

Coverage Of Axillary Defects by Lateral Thoracic Region Flap

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Abstract

We present our experience with the use of the lateral thoracic region fasciocutaneous flap in the reconstruction of 20 patients. Patients with advanced breast cancer and wide skin invasion are frequently seen in our setup. In such cases, total mastectomies with large skin resections are necessary and a skin graft or flap reconstruction are usually done to close the large skin defects. Moreover, when skin invasion of breast cancer extends to the axillary area, and after axillary lymphadenectomy in SCC or Melanomas of upper limbs in which axillary skin is also involved, methods for reconstructing the defect are generally more complicated. All reconstructions were achieved without flap complications. With the introduction of fasciocutaneous flaps, there are now a number of larger flaps available in the axillary region, which allows primary closure of total axillary defects. This paper presents our experience using a fasciocutaneous flap from the lateral thoracic region for reconstruction of the axilla.

Keywords: Fasciocutaneous flap, skin graft, vessels, resection

INTRODUCTION

Patients with advanced breast cancer and wide skin invasion are frequently seen in our setup. In such cases, total mastectomies with large skin resections are necessary and a skin graft or flap reconstruction are usually done to close the large skin defects¹. Moreover, when skin invasion of breast cancer extends to the axillary area, and after axillary lymphadenectomy in SCC or Melanomas of upper limbs in which axillary skin is also involved, methods for reconstructing the defect are generally more complicated. The purpose of reconstruction is not only closing defects, but also protecting important tissues, for instance axillary vessels and the brachial plexus, from external damage, and moreover, thinner flaps are preferred to prevent a bulky contour². We have been using lateral thoracic region flap since last four years.

MATERIAL AND METHODS

This study was conducted in the Department of Plastic, Burns and Reconstructive Surgery at, GMC Srinagar, India, from January 2017 to December 2020. It involved 20 patients (15 females and 05 males), in whom lateral thoracic region flap was done to reconstruct soft tissue defects in axillary region. Follow-up period ranged from 2-27 months (average 12.3 months).

ANATOMICAL BASIS OF FLAP

The lateral chest wall between lateral borders of Pectoralis Major anteriorly and Latissimus Dorsi posteriorly is richly supplied by multiple direct cutaneous perforators running inferiorly at the level of deep fascia. In cadaveric studies, the most constant direct cutaneous perforator which could be identified in all specimens was from thoracodorsal artery. It originates 2-4 cm from the origin of the thoracodorsal artery from the subscapular artery and penetrates the

deep fascia at the level of 3rd rib. The other vessel which was seen was the lateral thoracic artery, but its sight of origin was inconsistent; either from axillary artery or subscapular artery or thoracodorsal artery. In some cases, where lateral thoracic artery was absent, it was replaced by accessory lateral thoracic artery and an extra direct cutaneous branch from thoracodorsal artery. The third vessel which was present was the direct cutaneous branch of pectoral branch of thoraco-acromial axis. Thus any vertically oriented flap based at the level of 3rd rib on the lateral chest wall will always include two or three of the following vessels (from behind forwards); thoracodorsal artery, accessory lateral thoracic artery, lateral thoracic artery and pectoral branch of acromio-thoracic axis³. The incisions are made, dividing the deep fascia, which is sutured to the skin. The flap elevation is started anteriorly and as the inferio-lateral border of the Pectoralis Major is reached, an attempt is made to go deep to the muscle by about 1cm, by doing so the interconnecting channels of the fasciocutaneous perforators of pectoral branch of thoraco-acromial artery also gets safely included in the pedicle of the flap with its vascular arborisation. The flap can be quickly raised from the distal and posterior sides after ligating the perforators from the intercostal vessels and cutting the lateral cutaneous branches of the intercostal nerves. The flap is inset into the defect, over a suction drain. The donor site of the flap is closed primarily after undermining the edges. Rarely in young patients or in patients with secondaries in axilla with skin involvement, is the defect big enough needing a wide flap, which may need skin grafting of donor site of flap.

DISCUSSION

The coverage of axillary defects after axillary node clearance is a challenging task. Plastic surgeon is often called to cover the defect. The brachial plexus and axillary vessels are exposed after axillary lymphadenectomy and deserve a reliable flap cover, not only to cover exposed structures but also withstand post-surgery radiotherapy, which is often needed in these patients.

Many reconstruction methods for the axilla have been previously reported, but most of them were related to releasing scar contracture or covering defects after resection of axillary hidradenitis suppurativa or malignant tumors in the axilla. For instance, the

pectoralis major perforator flap was,⁴ and the TAP flap,⁵ scapular flap, and latissimus dorsi flap were often used. If axillary reconstruction is necessary due to mastectomy, the range of the defect usually involves the breast area. Hence, the pectoralis major perforator flap cannot be used. Another popular flap used in such patients was LD myocutaneous flap. Its usage is with multiple problems; need to change position of the patient (lateral position), which may be cumbersome affair in old patients with anesthesia concerns, the extra time needed to raise such a large flap, and in case of engulfment of thoracodorsal pedicle by tumor or inadvertent injury to vascular pedicle during axillary lymphadenectomy, latissimus dorsi flap, and scapular flap, would not be available. Under these conditions, free flaps are available as an alternative⁶ choice.

To overcome these limitations, we modified the lateral thoracic region flap described by S. Bhattacharya et al⁷ by harvesting flap posteriorly to include thoracodorsal artery perforator in flap.

The lateral thoracic region flap is a reliable flap, with multiple perforators. It takes about 30-40 minutes to raise the flap and close the donor site. The flap is available in the same operative field. Thus, we recommend this flap as a 1st choice flap in patients of axillary clearance.

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Fig: 1



Axillary defect with Lateral thoracic region flap marked

Fig: 2



Axillary defect covered by Lateral thoracic region flap with primary closure of donor site