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Reconstruction of Large Groin Defects Following Sarcoma Excision by Tensor Fascia Lata and Vertical Rectus Abdominis Myocutaneous Flaps

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ABSTRACT

Background: Reconstruction of groin defects following excision of malignant tumors is a reconstructive challenge. Most of these defects are large with exposure of important structures thus necessitating flap coverage. Many flaps are described for this purpose. The purpose of this paper is to describe our experience with three cases of primary soft tissue sarcoma of the groin and their reconstruction.

Patients & Methods: Three patients suffering from primary soft tissue sarcoma of the groin. The tumors were managed by excision. The defects were covered either by Vertical Rectus Abdominis Myocutaneous (VRAM) or Tensor Fascia Lata (TFL) flaps.

Results: All flaps survived well with no flap losses. Partial dehiscence occurred in one flap.

Conclusion: Management of primary soft tissue sarcoma of the groin needs a multidisciplinary team approach. VRAM and TFL flaps are safe for the reconstruction of resultant defects.

INTRODUCTION

Management of complex groin wounds resulting from complications of vascular prosthetic surgery, malignant tumor excision and irradiation therapy for recurrent cancers continues to pose a challenge in reconstructive surgery **[1]**. Local control of soft tissue tumors of this anatomical region requires wide excision which leads to exposure of vital structures. Vascular invasion is no longer an indication of amputation and limb salvage can be performed with the utilization of vascular grafts **[2]**.

Several flaps are described to reconstruct such defects. The vertical rectus abdominis myocutaneous (VRAM) and tensor fascia lata (TFL) flaps are considered the most used for this purpose **[3]**.

We describe in this paper the utilization of the VRAM and TFL flaps in reconstruction of groin defects resulting from excision of sarcoma in three patients in the year 2014.

PATIENTS AND METHODS

During the year 2014, three patients presented to the Department of Surgical Oncology at Alexandria Main University Hospital suffering from groin sarcoma. The patients' data and surgical techniques are presented below.

RESULTS

Case 1:

A 56 years old female patient represented with a recurrent mass in the right groin region Fig. (1-A). The previous tumor was excised 9 months earlier and was proved to be pleomorphic sarcoma, and the patient received chemotherapy afterwards. CT angiography revealed the tumor to be attached to the femoral vessels. Complete excision of the tumor necessitated excision of the femoral vessels which were reconstructed by a PTFE graft for the artery and a contralateral saphenous vein graft for the vein. The resultant defect measured 15 x 11 x 8cm Fig. (2). The patient gave history of right hemicolectomy as a treatment of caecal cancer 8 years earlier, a contralateral VRAM was designed to reconstruct the defect Fig. (3), the flap was raised and rotated to cover the defect and its donor site was closed directly overlying a prolene mesh. There were no postoperative complications and the patient received postoperative radiotherapy. At follow-up after 6 months, no recurrence was detected Fig. (4).

Case 2:

Sixty years bold male patient suffering from a highly vascular mass in the left groin region. The

mass was rapidly growing and ulcerating through the skin leading to massive blood loss Fig. (5). Incisional biopsy revealed haemangioendothelioma. Excision was done resulting in a 20 x 15cm defect with exposed neurovascular bundle, thus flap coverage was necessary Fig. (6). An island tensor fascia lata (TFL) flap was transposed to cover the defect Fig. (7), and the donor site was reconstructed by SSG in a part and closed directly in the remaining part Fig. (8). In the postoperative period suffered partial dehiscence at the distal part of the flap which was managed by secondary sutures.

Case 3:

Fifty six years old male patient presented with a mass in the lateral aspect of the left gluteal extending to the groin Fig. (9). The mass was proved by core biopsy to be pleomorphic sarcoma. The inguinal lymph nodes were enlarged as well. Excision was done in addition to inguinal lymphadenctomy through the same incision. The resultant defect measured 19 x 16cm Fig. (10). An islanded TFL flap was raised and advanced in a V-Y pattern to close the inguinal part of the defect, in addition to facilitation of direct closure of the gluteal part Fig. (11).

Fig. (1): Recurrent pleomorphic sarcoma of the right groin.

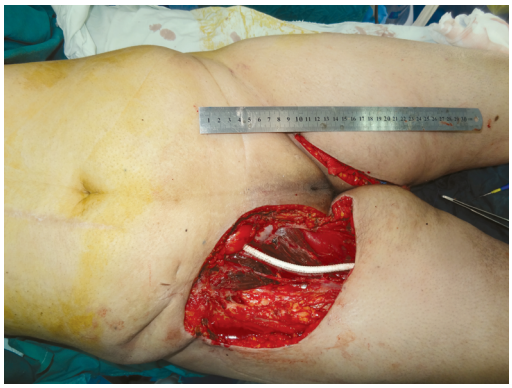

Fig. (2): Excision and vascular reconstruction.

Fig. (3): Contralateral VRAM rotated to cover the defect.

Fig. (4): Six months postoperative.

Fig. (5): Haemangioendothelioma of the left groin.

Fig. (6): Surgical excision with exposed vessels.

Fig. (7): TFL flap covering the defect; early postoperative.

Fig. (8): Donor site of the flap.

Fig. (9): Pleomorphic sarcoma of the left groin and gluteal regions.

Fig. (10): Surgical excision.

Fig. (11): Reconstruction with TFL flap.

DISCUSSION

Primary soft tissue sarcoma of the groin is rare to occur. Secondary tumors due to lymph nodes involvement are by far more common **[4]**. Excision of these tumors is the main modality in treatment **[5]**. This requires a multidisciplinary team including the oncological surgeon, vascular surgeon, and plastic surgeon.

The tumor may invade the femoral vessels, this is no longer considered an indication for amputation. The invaded segment of the vessels can be excised and reconstructed by PTFE graft and the limb can be salvaged in that way **[2]**.

Surgical excision of these tumors usually results in big defects usually with exposed vessels or vascular grafts. Also, radiotherapy may be decided in some cases as an adjuvant treatment. Flap coverage of these defects is the standard therapy to withstand radiotherapy or to provide coverage of the important structures.

Many flaps are described for this purpose, including the VRAM flap, TFL flap, and the anterolateral thigh flap (ALT).

The TFL can provide a reliable big skin paddle, it has a consistent vascular pedicle, good mobility, and easy positioning. Its harvest has minimal functional impairment **[6]**.

The disadvantage of the dog ear that may result from its rotation can be overcome by transforming

it as an island flap based only on the vessel **[7]**. The other disadvantage is that the excision of the tumor may necessitate ligation of the vascular pedicle of the flap and thus can not be used.

The VRAM flap is a versatile flap with a wide arc of rotation that can easily reconstruct groin defects. Its vascular pedicle is reliable and constant. Its advantage in this situation is that its vessel is away from the excision site and from previous radiation sites in cases of recurrence **[1,3]**.

The main disadvantages of the VRAM flap are in the donor site. Some authors stated that it is contraindicated in cases of previous laparotomies. The first case in this paper had previous laparotomy, nevertheless the contralateral VRAM was safely used. It is better in this instance to radiologically detect the perforators before the operation. The donor site mostly needs a mesh to reconstruct the sheath.

Conclusion:

Primary soft tissue sarcomas of the groin are rare tumors. Treatment of malignant groin tumors requires multidisciplinary approach. Reconstruction of the resulting defects requires flap coverage. TFL flap is the first choice if its pedicle was spared during the excision. If the TFL flap is not feasible, reconstruction is done with VRAM flap.

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