

SKIN GRAFTING IN SURGERY FOR CARCINOMA OF THE BREAST

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For many years skin grafting has been a method of closing defects on the chest wall after mastectomy for carcinoma. When Halsted described his radical mastectomy in 1894, he recommended skin grafting for the repair of both the thoracic and axillary defects in those cases where wound closure by direct approximation of the skin edges was not possible.

Where adequate removal of the skin, therefore, leaves a defect which cannot safely be closed by simple undermining and approximation, closure by local flaps or by importing tissue from elsewhere in the form of free grafts or pedicles is required. An important aspect of this matter is the need for its recognition pre-operatively in cases to which it applies. Local flaps, which are undertaken *ad hoc* and haphazardly on the table, are nearly always bad flaps and may only cause additional necrosis and scarring.

On the whole, Thiersch grafting is the safest method of closing large defects, and it causes no additional scarring. Local flaps are in any case contraindicated in tissues which have been heavily irradiated and which show resultant dermatitis or fibrosis. Here skin grafting is the method of choice.

Although skin grafting as a routine counterpart of the Halsted radical mastectomy has been abandoned by most surgeons, it is still required in all those cases where, after mastectomy, the defect cannot be closed by approximation of the skin edges without undue tension or by safe local flaps. This is particularly true for carcinomas of the medial quadrant of the breast. In small breasts, with the removal of skin of an adequate diameter, skin grafting may also be found necessary.

Thiersch grafting may be required (in addition) where mastectomy, either simple or radical, or whether by intention curative or palliative, is carried out for group III carcinomas involving the skin, especially where there is ulceration of the overlying skin. Wide excision and Thiersch grafting may be the treatment of choice.

Figs. 1 and 2 illustrate such a case of a stage III fungating carcinoma. This 51-year-old woman first had a full course of deep X-ray therapy to the breast and regional lymphatics. Subsequently a bilateral oophorectomy was performed. All this produced only temporary improvement, and when seen in the department of plastic surgery at St. Bartholomew's Hospital, London, there was a raised, ulcerating mass to the right of the nipple, 2 inches in diameter and oozing blood and serous fluid (Fig. 1). The whole breast was enlarged and indurated, a mass of infiltrated tissue spreading below the right axilla. There was no palpable lymphadenopathy. Chest X-ray was normal.

A total mastectomy was performed with wide skin excision and axillary clearance. The skin edges were approximated in the medial inferior quadrant of the right

chest wall and the right axillary region. A large oval defect, measuring 5×7 inches, was covered with a split-skin graft taken from the thigh.

Fig. 2 is a postoperative photograph at 8 months. The graft was stable and the whole area completely satisfactory.

Thiersch grafting is furthermore often required after mastectomy for carcinoma of the male breast. In sarcoma of the breast it is generally unavoidable owing to the extensive skin adhesion and the amount of skin that has to be removed.

Lastly, I feel that excision and grafting also has a place in the treatment of local recurrence of carcinoma after surgery. It is a moot point whether at mastectomy very wide excision and closure of the defect with a Thiersch graft (as originally recommended by Halsted), or limited excision of skin with wide undermining (as recommended by Handley), is the better method to avoid local recurrence. A high incidence of local recurrence (approximately 20% of patients operated upon) has been reported in most large series regardless of which of the above methods was followed. The advent of roentgen therapy and thorough pre- and postoperative treatment of the operative field have also failed to reduce the incidence of local recurrence.

This recurrence after proper radical operation may result from the physical impossibility of removing all cancerous tissue in the internal mammary and intercostal areas. At operation there may already be undetectable inoperable extension of the cancer. Here the local recurrence is the result of retrograde extension (permeation and embolization) along residual intercostal and internal mammary lymphatics. In these cases the recurrence is often widespread and diffuse, extending from between the ribs and involving the deeper chest wall. Further surgery is seldom possible.

In the second place, local recurrence may arise from malignant inoculation at the time of operation. The recurrence follows a transplantation of cancer cells cut into in the course of the operation. These recurrences commonly occur along the mastectomy scar. Here there is a place for wide re-excision and Thiersch grafting, since these patients often do not respond to further radiotherapy and/or endocrine therapy. Fig. 3 is an example of a case of this nature.

This 69-year-old woman had a total mastectomy and axillary clearance for carcinoma. Soon after the operation she developed an ulcer in the operation scar. Biopsy confirmed the recurrence of an undifferentiated spheroidal-cell carcinoma of the breast. This steadily growing mass, over the next months, stubbornly resisted both radiotherapy and later endocrine treatment.

When referred to the department of plastic surgery at

St. Bartholomew's Hospital, London, she was seen to have a fungating mass, 3 inches in diameter, in the mastectomy scar (Fig. 3). There was no palpable lymphadenopathy, and the chest and rib X-rays showed no abnormality.

At operation the mass was widely excised and removed down to underlying ribs of which it seemed free; histological section later confirmed this. The defect on the chest wall, measuring 4×5 inches, was closed with a thick, split-skin graft from the thigh.

Six months after the operation the patient was symptom-free and well. The graft was stable and there was no further evidence of recurrence (Fig. 4).

This is of course no proof that the local condition has been cured, or that there is no distant extension of the carcinoma. For 6 months the patient has, however, been free of a foul-smelling, malignant ulcer which, over a period of many months, had not responded to any other form of treatment.

This in itself is sufficient justification to try excision and grafting in these otherwise hopeless cases.

The skin grafting itself presents no special problems. The grafts almost invariably 'take' well. There are, however, a few points to remember. The skin edges, which have usually been undermined during mastectomy, may be

brought in to diminish the size of the defect. It is important to tack these flap edges down well to the chest wall with interrupted silk sutures, before applying the graft to the remaining defect. This prevents leaking of blood under the grafts, and serious oozing originating under the flaps. Drains should be inserted under the flaps with their exits dependant and at some distance from the graft. After clearance of the axilla, a separate drain should be left *in situ* there.

When the operator is satisfied that the bed for the graft is absolutely dry, a thick split-skin graft is taken from the thigh. It is important to change gowns and gloves after removing the tumour before taking the skin graft, since carcinoma cells can be transplanted to the donor site. The development of adenocarcinoma in the donor site has been described.

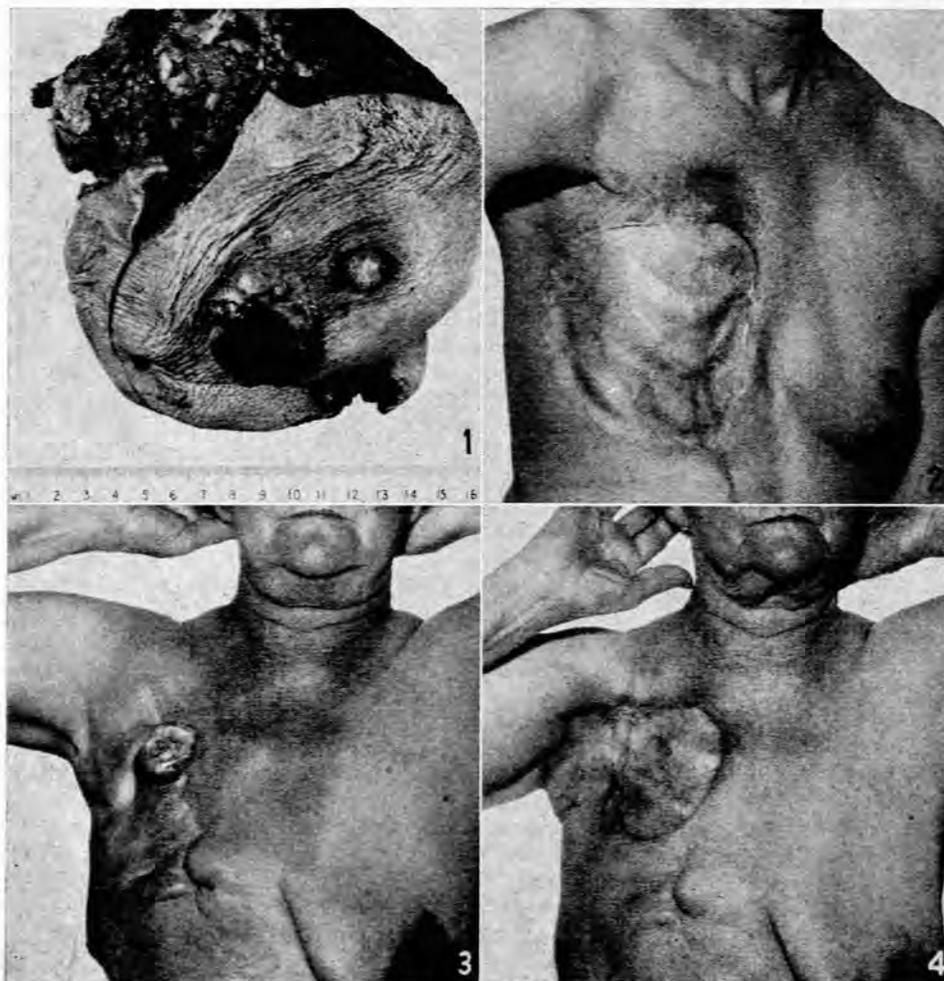
The graft is applied, if possible, in a single large sheet. It is advisable to puncture the graft in several places to allow escape of serum. It is then sutured in place, leaving some of the sutures long. These are used to tie a pad of flavine wool or plastic sponge, on a single layer of tulle gras, into place over the graft. This provides accurate local pressure. The chest is then covered in a liberal dressing of cotton wool, taking special care to pack the axilla well in order to prevent any collection of blood or serum there. The usual large spica dressing may then be applied.

Using this technique it is possible to change the outer dressings and remove the drains after 48 hours without disturbing the graft. The tie-over graft dressing is removed on the seventh postoperative day.

SUMMARY

If, after radical mastectomy for breast carcinoma, skin closure by simple undermining and approximation of the wound edges is impossible, Thiersch grafting is indicated. The technique for this is described. It is stressed that there is a place for wide excision and grafting in the treatment of local recurrence on the chest wall after mastectomy.

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Figs. 1-4. See text.