dermagrafting:

Conventional split-thickness grafts of .0125 inch were taken with a Stryker rolodermatome and these grafts were recut with the Meek-Wall micro-dermatome into units $\frac{1}{16}$ inch square. (Figs. 1 and 2.) The microdermagrafts were put in plasma and then distributed directly to bandages made from parachute silk. These bandages were inverted and placed onto the burned area. Furacin pressure dressings were applied on top of the parachute silk. The bandages were removed for the first time on the fifth postoperative day and the burned areas were redressed with furacin dressings. After ten days no further changing of bandages was done and the grafted areas were left exposed.

CONCLUSIONS

Microdermagrafting can be performed successfully on human beings and this technic can be applied in treating the badly burned patient.

The Meek-Wall microdermatome recuts conventional split-thickness grafts into the desired smaller units without devitalization of the tissue.

A more satisfactory technic for applying the microdermagrafts can be worked out.

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