
Cosmetology 2020: Brachial lifting using the Balanced Triple-Vector (BTV) technique with dual opposing flaps- Fabio Fantozzi- Medicine degree from Rome

Abstract

Background: Brachioplasty often involves removing excess skin. Many traditional approaches to the present sort of surgery are susceptible to complications and imperfect healing of the incisions. Traditional techniques usually take little or no account of the force vectors that are subsequently applied to the incision after the operation. This contributes towards scarring and other complications.

Method:

The proposed technique involves the specific application of three balanced force vectors that greatly reduce scar-related complications. Although the scar is longer, it's on the medial side of the arm and typically fades away completely over time, with greatly improved aesthetic results. A closely related aspect of this system is that the application of anthropometric techniques so as to plan the operation for best results.

Results:

The proposed technique has been applied in practice to 23 patients. There were no long-term complications. Temporary paresthesia was observed in 5 patients and temporary swelling of hands in 2 patients. One case of seroma was also detected. Two patients required surgical scar revision. One patient was unsatisfied with the final scar quality.

Conclusions:

Due to the superficial resection during this technique, no damage to the subcutaneous tissue and lymphatic network occurs, leading to a more predictable outcome with greatly reduced risk of complications. This technique is especially good at reducing the scar retraction issues commonest when using other single-vector approaches.

Introduction

Brachioplasty often involves removing excess skin. Many traditional approaches to the present sort of surgery are susceptible to complications and imperfect healing of the incisions.

A secondary issue is the lack of a viable objective method for determining what skin needs to be removed and from where. I have applied an anthropometric approach building on the work of the nineteenth century sculptor Carlo Rochet, which resulted in an earlier paper on the application of anthropometry to torsoplasty surgery.

The arm is a very flexible limb located close to the head and with the ability to be rotated in many axes. This complicates the measurement of the arm, and as its position also changes its measurements—raised overhead, raised ahead of the body and lowered—it is suggested to make sure that a consistent pose is used when measuring patients. The proportions also vary according to gender and race

As I even have already discussed an objective anthropometric approach to aesthetic and cosmetic surgery intimately in an earlier article, I will be able to limit myself to discussing only those elements that directly relate to the subject of this paper.

The primary objective of this paper is to elucidate my balanced triple-vector approach to brachial lifting and explain how the more even spread of forces along the arm greatly reduces complications and long-term scarring problems.

Material and methods

Between January 2009 and January 2013, a retrospective study of all patients undergoing brachioplasty with the BTV technique was undertaken. Their clinical records were reviewed with reference to age, sex, operative time, additional procedures and also complications.

Identifying the excess skin

The quantity of excess skin far away from the arm must be geometrically proportional to the forearm to avoid changing the anthropometry of the upper limb. Anthropometric studies show that the best way to determine the amount of excess skin to remove is to project a truncated cone (known as a conical frustum) from the armpit and deltoid to the wrist. This defines the 'ideal' proportions of each part of the limb. Any skin that lies outside this truncated cone should be considered for removal.

Surgical procedure

The incision is made of two curves: one long (for flap 'A') and one short (flap 'B'). The shorter curve is closest to the shoulder. The use of a curved incision reduces scar retraction.

Anaesthesia

The following was used for systemic sedation: midazolam (0.1–0.3 mg/kg), propofol (0.025 mg kg⁻¹ min⁻¹) and fentanyl (50 µg, slowly) with local anaesthesia—Ringer's lactate solution (1,000 ml), carbocaine 2 % (25 ml), bicarbonate of soda (10 ml) and adrenaline (1 ml).

In the following example, the patient has no more than fat, but does have a more than skin.

- For patients with excess fat, a liposuction phase is important before making incision, shown within the second step.
- For patients without excess fat, we will move on to the incision and traction of the 2 flaps.

We begin by marking out the intended line of the incision along the medial part of the arm.

Two curves are drawn: the primary (distal) curve defines the larger of the 2 flaps (referred to within the remainder of this text as 'flap A') and takes up about 75% of the arm after the incision; the second (proximal) curve defines the smaller of the 2 flaps ('flap B') and occupies 25%. The incision follows these curves and thus creates two opposing flaps. Figure shows the sub-dermic incision that results in the two sub-dermic flaps (A and B); it should be noted that if the patient also requires liposuction, that procedure should be performed prior to this step.

Discussion

The balanced triple-vector approach avoids scar retraction and produces an aesthetic end fully compliant with the anthropometric research conducted within the art world.

The opposing traction of the 'A' and 'B' dermo-cutaneous flaps results in three balanced vectors of force: the super-medial traction from flap A; the symmetrically opposing force from flap B; and, finally, the tension created between flap A and the axilla.

The triple force vector described is the keystone of this procedure as it greatly reduces scar retraction. As most brachial lifting procedures tend to apply only one force vector, they often result in scar retractions, and this is the most common complication. In contrast, the balanced triple-vector tension created using the technique described here reduces such complications and results in a harmonious definition of the final arm contour.

Furthermore, the superficial resection used in this technique—no damage to the subcutaneous tissue and lymphatic network occurs—results in a more predictable and reliable outcome.

The incision proposed differs from other approaches in not being strictly either sinusoidal or a straight line. Two curves are created, but these are asymmetric: that furthest from the axilla is typically three times the length of the other shorter curve. After the excess skin has been removed and traction has been applied to the flaps for the final time, the result is the creation of three balanced, and opposing, vectors of force. The surgical procedure is therefore performed in a very particular way, with the balancing of these vectors paramount. The procedure also involves the application of an anthropometric study of

the arm (the conical frustum discussed earlier). The traction of the two flaps is performed in compliance with this study in order to produce the desired results.

My technique shares some aspects with the technique described by Pascal and Le Louarn in their 2005 paper, 'Brachioplasty'. Similarly, Goddio described a procedure in 1990 that takes an equally low-impact approach. I have retained the superficial incision to retain the integrity of the lymphatic and vascular structure of the arm. However, the incision planning and other details of my technique differ dramatically, particularly in the use of triple balanced force vectors. This 'light touch' philosophy contrasts strongly with alternative techniques that involve cutting down to the facial system.

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