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Case Report
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Single Breast Reconstruction with Bilateral Profunda Artery Perforator Flaps in a Vertical Fashion

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Abstract

Introduction: DIEAP flap is the gold standard in autologous breast reconstruction. Other options are free flaps from the gluteus, back and proximal thigh regions. These last options have some setbacks, like the quantity of tissue available to reconstruct the missed breast. In this case report we sought to present our experience in unilateral breast reconstruction using bilateral profunda artery perforator flaps in a vertical fashion and demonstrate its usefulness in breast reconstruction when conventional techniques are not available.

Case Report: A 50 years woman with a left mastectomy and several previous attempts of breast reconstruction in another institution (pedicle TRAM flap, pedicle Latissimus Dorsi flap, expanded implant and skin graft) with total flap losses. The patient was reconstructed with bilateral stacked vertical profunda artery perforator flaps. One flap was anastomosed directly to the internal mammary system and the other flap was anastomosed to the distal portion of the profunda femoral system of the first flap in a flow-through fashion.

Results: The patient had a successfully breast reconstruction. No problem was seen with the flaps or the donor area. The contour of the thigh regions has been improved.

Conclusion: Vertical profunda thigh perforator flap is a good solution for some cases of breast reconstruction where the primary options are not available.

Keywords: Breast reconstruction; PAP Flap; Profunda artery; Perforator flap; Microsurgery

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Introduction

The goal in breast reconstruction is total permanent restoration of the breast mound [1]. There are a variety of techniques described in the literature although, it's actually accepted that, when possible, autologous breast reconstruction with DIEAP flap is the gold standard for this purpose [1-5]. However, abdominal-based flaps are sometimes contraindicated as in patients with a history of abdominal surgery, insufficient available volume or patient preference and an alternative reconstructive option must be used [2,3]. Other options are free flaps from the gluteus, back and proximal thigh regions [1]. These last options have some setbacks, like the quantity of tissue available to reconstruct the missed breast. In these cases, extended flaps or double free flaps in a stacked manner can be used [3]. All these alternative options can have a role in breast autologous reconstruction however, Profunda Artery Perforator flap (PAP flap) is typical our second choice. In this case report we sought to present our experience in unilateral breast reconstruction using bilateral profunda artery perforator flaps in a vertical fashion and demonstrate its usefulness in breast reconstruction when conventional techniques are not available.

Case Presentation

We present a case of a 50 years woman with a history of left modified radical mastectomy, axillary node dissection, radiation therapy and several previous attempts of breast reconstruction in another institution with total flap losses (pedicle TRAM flap, pedicle Latissimus Dorsi flap, expanded implant and skin graft) referred to us for a new left breast reconstruction attempt (Figure 1). Conventional breast reconstructions techniques were not feasible due to previous attempts. On physical examination we noticed some tissue excess in the inner thigh region suitable for free transfer, however probably not enough if only one side was used. Bilateral vertical fashion profunda artery perforator flaps were harvest measuring 22 cm × 11 cm and 22 cm × 9.5 cm and with pedicle length of 10 cm and 7 cm respectively (Figure 2). The larger flap was raised including a small portion of the distal profunda femoral system in relation to the entrance of the perforator and it

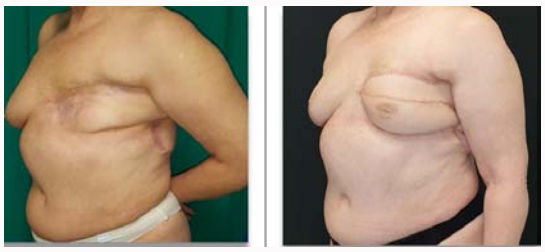

Figure 1: Oblique view before and after reconstruction.

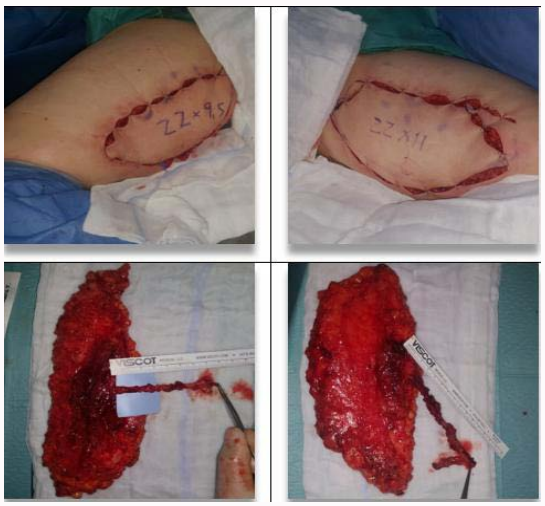

Figure 2: Flap's dimension and pedicle length.

was anastomosed directly to the left internal mammary system and the other flap was anastomosed to the distal portion of the profunda femoral system of the first flap in a flow-through fashion (Figure 3). This type of anastomoses technique allowed the use of two flaps using only one recipient vascular system.

Both flaps were successfully transferred in a horizontally oriented stacked manner to reconstruct the left breast, the larger flap to the lower pole and the relatively smaller flap to the upper pole. In a second stage, 2 months after de first surgery, it was submitted to contralateral breast symmetry procedure and left nipple-areolar complex reconstruction with contralateral composite graft.

At 12-month follow-up, was achieved a successful breast reconstruction with decent contour and symmetry of the breasts and thighs without complications with the flaps and donor area (Figure 1). The patient refused new procedures of refinement and was satisfied with the result.

Discussion

Profunda artery perforator flap in breast reconstruction is becoming increasingly popular among surgeons and patients and is a reliable alternative for autologous breast reconstruction with high success rate, low complication rate and good aesthetic results [2]. The PAP flap provides a relatively large amount of skin and subcutaneous soft tissue from the medial posterior thigh that could be easily molded and with proper patient selection a sufficient breast volume could be obtained with one flap. Moreover, it has a constant perforator anatomy, a lengthy pedicle and an excellent donor-site cosmetic, with scars hidden in the gluteal fold or in the medial posterior thigh region and the damage to the function and contour of the thigh was

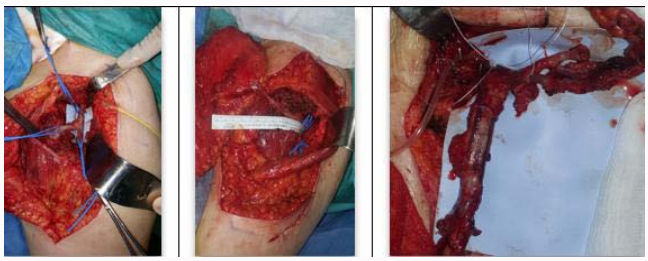

Figure 3: Flap's dissection and anastomoses.

minimized due to muscle sparing [1,2,4]. The description of the PAP flap for breast reconstruction was made with transverse skin paddle in the proximal thigh region with the use of proximal perforator. The skin paddle in a vertical fashion allows the use of more distal, larger and more centrally located perforators takes advantage of inner thigh tissue redundancy and enable a much larger volume than the transverse design, being a good option when larger tissue volume is needed and conventional techniques are not available. Besides the donor site is well concealed in the medial posterior thigh region and resembles the scar of a vertical inner thigh plasty [5]. A combination of a horizontally and vertically oriented skin paddle (extended skin paddle), like an inverted "fleur-de-lis" skin paddle, are also described and take advantage of additional volume [5]. In patients with large size breast or inadequate thigh volume, only one flap from the inner thigh region could not be enough to an aesthetically breast reconstruction, even with vertical or extended oriented skin paddle. In these cases, PAP flap can be combined as two PAP flaps or with other flaps to reconstruct a single breast [3]. In our reported case, although were possible to use only one vertically oriented flap in the reconstruction, it would lead to a small reconstructed breast if primary closure of de donor area was desired, wish were our intention, and to marked asymmetry of the thigh region. Bilateral PAP flaps in a vertical fashion revealed to be a good solution in this patient.

Conclusion

Vertical profunda thigh perforator flap is a good solution for some cases of breast reconstruction where the primary options are not available. Evaluation of the quantity of tissue needed shall be done, and bilateral flaps should be considered when one flap is not enough. When excess thigh skin is present, the procedure can assemble two goals, the breast reconstruction itself and a bilateral thigh lift.

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