Immediate Breast Reconstruction Following Segmentectomy Using A Rolled Latissimus Dorsi Flap
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Abstract
Immediate primary breast reconstruction is practiced in many centers. It is a safe, simple and rapid method, which is cost-effective and can be done with using pedicled flaps from the latissimus dorsi or rectus abdominus muscle [1]. Further enhancement of the breast contour may be achieved with expander devices and silicone implants [2].

We describe a technique of immediate breast reconstruction following segmentectomy and axillary clearance using a rolled latissimus dorsi pedicle flap. The latissimus dorsi mobilisation is done using the same cosmetic axillary incision used for nodal clearance without the need for extending it or creating an additional incision. It is suited for the lateral aspect of the breast following segmentectomy and does not limit postoperative radiotherapy, since this flap is well vascularised. A very wide clearance is also possible without fear of deforming the breast, since reconstruction will fill the defect well with a good cosmetic result.

CASE REPORTS
CASE 1:
A 45-year old female presented with a history of a hard lump in the left upper outer quadrant of the left breast of 3 months duration and approximately 2cm in size. The past gynaecologic history and family history was not significant.

Triple assessment showed this to be an invasive ductal carcinoma. A segmentectomy was performed through an incision placed over the lump in the upper outer quadrant along Langer's lines. Following this a level II axillary clearance was done using a separate axillary incision. A latissimus dorsi pedicled flap was then raised through this axillary incision and the edge rolled to give the correct contour and ptosis to the breast to achieve symmetry with the contralateral side. A suction drain was left in the axilla to prevent seroma formation. This was removed at 2 weeks follow-up and at 6 weeks postoperatively the contour and ptosis was excellent. Patient satisfaction was high and tumour free margins were achieved.

CASE 2:
A 36-year old female presented with a history of a hard lump in the right upper outer quadrant of the right breast of 1 month duration and approximately 4cm in size. There was a family history of breast cancer.

Triple assessment showed this to be an invasive ductal carcinoma. A segmentectomy was performed through an incision placed over the lump in the upper outer quadrant along Langer's lines. Following this a level II axillary clearance was done using a separate axillary incision. A latissimus dorsi pedicled flap was then raised through this axillary incision and the edge ‘rolled’ to give the correct contour and ptosis to the breast to achieve symmetry with the contralateral side. A suction drain was left in the axilla to prevent seroma formation. This was removed at 2 weeks follow-up and at 6 weeks postoperatively the contour and ptosis was excellent. Patient satisfaction was also high and tumour free margins were achieved.

TECHNIQUE
We now describe yet another technique, which we have performed in two cases; whereby immediate breast reconstruction has been achieved using a “rolled, latissimus dorsi pedicled flap with no prosthesis”.

The operation is carried out with the patient supine (the back is not lifted). The arm is draped separately for movement. An incision is made over the tumour through Langer's lines in the breast and a segmentectomy done [Fig 1] with clearance of tumour right down to the pectoralis major [Fig 2,3].
A curved axillary incision from anterior to posterior axillary line is made in order to do the axillary clearance. A level II axillary clearance is done, care being taken to identify and preserve the thoracodorsal neurovascular bundle [Fig 4,5]. The medial branches of the thoracodorsal vessels, which communicate with the vessels of the serratus anterior are ligated and divided. This facilitates development of the plane between latissimus dorsi posterolaterally and serratus anterior and the chest wall antero-medially.

Sharp dissection of this plane minimises muscle trauma. The lateral edge of latissimus dorsi and its dorsal surface are also mobilised by sharp dissection. By retraction of the postero-inferior edge of the incision and upward traction on the latissimus dorsi, a considerable length of muscle can be mobilised [Fig 6,7,8].
When an adequate length of muscle is dissected, it is then severed inferiorly and divided upwards along its medial border, ensuring that the thoracodorsal neurovascular bundle remains on the pedicled muscle as the dissection is carried cephalad. The fully mobilised muscle is now swung anteromedially to fill the defect in the breast tissue, caused by the segmentectomy [Fig 9,10].

An appropriate quantum of the pedicle flap is ‘rolled’ and sutured to itself and the pectoralis major to fill the tissue defect and provide a normal contour [Fig 11-16].
A temporary suction drain is left in the axilla and the patient...
is advised to move the arm liberally and given oral analgesics.

**DISCUSSION**

The global trend of managing breast cancer is towards conservative breast surgery to reduce psychological morbidity and improve quality of life. It has been shown to be a safe way of obtaining local control of breast cancer and when combined with radiotherapy, the survival of these patients is the same as those undergoing more radical, ablative breast surgery [1, 3].

Many studies have shown that immediate breast reconstruction is the best option even in cases with a short life expectancy, since one of the main aims of oncology is to improve quality of life for the patient [4]. Several techniques for immediate breast reconstruction have been described, such as the latissimus dorsi pedicled flap or the TRAM flap with or without a prosthesis in order to achieve the correct contour and symmetry with the contralateral breast [5].

An unusual technique has been described in 1998 by Gabka et al whereby subcutaneous mastectomy and immediate breast reconstruction has been achieved via a circumareolar incision in 17 cases. The authors do acknowledge the fact that special surgical expertise is required to achieve tumour free margins using this technique. A TRAM flap or latissimus dorsi flap with a silicone implant was then used for reconstruction [6].

One report by Hudson in 2002 describes a technique of molding the latissimus dorsi flap with its overlying fat and then molding this into the correct shape. This avoids the use of a prosthesis, but the patient is subjected to a long scar in order to harvest the muscle on its pedicle [7].

Another report by Shrotria in 2001 describes a single incision in the axilla in 8 cases and performing a quadrantectomy, axillary clearance and immediate reconstruction using a latissimus dorsi pedicled flap. This is excellent for cosmesis and the authors achieved tumour free margins in 7 out of the 8 cases, with re-exision in the failed case [4].

Our technique is unique from the point of view that the scar is confined to the axilla, does not extend proximally and is completely concealed with the arm in the normal anatomical position. Additionally, the latissimus dorsi is mobilised via the same incision used for axillary clearance and the flap is “rolled” and tacked to itself and then to the chest wall with no need for a prosthesis. We have achieved excellent cosmetic results as well as tumour free margins in two consecutive cases and advocate it be done more liberally.

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**References**

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