INDICATIONS FOR THE MODIFIED MEEK-TECHNIQUE (080)

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Introduction: As survival of burn patients improved after World War II, the need for a method to expand autologous skin grafts became necessary. In 1958 Meek published about a newly developed device that in combination with a pre-folded gauze could expand a 4x4 cm piece of skin nine times to postage stamps size 4x4 mm. Because of technical imperfections the technique was rather troublesome. In 1964 Tanner and Vandeput invented a far more simple technique of skin expansion, the split skin mesh graft. Disadvantages of this technique were the limited skin enlargement. Moreover the real skin enlargement in practice was only half the indicated value, and for high skin magnification large strips of split skin were required and these are scarce in a large burn.

Treatment of extensive deep burns by means of cultured keratinocyte sheets seemed to be a promising development, however because of high graft failure rate and poor functional results, this method, in its original form was abandoned.

Method: In the Beverwijk Burn Centre the Meek technique with its high skin enlargement rate was redeveloped with the help of the Humeca engineers to overcome these disadvantages. The cutting device and corks, folded gauzes and glue-technique were redesigned to a feasible skin grafting method for the burn surgeon.

Results: In the beginning Meek grafts were only applied in patients with large burns, after avulsion of the eschar to the fascia. This wound bed is very suitable for the postage skin grafts; however the open wound area between the grafts is vulnerable for desiccation and infection when not properly covered. Therefore, after removal of the gauzes, five days post operation, the wounds were covered with glycerolized meshed human allograft skin. Combination of meek micro grafts and human allograft skin is not always applicable. Covering of the wound with Silver foam dressings or topical antiseptics also proved to be suitable.

Cosmetic results were comparable to those achieved with widely expanded mesh grafts. The Meek-technique proved to be not only applicable in patients with extensive and deep burns. In elderly patients with a deep burn the size of the donor site matters; the very efficient enlargement of the Meek allows small donor sites. Moreover clinical experience shows a favorable take of the micro grafts over meshed grafts on a granulating or poor wound bed. The Meek method is therefore very applicable for the coverage of the complicated wound after necrotizing fasciitis or soft tissue injuries. The method can also be applied in small wounds with a poor wound bed; in these cases combination with vacuum assisted wound closure leads to a good graft take.

Recent publications on the modified Meek technique are mainly about treatment of extensive burns and the combination with cultured epithelial keratinocytes.

Conclusion: An old surgical technique from 1958 revived in the ninetieths, is still applicable in 2015!