SINGLE STAGE DELTO-PECTORAL FLAP COVER FOR LARGE DEFECTS FOLLOWING EXTENSIVE NECK DISSECTION

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Abstract: Bulky neck nodal disease with involvement of the overlying skin develops large post resection defects with skin loss following extensive neck dissection, that may not be suitable for primary closure. We describe a simple and easy to do procedure for cover of such large post surgical resection neck defects by using the Delto-pectoral flap as a single staged procedure.

Keywords: Neck dissection, Delto-pectoral flap

INTRODUCTION:

Involvement of the neck nodes is common for patients with head and neck malignancies. At times there is extensive nodal disease that involve large areas of the overlying skin. Adequate surgical extirpation in such patients requires extensive neck dissection along with sacrifice of large areas of overlying skin. Such large defects may not be suitable for primary closure. We present a surgical technique whereby such large defects may be closed by rotating the Delto-pectoral (DP) flap into the defect as a single stage procedure.

PATIENTS AND METHODS:

The single staged DP flap cover of large post neck dissection defect was used in 5 patients of our institute. Four of the patients were diagnosed as metastatic neck node with unknown primary tumour and had large residual neck nodal disease following chemo-radiation. The other patient had a neck nodal recurrence after having undergone surgery and radiation therapy for alveolo-buccal cancer. The histological diagnosis was squamous cell carcinoma in all the patients. All the 5 patients had large neck nodal disease involving extensive area of the overlying skin.

SURGICAL PROCEDURE:

All the 5 patients underwent a standard radical neck dissection with excision of the involved overlying skin. An ipsilateral DP flap was marked and harvested. The flap was transposed into the defect in the neck and sutured to the cut edges of the defect (Figure I). The flap was not tubed and its entire width was used to cover the neck defect. The entire procedure was done in a single stage. The donor area of the DP flap was covered by a split thickness skin graft.

RESULTS:

Primary healing could be achieved in all of the 5 patients without any major complications. There was no flap necrosis and the skin graft uptake was 95 to 100%. Minor complication in the form of mild wound infection and minimal skin graft loss was managed conservatively. The patients could be discharged from the hospital within 5 days and the sutures were removed in 2 weeks. The cosmetic result was acceptable in all the patients and there was no functional loss.

DISCUSSION:

Involvement of the cervical lymph nodes is an important factor in head and neck malignancy. Metastatic cervical lymphadenopathy may be detected in conjunction with a known primary tumour or may present as an unknown primary. The problem that surgeons faces in dealing with head and neck malignancy in our country is that, the patients presents late with large bulky disease. The secondary neck nodes often attain large size and at times involve large areas of the overlying skin. Patients presenting with neck nodal disease, with unknown primary, receive primary chemo-radiation therapy. The neck skin of these patients develops post radiation therapy changes in the form of thickening, edema and discoloration that has poor healing capability.

Neck dissection is an integral part of the multi-disciplinary management of patients presenting with large bulky neck nodal disease. Adequate surgical extirpation of such disease often requires extensive dissection and sometimes with sacrifice of large areas of the overlying skin. Patients having residual or recurrent neck nodal disease following chemo-radiation are also managed by neck dissection. Such patients may also require sacrifice of large areas of the neck skin because of the post-radiation skin changes, as wound healing in such patient is poor.

Fig 1: Single stage delto-pectoral flap cover for large defects following extensive neck dissection.

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Such extensive neck dissection that requires sacrifice of large areas of skin may lead to large defects that may not be suitable for primary closure. Various methods are available to replenish the lost neck skin in such patients including local, pedicled and free flaps.

Ducic et al described the cervicodeltopectoral flap that utilizes the deltopectoral flap along with the intervening skin of neck and face upto the surgical defect and the entire skin and subcutaneous tissue is rotated to cover the defect⁽¹⁾. The cervicodeltopectoral flap is based on the perforating branches of internal mammary artery, the same vascular supply as the DP flap⁽¹⁾. Due to the long length of cervicodeltopectoral flap and the random pattern of blood supply of the distal aspect of the flap, there is possibility of vascular compromise and necrosis, especially the distal marginal areas.

Freidman et al utilized the bilobed DP flap to cover small anterior neck defects as a single staged procedure after laryngectomy⁽²⁾. However, this procedure may not be suitable to cover large lateral neck defects as was there in our patients.

Myocutaneous flap, especially the pectoralis major flap has been extensively used for head and neck reconstruction (3,4). Myocutaneous flaps are very good options for cover of large neck defects but these require longer operating time and more expertise and hence may not be suitable for all centers.

Free flaps are excellent options for head and neck reconstruction and gives very good cosmetic and functional outcome⁽⁵⁾. However, these require sophisticated equipments and surgical expertise that may not be readily available, especially in our part of the world.

Single staged DP flap cover for post radical neck dissection, in patients with large areas of skin loss, is an efficient alternative option for our patients. It was described by Ristow et al who used it for coverage of the post resection defect of a large skin carcinoma of the neck⁽⁶⁾. Compared to a pedicled or free flap it takes lesser operating time and is done as a single staged procedure, utilizing the entire width to cover the defect in the

neck. The flap harvestment and its use to repair the neck defect is a very simple and easy to do procedure. The DP flap is not tubed and thus the subsequent additional procedure of division of the tube is avoided. As we are using the standard DP flap, the chances of flap necrosis are lessened compared to the cervicodeltopectoral flap.

We conclude that the single staged DP flap may be used as a first option flap to replenish skin and cover large defects following extensive neck dissections that require sacrifice of large areas of neck skin.

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