

forearm and hand with amputation at the 5th finger followed by wound healing in approximately 40 days. Poor results in the group were associated with delayed healing or complications such as pulmonary embolism. In patients who died the per cent of third degree burn approximately equalled or exceeded LA 50's in each case. Comparison to survival time of a larger group of patients treated in our institution by other methods⁵ does not suggest that primary excision in the older patients increased survival time.

From these data it appears that the excision technic produces superior results in patients with less than 10-15% body surface area of third degree burn, preferably with all or nearly all of the burn excised. In certain cases healing time is shortened. Others are difficult to evaluate. Best results are in younger age groups. The older ages have a higher incidence of delay in wound healing, but excellent results are possible in selected cases. Immediate autografting is often associated with diminished take of grafts. Delayed autografting is commonly associated with high percentage of takes. There is no evidence to suggest a deleterious effect of leaving the wound open to granulate before the application of delayed autografts.

Summary

Early excision and immediate or delayed autografting has been performed in 30 pa-

tients with burns up to 60% body surface areas, whose ages varied from 3 to 78 years.

This experience points out that the excision technic can produce superior results in patients with less than 10-15% body surface area third degree burn. It is important to excise all or nearly all of the burn. Certain cases point to a definite shortening of healing time. Although best results are seen in younger age groups, elderly patients often had good to excellent results. A greater incidence of delay in healing was observed in older age groups. Immediate autografting resulted in less percentage graft take than delayed autografting. The use of a tourniquet in extremity excisions was important in minimizing blood loss.

With careful case selection, early excision and grafting can produce excellent results.

References

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DISCUSSION

DR. ERLE E. PEACOCK, JR. (Chapel Hill): The problem here may be the long delay required between excision and grafting, B. W. I think the principle of getting rid of eschar, burned tissue as rapidly as possible has been clearly demonstrated and with which I agree. But we would have han-

dled this differently by either grafting immediately at that moment or provided no more than 24 hours of dressings to be sure that hemostasis was intact.

The reason for doing so is that the wound healing process, with all of its misery and devastation, such as contraction, collagen synthesis, and so forth goes on during this 8- to 10-day period.

Placing a skin graft on that beautiful, great red granulation tissue does not stop this process; whereas these youngsters, or even 25- to 35-year-old youngsters, will be able to reabsorb much of that collagen, and will not have the heavy, plaque-like scars that result from grafting granulation tissue. I feel there is much evidence that granulation tissue is not what you would want to graft; the restorative surgeon should approach this problem with this idea—in fact, we observe this rule on our service and never graft granulation tissue. We would have excised all of that granulation tissue before performing the graft.

If ten days were allowed to elapse while waiting for granulation tissue to form, it would result in much nitrogen loss and enable complications from stress ulcers to infection to occur.

In summary, the next step is to avoid the 10-day delay between excision of the eschar and grafting, which I think is erroneously due, in many patients, at least, to the belief that granulation tissue is the best for grafting.

DR. TRUMAN G. BLOCKER (Galveston): I agree with Dr. Peacock with regard to early excision and skin grafting; we believe that patients who require actual excision of the burn should have it dressed, and as soon as hemostasis can be assured, grafting should occur. In other words, early excision and skin grafting on our service are generally done within 48 hours after the excision. Most of our excision and grafting is limited to hands, circular burns of the legs, electrical burns, and to burns that we can be absolutely sure are third degree, and this is generally done on the first to the fifth day under tourniquet with very little or no blood loss. All of the visible vessels are ligated at the time, and a dressing is put on to prevent hematoma, this is removed in 48 hours and graft is performed.

We would not remove the granulation tissue to graft the burns that were pictured by Dr. Haynes—which were beautifully treated for excision. However, we like to graft on normal tissue.

CHAIRMAN BRICKER: Dr. Haynes, in the cases that you illustrated, the depth of the burn seems to be pretty evident, but are there any criteria that you use, now, in applying the excision in the grafting technic and identifying suitable instances for its use? In other words, the identification of the third degree burn can sometimes be very difficult.

DR. BOYD W. HAYNES, JR. (Closing): I think Dr. Peacock's remarks are apropos when one considers grafting small areas like the back of the hand or the outward foot. When the area extends from 15 to 25 per cent of the body surface, and you consider risking 15 to 20 per cent of the body surface in autografts, you'd better be reasonably sure that the graft is going to grow.

Hemostasis is often difficult in these wounds. The larger the burn, the older the patient, the less likely he is to accept the autograft at that time. Oozing separates the graft, so that the delay at this point—and this is the point with which I disagree—does not significantly increase mortality, in our opinion, but does significantly improve the take of the graft.

In our series, the primary autografts which were done immediately at the time of surgery, the larger wounds particularly had a very low and unacceptable percentage of takes. This was largely due to technical problems of hemostasis; in the older patients, to poor wound healing; whereas as in the delayed primary autografts, where a reasonably good bed had demonstrated itself, albeit perhaps not quite ideal, nonetheless it resulted in a high percentage of graft takes, so that one felt confident in placing the skin on this particular type of patient.

I might also disagree with Dr. Peacock a little further, in that these wounds do mature nicely. They do soften nicely, and they often have good functional as well as cosmetic results.

I think the preceding remarks answer Dr. Blocker's remarks as well.

In answer to Dr. Bricker, the criteria used for selecting the patients began rather broadly, actually, in an effort to find the area that one could excise successfully and gain wound healing in a reasonable period of time and still have the patient survive. I mentioned one patient as an example who had very poor wound healing and had poor granulation tissue, and died. We concluded that this was too large an excision to try to attempt in that age group.

So in general with third degree burns in 15 per cent in young people, 10 per cent in the elderly, in which one can excise the burn totally, or nearly so, seem to be the best possible candidates for this technic. I think in so doing—in delayed grafting, and in certain instances in grafting primary; I'm not ruling that out completely—but particularly the larger burns, the older ones, delayed skin grafting can give excellent results.