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The musculocutaneous flap based on the tensor fasciae latae muscle – breast reconstruction – anatomical dissection on a cadaver

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ABSTRACT

The cutaneous and subcutaneous defects resulting from surgical excisions are a problem and, at the same time, a challenge for surgeons. The breast is an expression of feminine beauty.

Materials and methods: Dissection on a fresh female cadaver, aged 57, in order to harvest the musculocutaneous flap based on the tensor fasciae latae muscle, from the lateral region of the thigh, using microsurgical loupes. For rendering the stages of the harvesting of the musculocutaneous flap based on the tensor fasciae latae muscle, a high-definition camera was used.

The result: the harvesting of the musculocutaneous flap based on the tensor fasciae latae muscle, and the closure of the donor area.

Conclusions: guidelines, advantages and disadvantages of using the musculocutaneous flap based on the tensor fasciae latae muscle.

Keywords: breast reconstruction, anatomical dissection on a fresh female cadaver, free transfer, the musculocutaneous flap based on the tensor fasciae latae muscle.

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Introduction

The cutaneous and subcutaneous defects resulting from surgical excisions are a problem and, at the same time, a challenge for surgeons [1]. The breast is an expression of feminine beauty. Microsurgical dissection and free transfer techniques are used.

Materials and methods: Dissection on a fresh female cadaver, aged 57, in order to harvest the musculocutaneous flap based on the tensor fasciae latae muscle, from the lateral region of the thigh, using microsurgical loupes [2]. For rendering the stages of the harvesting of the musculocutaneous flap based on the tensor fasciae latae muscle, a high-definition camera was used.

The result: the harvesting of the musculocutaneous flap based on the tensor fasciae latae muscle, and the closure of the donor area.

Delimitating and harvesting the superior gluteal flap [3].

We mark the anterior superior iliac spine (S.I.A.S), the lateral edge of the patella (PL), the greater trochanteric (T), the lateral condyle (C.L), and, by P, the vascular pedicle, situated at approximately 8 cm from the anterior superior iliac spine (Figure 1).

The vascular pedicle is represented by the ascending branch of the lateral circumflex artery and

the accompanying vessels [4] (Figure 1).



Figure 1 - Delimitating the flap between the line that connects the anterior superior iliac spine (S.I.A.S) with the lateral edge of the patella (P.L), and the line that connects the greater trochanteric with the lateral epicondyle, allowing it to exceed these lines (by a few cm.).



Figure 2 - The superior edge of the previously marked flap is incised.

We incise the skin, the subcutaneous tissue and we continue the dissection in profundity, until we can visualize the fascia of the rectus femoris muscle and the fascia of the vastus lateralis muscle [5].

The rectus femoris is separated from the vastus lateralis muscle (Figure 2).

The superior lateral edge of the rectus femoris muscle is dissected and lifted, in order to identify the

vascular pedicle (at approximately 8 cm from the superior iliac spine) [2-5].

Anchoring wires are passed through the edge of the rectus femoris muscle, the subcutaneous tissue and the skin, for a better view of the dissection area and the highlighting of the vascular pedicle (Figure 2).

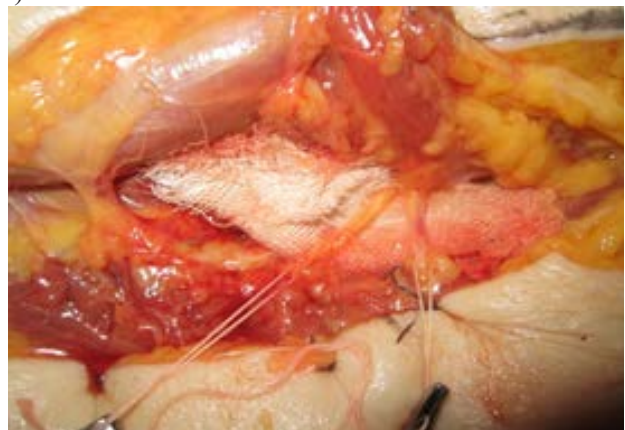


Figure 3 - The vascular pedicle of the tensor fasciae latae muscle is visible (located above), being tensed up to facilitate dissection.

The descending branch of the lateral circumflex artery (located below), upon which the lateral thigh flap is lifted (Figure 3).

The descending branch of the lateral circumflex artery will be ligated and sectioned, to increase the length of the vascular pedicle (Figure 3).

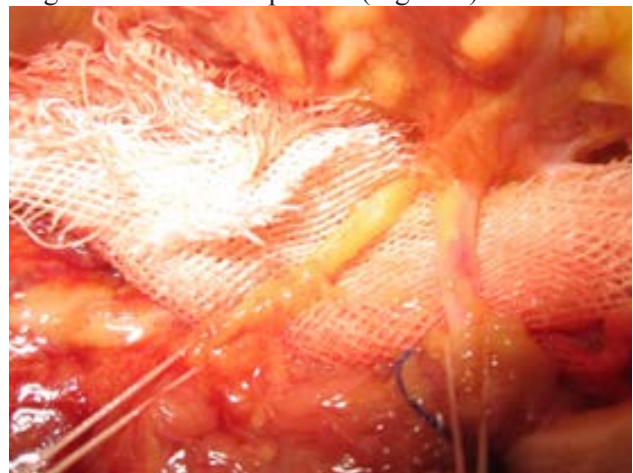


Figure 4 - In the forefront, we have the vascular pedicle of the tensor fasciae latae muscle, represented by the ascending branch of the lateral circumflex artery, accompanied by the corresponding vein.

The superolateral musculocutaneous thigh flap will be lifted on this vascular pedicle.



Figure 5 - The inferior edge of the flap (the skin and the subcutaneous tissue) is sectioned and the flap is lifted on the tensor fasciae latae muscle, along with the lateral fascia and the superjacent cutaneous fat tissue.

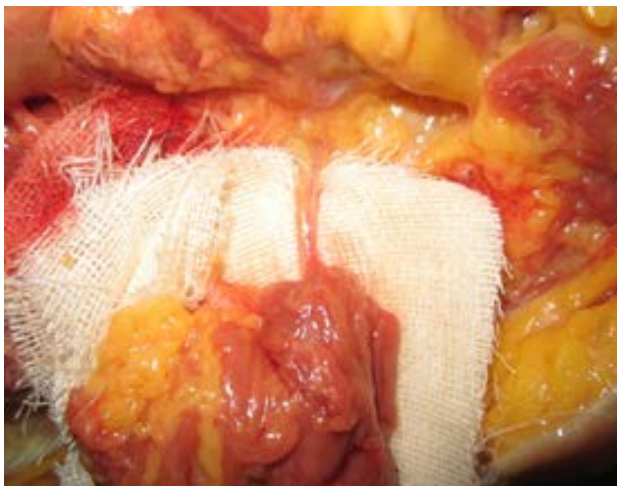


Figure 6 - The vascular pedicle is dissected progressively toward its origin in the lateral circumflex artery, progressively increasing its length.

The musculocutaneous flap is anchored through its vascular pedicle (on the lateral part of the thigh) [6], which perfuse it until the vessels of the receptor area are prepared (Figure 6).



Figure 7 - The anterior side of the musculocutaneous flap of the tensor fasciae latae muscle is observed, anchored through the vascular pedicle to the superolateral region of the thigh [3-6].

To prevent the lesion of the musculocutaneous perforators (due to the scissoring forces produced by manipulating the flap), a few sutures are applied between the subcutaneous tissue and the superjacent tegument (Figure 7).

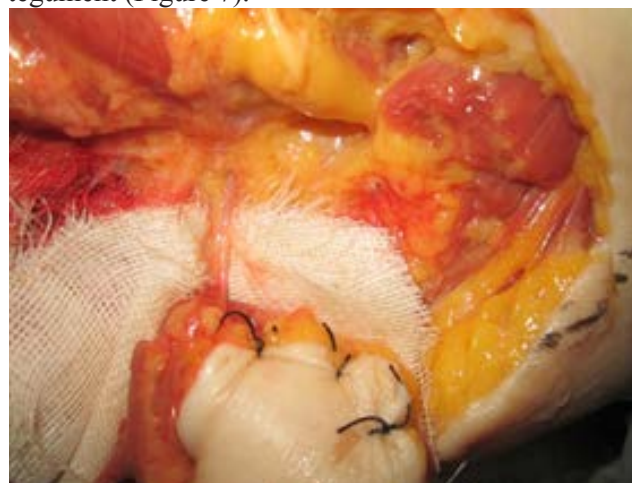


Figure 8 - The posterior side of the flap, containing the ascending branch of the lateral femoral circumflex artery (accompanied by the vein), which pass through the posterior side of the tensor fasciae latae muscle.

The dissected vascular pedicle has a length of approximately 6.5 cm (Figure 8).

Through the ligation of the descending branch of the lateral circumflex artery, the pedicle may be augmented further [7], facilitating the microvascular

anastomose with the thoracic receptor vessels. (when the harvested flap is transferred freely) (Figure 8).

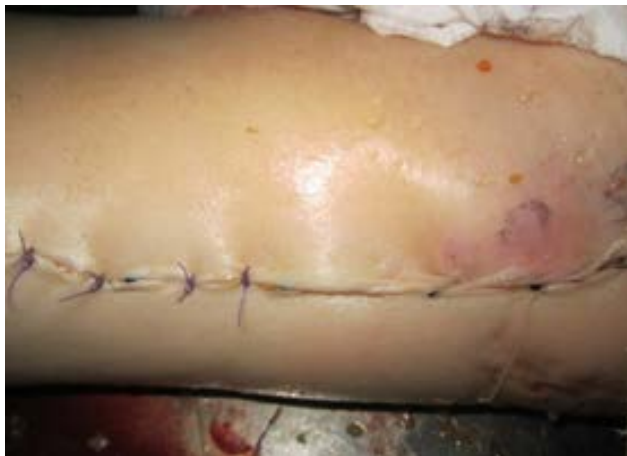


Figure 9 - The cutaneous defect resulting from the harvesting of the flap can be closed directly (if the width of the flap is less than 10 cm).

The subcutaneous adipose tissue is padded with separate wires.

The deformation of the donor area is acceptable (Figure 9).

The pedicle upon which the flap is lifted is the ascending branch of the lateral femoral circumflex artery (along with 2 accompanying vessels).

Conclusions

Guidelines

It represents an alternative, if the other flaps used for breast reconstruction are unavailable.

Advantages

1. The length and the caliber of the vascular pedicle facilitate the anastomose with the receptor vessels (micro).

2. It's a thin flap and it may be easily modeled in the receptor area. (book 10)

Disadvantages

1. The linear, inaesthetic scar of the donor area

may present cosmetic problems (micro).

2. The necessity of maintaining the aspiration drainage and the compression bandaging for a long while, in order to prevent the formation of seroma.

Complications

1. In the donor and receptor areas, there is the risk of hematoma, seroma and infection.

2. The complete loss of the transferred flap, due to the microvascular anastomose with the receptor vessels. (technical errors, coagulation problems).

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