Oncoplastic surgery for retro areolar breast cancer – a technical modification of the Grisotti flap

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Tumours in the retro areolar region of the breast have traditionally been managed by mastectomy. Although the criteria for breast conserving surgery are relative, proximity to the nipple-areolar complex usually mandates complete mastectomy. Close collaboration between oncological and plastic surgical teams may in some circumstances broaden the scope for breast conservation. Techniques of oncoplastic surgery permit excision of larger volumes of surrounding normal breast tissue which increases the chance of microscopic clearance with tumour free margins and improved local control rates.

Furthermore, such techniques lead to sustained optimum cosmetic results in the longer term and improvements in psychological morbidity.

An alternative method for managing tumours in the retro areolar region of the breast with avoidance of mastectomy was reported by Dr Andrea Grisotti more than 10 years ago [1]. This involves a central resection which encompasses both the nipple-areolar complex and the tumour. The resulting defect is replaced by advancement and rotation of a dermo glandular pedicle which provides volume replacement and creation of a new nipple-areolar complex

[2]. This technique can yield excellent cosmetic results and avoids mastectomy in selected patients.

This paper outlines the original advancement-rotation flap attributable to Andrea Grisotti and describes a technical modification introduced in our Breast Unit, which facilitates wound closure and may well improve the final cosmetic outcome of this procedure.

Grisotti advancement rotation flap – standard technique

The Grisotti flap is a method for reconstructing the breast after removal of the centrally located tumours where the nipple-areolar complex must be sacrificed. Reconstruction is based on creation of a dermal glandular pedicle with a disc of overlying skin which will form the new nipple-areolar complex. This constitutes a glandular-cutaneous advancement rotation flap.

The nipple-areolar complex is initially outlined using a specially designed nipple marker. This is used as a guide to drawing the dermal glandular pedicle which extends from the medial and lateral margins of the areolar down to the infra-mammary fold. Distally, the two lines converge to give a comma-shaped appearance. Skin marking is completed by placing the nipple marker below the nipple-areolar complex. This outlines the new nipple-areolar complex and it is important to leave a narrow margin of skin (2 – 3mm) in the lateral aspect (Fig. 1).

The skin is incised around the native nipple-areolar complex and deepened through the dermis into the subcutaneous tissue and finally into the parenchymal tissue of the breast. The glandular tissue is dissected free down to the pectoralis muscle with the aim of excising the nipple-areolar complex together with a column of tissue from the subcutaneous layer to the pectoral fascia (Fig. 3).

The epidermal incision is then continued along the

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Fig. 1 Outlined nipple-areolar complex

Fig. 2 Modified E/3 outline

outline of the dermal glandular pedicle and around the pre-marked new nipple-areolar complex. The importance of maintaining a narrow bridge of de-epithelialised skin laterally (2 – 3mm) is emphasized; this will allow rotation

Fig. 3 Glandular tissue dissected down to the pectoralis muscle

Fig. 4 Epidermal incision continued along dermal glandular pedicle around the pre-marked new nipple-aerolar complex

Fig. 5 Post operative Grisotti flap with E/3 modification

of the flap. The epidermal layer of the pedicle is removed with preservation of the disk of skin which will form the new nipple-areolar complex. Undermining of the glandular tissue at the level of the pectoralis fascia of the breast

permits further mobilization and facilitates advancement/rotation of the dermal glandular pedicle (Fig. 4).

To achieve satisfactory rotation, it is sometimes necessary to divide a portion of the dermis on the lateral aspect of the new areolar disk of skin. Too extensive undermining however can threaten the blood supply to glandular elements and thus increase the risk of post-operative necrosis and sepsis. The dermal glandular pedicle with the overlying disk of skin can thus be maneuvered with a combination of advancement and a degree of rotation.

A technical modification of the Grisotti flap – *Grisotti flap with "E/3" modification*

With a conventional Grisotti flap, the new areolar disk of skin is initially anchored in the 12 o'clock position following correct orientation after transposition of the dermal glandular pedicle. Further sutures are placed in the 3 and 9 o'clock positions to gradually approximate the breast skin envelop around the new areolar disk of skin. A final suture must be placed at the 6 o'clock at the point where the areolar meet the vertical limb of the suture line. This can sometimes be associated with tension upon the tissues which can lead to wound dehiscence and a poor cosmetic result. To overcome this problem, a small triangle of skin can be preserved at the supero-medial extremity of the dermal glandular flap (Fig. 2). This results in an upper medial skin edge shaped like a figure '3' when the operation is on the right side and an 'E' shaped outline when on the left. This modification helps to reduce skin tension at the point of final skin closure (Fig. 5).

This triangle of skin can be trimmed as necessary to provide optimum apposition and cosmesis. The authors have carried out a total of twenty five cases of central quadrantectomy and partial breast reconstruction with a Grisotti flap for retro areolar breast cancers. The procedures were undertaken between September 2001 and September 2006 for invasive or non-invasive breast cancers measuring ≤ 20 mm on pre-operative imaging (mammography/ultrasound).

The 'E/3' modification described herein was used in twenty patients. There have been no cases of post-operative sepsis or necrosis and no cases of local recurrence have been documented at a median follow up of eighteen months. Two patients (8%) required completion mastectomy because of positive resection margins. Re-excision of the involved superior and lateral margin was performed in a further two patients (8%), thus avoiding mastectomy in this subgroup. All twenty five patients who successfully underwent central

quadrantic resection and a Grisotti flap have achieved excellent cosmetic results and a high level of patient satisfaction.

Discussion

There has been increased interest in oncoplastic techniques in recent years for immediate partial breast reconstruction following breast conservation surgery.

The aim of oncoplastic procedures is to transpose breast tissue so as to restore the original volume and shape of the breast and obtain improved symmetry with the contralateral breast. There have been concerns over the oncological aspects of these procedures, but the average volume of tissue removed is often greater than for a conventional breast conservation approach with wide local excision/lumpectomy.

The Grisotti flap is one type of glandular-cutaneous advancement rotation flap which can be employed to fill a defect in the central portion of the breast. This can avoid mastectomy in a selected group of patients and can produce excellent cosmetic results. When the inferior margin is positive a mastectomy is always recommended, as re-excision would require the removal of the upper part of the glandular pedicle; if other margins are positive, a re-excision can however be attempted.

The rotation and advancement of this flap can lead to difficulty in approximating the inferior aspect of the areola with the vertical suture line. This paper describes a technical modification to the original technique, which reduces the potential tension on the tissues during final closure. Preservation of a small triangle of skin on the supero-medial aspect of the dermal glandular flap facilitates final wound closure and reduces skin tension. This in turn will minimize the chance of wound dehiscence and enhance the cosmetic outcome. We have referred to this technical refinement as the '*E/3 modification*' and to our knowledge this has not been previously described in the literature.

References

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