

# Oblique Thigh Lift after Massive Weight Loss

Carlos WeckRoxo<sup>1\*</sup>, Ana Claudia Weck Roxo<sup>2</sup>, Joao Pontello<sup>3</sup>, Daniel GouveaLeal<sup>4</sup> and Carlos Del Pino Roxo<sup>5</sup>

<sup>1</sup>Plastic Surgeon at Andaraí's Federal Hospital, Rio de Janeiro, Brazil.

<sup>2</sup>Plastic Surgery Department of the Pedro Ernesto University Hospital of the State University of Rio de Janeiro, Brazil.

<sup>3</sup>Physician at Rio de Janeiro State University, Rio de Janeiro, Brazil.

<sup>4</sup>University of the State of Rio de Janeiro, Rio de Janeiro, Brazil.

<sup>5</sup>Full member of the Brazilian College of Surgeons, Rio de Janeiro, Brazil.

## Abstract

**Introduction:** The thigh is one of the areas of greatest complaint in post bariatric patients. After major weight loss it develops excessive skin and ptosis. Medial thigh lifting is the most used technique, but is associated with a high rate of complications.

**Objective:** Present an alternative surgical approach, with oblique resection.

**Methods:** Inclusion criteria were age between 18 and 60 years, BMI <32 and stable for a year, excess skin in the thigh that extends beyond the upper third of the medial thigh were evaluated postoperative satisfaction scar, complications, and surgical time.

**Results:** A total of 63 patients underwent surgery, being 57 women and 6 men. The mean age of patients was 35, BMI mean 28. The operative time, only the thigh lift, had average of 65 minutes. Seven patients (11%) developed complications; four seroma (6.5%), two wound dehiscence (3.1%) and one wound infection (1.5%). Regarding surgical scar evaluation, 51(80.9%) gave a very good score to the scar, 4 good (6.3%), 5 normal (7.9%) and 3(4.7%) gave a bad evaluation. The majority of patients (87%) reported satisfaction with scar position.

**Discussion:** The increasing number of bariatric surgeries and consequent increase in the number of patients with major weight loss, has boosted the demand for aesthetic and functional body contour surgeries. The medial thigh lift is the most used technique in post bariatric patients, but is associated with high rates of complications (50-16%). The oblique thigh lift showed lower rates of complications than the medial approach (11%). The quality of the resulting scar is great and the positioning is well accepted by patients.

**Conclusion:** The oblique thigh lifting is a simple technique with few complications.

## Introduction

Obesity is a chronic disease and its numbers have gained epidemic proportions in recent years [1]. Bariatric surgery is a safe and effective treatment option for those affected by severe obesity where weight loss is difficult to achieve with diet only [1].

Due to a massive weight loss resulting from bariatric surgery, patients experience a major transformation in body contour, sometimes with generalized skin sagging. One of the regions of greatest complaint of patients is the thigh. After weight loss, this area develops excessive skin and ptosis, generating aesthetic impairment, walking and clothing difficulty, as well as chronic dermatitis [1-3].

There are several techniques to improve the thigh contour [4] as the traditional Lockwood medial thigh lift or vertically oriented scar medial thigh lift, but the best option available in post bariatric patient

remains controversial. Medial thigh lifting, is the most used technique, but it is associated with a high rate of complications such as wound dehiscence, seroma, infection, hematoma, lymphorrhea and genitalia distortion. [3, 4-7].

The aim of this study is to present an alternative surgical approach, with oblique resection of excess tissue in the thigh and compare it with the medial lifting results.

## Methods

We prospectively evaluated 63 patients who underwent bariatric surgery and were possible candidates for a thigh lift. All patients were from the plastic surgery clinic of the Hospital Federal do Andaraí.

The study was approved by Brazil's National Ethics Committee (CONEP) under the number CEP-HFB 22/11 and was conducted from October 2012 to June 2015. All patients were operated by the same surgeon (CDPR).

Inclusion criteria were: age between 18 and 60 years, BMI <32 and stable for a year, excess skin in the thigh that extends beyond the upper third of the medial and central thigh.

Exclusion criteria were: smoking, malnutrition, anemia and patients with decompensated morbidities.

\*Address for Correspondence: Carlos Weck Roxo, Plastic Surgeon at Andaraí's Federal Hospital, Av. Ayrton Senna, 1850 - 353 - Barra da Tijuca, Rio de Janeiro, Brazil, Tel: +55 21 2430-3320; E-Mail: carloswroxo@hotmail.com

Received: 7 February, 2017; Accepted: 11 May, 2017; Published: 14 May, 2017

Sex, age, co-morbidities, body mass index, surgery length, associated surgeries, complications and patient satisfaction with the scar were assessed during the study.

The complications evaluated were dehiscence of the surgical wound (any opening in the wound), seroma, infection, hematoma, lymphorrhea.

Patient satisfaction related to the scar was assessed through categorical evaluation [8], in which the patient gives a score to the scar quality (0-2 very poor, 2-4 poor, 5 normal, 6-7 good e 8-10 very good) and whether they were satisfied regard to scar position (yes or no).

### Marking, surgical technique and post operative care

The patient is marked before surgery in orthostatic position. An imaginary line parallel to the Sartorius muscle is marked and via bimanual maneuver, the excess tissue is assessed for resection. The resultant marking acquired the shape of a wide fuse with the upper limit in the proximity of the anterior superior iliac spine and variable inferior extremity up to the internal tuberosity of the tibia, according to the volume of skin to be resected [Figure 1, 2]



**Figure 1:** Excess skin, with patient standing, front and side



**Figure 2:** Excess skin marking

In the operating room, the patient is positioned in a supine position, without thigh abduction. The flap is incised in its entire length to the superficial fascia and is elevated in the plane above the superficial fascia and saphenous vein. There is no undermining beyond the edges

of the incision. After fixation of the thigh's deep fascia, suturing is performed in 3 planes with mononylon 3.0 in the deep plane and monocryl 4.0 in subdermal and intradermal [Figure- 3]. Drains were not used in any case.



**Figure 3:** Patient on the operating table showing the marking, the defect after resection of skin excess and the final synthesis.

All patients underwent general anesthesia associated with epidural block. Antibiotic prophylaxis (cefazolin 1g) was administrating at the time of anesthesia induction. Thrombosis prophylaxis was provided with compression stockings associated with early ambulation.

At the end of the surgery, the patients wore elastic stockings of moderate compression up to the upper half of the legs for 45 days and were followed weekly in the first month, monthly until the sixth and thereafter annually.

### Statistical analysis

The GraphPad Prism version 5 for Windows (GraphPad Software, San Diego, California, USA) was used for data analysis. The assumption of distributional normality was tested using the Shapiro-Wilk test. Because the data were not normally distributed, comparisons of two variables were carried out using the Wilcoxon test for paired groups. All statistical tests were performed at a significance level  $\alpha$  of 0.05 ( $p < 0.05$ ).

### Results

A total of 63 patients underwent surgery, being 57 women (90.4%) and 6 men (9.6%). The age of patients ranged from 20 to 57 years (mean 35), BMI between 24 to 29 (mean 28) and all patient's hematocrit was above 40% in the preoperative period (range 40.5 to 42.3 %).

The mean weight loss was 48 kg (range of 38-65kg) with weight stability maintained for at least six months. The average follow-up was 24 months (range 13-28 months).

Eleven patients (17.4%) had co-morbid conditions, six controlled type 2 diabetes (9.5%), and 5 mild hypertension (7.9%). No patient had a smoking history.

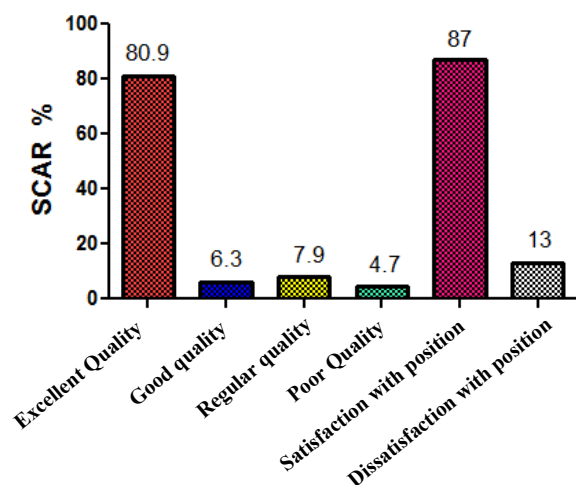
All patients underwent combined surgery. In 38 patients (60.4%) the oblique thigh lifting was associated with abdominoplasty and 25 patients (39.6%) underwent also a brachioplasty (3 procedures).

The operative time, only the thigh lift, ranged from 50 to 90 minutes with an average of 65 minutes. There was no association with liposuction in any procedure.

Seven patients (11%) developed complications; four (6.5%) had seroma, two (3.1%) with a small superficial wound dehiscence and one (1.5%) evolved with wound infection. All patients who had com-

plications were treated as outpatients. Patients who developed seroma were treated with aspiration associated with local compression strap. Patients who had dehiscence were treated with local dressings until wound closure by second intention. The patient who presented infection was treated with oral cephalexin for 10 days.

Regarding surgical scar evaluation, of all the 63 patients, 51 (80.9%) gave a very good score to the scar, four (6.3%) evaluation was good, five (7.9%) normal rating and three (4.7%) gave a bad evaluation [Table 1]. Two patients who gave a poor score had postoperative complications (one seroma and one infection). The vast majority of patients (87%) reported satisfaction concerning the scar position and only 13% were not satisfied.



**Table 1:** Scar Quality and position

There was no statistical difference, concerning complications, between the groups who had only abdominoplasty associated or also brachioplasty.

## Discussion

The increasing number of bariatric surgeries [9-11] and consequent increase in the number of patients with major weight loss, has boosted the demand for aesthetic and functional body contour corrections.

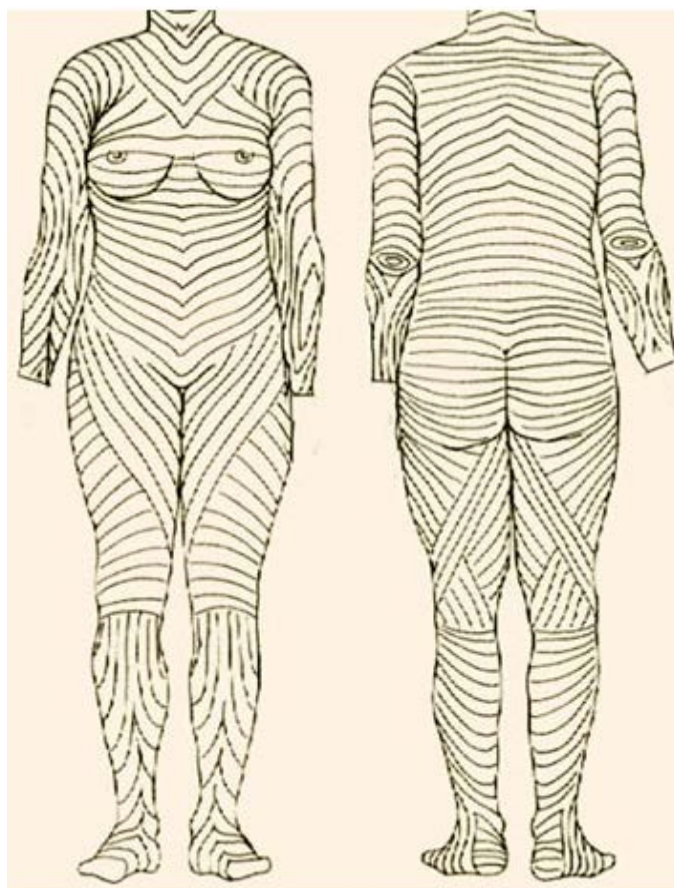
Post bariatric patients constitute a special group of patients with proper and specific changes after weight loss, with great skin excess in different body regions. In the thigh region, the large accumulation of skin and fat generally exceeds the upper third of the thigh, causing great difficulty in treatment, and aesthetic and functional impairment [3].

The management of the patient's expectations and his understanding of the possible risks and complications with the surgery is the keystone in the preoperative care. The most described complications include surgical wound dehiscence (37-6%), seroma (20-7%), wound infection and the need for reoperation (8-6%) [9, 10].

The medial thigh lift is the most used technique in post bariatric patients [9, 10] but may be associated with high rates of complications [11]. Recent studies show complications rate around 50% in the vertical thigh lift and 16% in the short vertical lift [10]. The high

dehiscence rates can be explained by the fact that this technique does not respect the Langer lines of skin tension [12] [Figure 4] and places the medial scar on a friction area. High rates of wound infection may be explained by the resulting scar close to the genital region, which is an area with high bacterial colonization [10].

In this study, the oblique lifting showed lower complications rate than the literature [4, 9-11] with four cases of seroma (6.5%), two cases of scar dehiscence (3.1%) and a case of superficial wound infection (1.5%). All complications were treated on an outpatient basis and there was no need for reoperation.



**Figure 4:** skin tension lines

The low dehiscence rate (3.1%) in this technique probably occurs because it respects the Langer's lines [Figure 4], contrary to what occurs in the medial lifting. In this technique there was only one case of wound infection (1.5%) because the resulting scar is farther from the genital region [Figure 5], and there is less tension in the surgical wound, in contrast with the medial lifting.

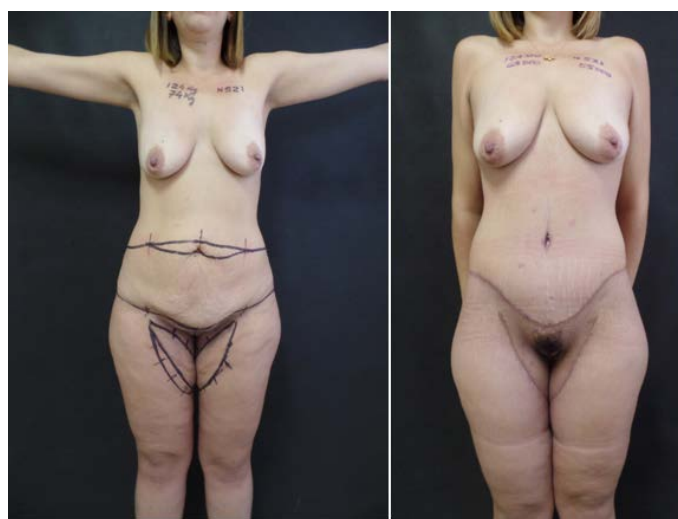
Regarding the operative time, it was shown that the oblique lifting can be quickly executed (average 65 minutes) and may be associated with other procedures in a safe manner and with good results.

The disadvantage of this technique is the scar position, which is more visible in the anterior region of the thigh [Figure 5, 6]. In contrast, the study showed that the quality of the resulting scar is great and positioning is well accepted by the patients, probably for respecting the lines of skin tension.





**Figure 5:** Scar of the oblique thighlift. The scar is located outside the genital region



**Figure 6:** Preoperative and postoperative 1 year of oblique thigh lift

## Conclusion

The oblique thigh lifting is a simple technique with few complications, thus setting a good surgical option for patients with major deformities in the thigh due to massive weight loss.

This technique can be easily associated with other procedures since it has a relatively quick operative time.

The only possible disadvantage of this technique would be the resulting scar position, which may be visible on the anterior thigh, but it is well accepted by the patients.

## References

1. Mallory, GN. American Society for Bariatric Surgery. Membership survey, 2004. [\[Crossref\]](#)
2. Hurwitz DJ. Medial Thighplasty. *Aesthet Surg J*. 2005; 25:180-191. [\[Crossref\]](#)
3. Roxo CDP, Roxo ACW and Roxo CW. Oblique thighplasty in patients after massive weight loss. *Rev Bras Cir Plast*. 2012; 27: 119-123. [\[Crossref\]](#)

4. Kenkel JM, Eaves FF 3rd. Medial thigh lift. *Plast Reconstr Surg*. 2008; 122:621-622. [\[Crossref\]](#)
5. Borud LJ, Cooper JS and Slavin SA. New management algorithm for lymphocele following medial thigh lift. *Plast Reconstr Surg*. 2008; 121: 1450-1455. [\[Crossref\]](#)
6. Bruschi S, Datta G, Bocchiotti AF, Boriani FD, Obbialero, M Fraccalvieri et al. Limb contouring after massive weight loss: functional rather than aesthetic improvement. *Obes Surg*. 2009; 19: 407-411. [\[Crossref\]](#)
7. Lewis JR Jr. Body contouring. *South Med J*. 1980; 73:1006-1011. [\[Crossref\]](#)
8. Quinn JV, Drzewiecki AE and Stiell I, Elmslie TJ: Appearance scales to measure cosmetic outcomes of healed lacerations. *Ann J Emerg Med*. 1995; 13: 229. [\[Crossref\]](#)
9. Gusenoff JA, Coon D, Nayar H, Kling RE, Rubin JP. Medial thigh lift in the massive weight loss population: outcomes and complications. *Plast Reconstr Surg*. 2015; 135:98-106. [\[Crossref\]](#)
10. Kenkel JM, Eaves FF 3rd. *Plast Reconstr Surg*. 2008; 122:621-622. [\[Crossref\]](#)
11. Michaels J 5th, Coon D and Rubin JP. Complications in postbariatric body contouring: postoperative management and treatment. *Plast Reconstr Surg*. 2011; 127:1693-1700. [\[Crossref\]](#)
12. Góes CHFS, Arantes HL and Kawasaki MC. Princípios básicos da técnica em cirurgia plástica. In: Mélega JM, editor. *Cirurgia plástica fundamentos e arte – princípios gerais*. Rio de Janeiro: Medsi 2002; 25-37. [\[Crossref\]](#)