



Surgical Treatment of Grade III Gynecomastia with the Technique of Horizontal Scar and Transposition of the Nipple-Areola Complex - “No Vertical Scar”

Lincoln Graça Neto*, Ana Clara Minguetti Graça and Fabíola Lupion

Rua Alferes Angelo Sampaio, 2029, Curitiba, Paraná, Brazil

Abstract

Introduction: The demand for surgery to correct gynecomastia has increased due to the large number of patients undergoing bariatric treatments. Most of these patients require great removal of excess skin, fatty tissue and repositioning of the nipple-areola complex, as well as adjustment of the volume of the areola. The aim of this study is to describe the technique for correcting grade III gynecomastia through a horizontal scar without vertical scar with repositioning of the papillary areola complex.

Method: Prospective study of 27 male patients diagnosed with Simon's grade III gynecomastia, operated on in a private clinic, between January 2013 and August 2020, using the horizontal scar technique with transposition of the nipple-areola complex and without vertical scar.

Results: 27 patients were operated on, over a period of 7.5 years, all ex-obese, who had previously undergone weight loss treatment. The age varying from 17 to 74 years old, average age of 52 years old. The weight of the removed parts ranged from 175 g to 758 g, an average of 376 g. The complications were: 1 case of late hematoma = 3.7%, 1 case of seroma = 3.7% and 2 cases of hypertrophic scarring = 7.4%.

Conclusion: The surgical treatment of grade III gynecomastia using the horizontal scar technique, without vertical scar and with repositioning of the nipple-areola complex, proved to be effective, with low morbidity and with good aesthetic results.

Keywords: Gynecomastia; Hypertrophy; Obesity; Breast; Man

Introduction

Gynecomastia has the definition of pathological breast enlargement in men, which may be associated with the presence of fatty tissue (lipomastia) and/or excess skin [1-5]. The first surgical description was made by Paulo de Égina (625 AD), the most common surgical techniques are subcutaneous mastectomy via the areolar associated or not with liposuction [1,5-7].

The classification used to graduate gynecomastia was proposed in 1973 by Simon [1]:

Grade I - Small, without excess skin;

Grade II a - Moderate, without excess skin;

Grade II b - Moderate, with excess skin;

Grade III - Large, with excess skin.

The demand for surgery to correct gynecomastia has increased due to the large number of patients undergoing bariatric treatments [1]. Most of these patients are grade III of the above classification and require great removal of excess skin, fatty tissue and repositioning of the Nipple-Areola Complex (NAC), as well as adjustment of the volume of the areola [5].

The techniques used for advanced cases of gynecomastia were, in most cases, adapted from reduction mammoplasty techniques in women, which can determine stigmatization of the patient with large inverted "T" scars, for example [5,8].

Objective

The objective of this study is to describe the technique for correcting grade III gynecomastia

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*Correspondence:

Lincoln Graça Neto, Rua Alferes Angelo Sampaio, 2029, Curitiba, Paraná, CEP 80420-160, Brazil, E-mail: lgracaneto@hotmail.com

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Figure 1: Marking of the "A" point at 16 cm from the wishbone, marking the SMF and the spindle (through a bidigital maneuver) of the skin to be resected.



Figure 2: Skin spindle to be removed.



Figure 3: Skin and subcutaneous tissue incision in the NAC.

through a horizontal scar without vertical scar with repositioning of the NAC and to evaluate its applicability, morbidity and surgical results.

Method

Prospective study of 27 male patients diagnosed with Simon's grade III gynecomastia, operated on in a private clinic, between January 2013 and August 2020, using the horizontal scar technique with NAC repositioning (transposition) and without vertical scar. All patients were seen until the sixth postoperative month (PO).

This study was approved by the institutional review board of our institution, was performed in accordance with the principles of the Declaration of Helsinki (1964).

Operative Technique

Patient in orthostatic position; marking of point "A" (Pitanguy's point) at 16 cm from the sternal furcula; Submammary Fold marking (SMF); bidigital palpation of the excess skin (redundant skin) to be resected in the upper portion of the breast in the form of a transverse spindle that extends from the lateral edge of the sternum to the anterior or posterior axillary line, according to amount of skin to be



Figure 4: Removal of excess tissue (fat and gland) and maintenance of the NAC in a posterior pedicle in the 4 intercostal branch.



Figure 5: Start of the suture between the upper and lower edges.



Figure 6: Place where the NAC will be positioned at point "A".

removed (Figure 1, 2).

Patient in supine position, using 2 g of intravenous cephazoline, under general and local anesthesia in a solution of 1/230,000 IU of saline and epinephrine + 20 ml of ropivacaine. Infiltration of all previously marked areas. Use of a small size areolotome, removal of excess areolar skin (Figure 3), maintenance of the NAC in a posterior pedicle based on the 4 intercostal perforating branch (Figure 4), and removal of all excess glandular and fatty tissue in a previously marked area (transverse spindle). The size of the flap is proportional to the volume of the NAC, 3 cm x 3 cm at the base and extension, reaching up to 9 cm. Drainage with suction 4.8, suturing the edges in 3 layers (Figure 4); positioning of the NAC at point "A" (Figures 5-9).

Results

Twenty-seven patients were operated on, over a period of 7.5 years, all ex-obese, who had previously undergone weight loss treatment. The age varying from 17 to 74 years old, average age of 52 years old. The weight of the removed parts ranged from 175 g to 758 g, an average of 376 g, (Figures 10-14).



Figure 7: Transposition of the NAC.



Figure 8: Anterolateral view of the immediate PO.



Figure 9: Frontal view immediate PO.



Figure 10A: Frontal view, 17 years old in the preoperative.



Figure 10B: Frontal view, 17 years old in the 8 months of PO.

The complications were:

- 1 case of late hematoma = 3.7%



Figure 11A: Frontal view, 54 years old in the preoperative.



Figure 11B: Frontal view, 54 years old in the 6 month of PO.



Figure 12A: Frontal view, 74 years old in the preoperative.



Figure 12B: Frontal view, 74 years old in the 8 month of PO.

- 1 case of seroma = 3.7%
- 2 cases of hypertrophic scar = 7.4%

Discussion

With the increasing incidence of obesity in Western societies and the development of bariatric surgery, the incidence of Grade III gynecomastia and pseudogynecomastia secondary to massive weight loss has also increased. Overweight patients should be preferentially oriented to treat with techniques that allow for great tissue removal and NAC repositioning [8]. The first report of breast reduction technique without vertical scar is credited to Passot in 1920. The excess tissue was removed as a wedge from only the inferior pole of the breast [9]. This technique was used in cases with minimal



Figure 13A: Frontal view, 43 years old in the preoperative.



Figure 13B: Frontal view, 43 years old in the 4 month of PO.



Figure 14A: Frontal view, 57 years old in the preoperative.



Figure 14B: Frontal view, 57 years old 3 month of PO.



Figure 14C: Right lateral view, 57 years old in the 3 month of PO with scar extending to posterior axillary line.

hypertrophy and moderate ptosis.

The most traditionally proposed techniques would be mastectomy

with a NAC graft or techniques using an areolar pedicle flap. Among them, it is possible to choose the superior pedicle, inferior pedicle or posterior inferior pedicle. The NAC graft is a simple technique, but it has some disadvantages, such as the lack of sensitivity of the NAC; the chance of graft non-integrity with the risk of pathological scarring and even necrosis; and mainly the need for dressings and special care in the graft area for at least 10 to 14 days of PO. The techniques that use the pedicle have the great advantage of maintaining the nervous vascular bundle, that is, there is preservation of the tactile sensitivity of the NAC [8], repeating that this does not occur in cases of NAC graft.

The Lalonde technique of female breast reduction can be applied to the treatment of male breast enlargement in patients at high risk of scar complications. It provides an alternative to the more widely used concentric skin reduction techniques [10]. Kazzazi and Malata [10], described this is the first report in literature of the application of the Lalonde "no vertical scar" surgical technique to the treatment of gynaecomastia in patients with darkly pigmented skin.

The resulting horizontal scar, used in this study, allows great resection of redundant and flaccid tissues, as it can extend to the posterior axillary line or to the back, in cases where it is associated with torsoplasty, restoring the masculinity of the chest of men with final positioning of the scar in the SMF, in the transition between the chest and the abdomen, which makes it quite aesthetically acceptable, and also, in a way, concealed with the SMF. The study by Resende [5], and also by Rocha et al. [1] ends with a horizontal scar in the middle of the aesthetic unit of the chest, a scar that is quite apparent, differently from the one demonstrated in this study. This study also has as a positive factor, the absence of vertical scar (adapted from traditional reduction mammoplasty techniques) that stigmatize patients with scars similar to those of women. In our country, Mansur described the extension of the scar on the back, treating the arm, breast and back concurrently [11]. Thus avoiding, as in this study, vertical scars on the breasts.

The upper part of the chest, an area close to the "A" point, where the NAC will be transposed, must be made very thin by removing fatty tissue in the lamellar layer, leaving the flap very thin with only the areolar layer of fat, thus avoiding fat residual in this region. The lipectomy performed here is done with electrocautery and scissors; we do not use liposuction as described by Thionét, who described an aspirated volume between 450 ml to 800 ml of fat for each patient [8]. The weight of the tissue removed in this study was similar to that of Thionét's publication, although in the case of the French study, their flap is larger than that described here. The posterior inferior flap is larger than the posterior areolar flap, which is based on the "plug flap" described by Daher [12], and also by Carramaschi [13] for breast reconstruction, which is based on intercostal perforating vessels. Therefore, with the French flap being larger, a smaller tissue removal could be imagined in the European study.

Regarding complications, this series presented lower values than those found in the literature. One case of hematoma (3.7%), lower than that of Varma [14] which was 6%, Metz [15] 8% and Colombo [16] 11%. The first two authors cited had a sample of 17 and 12 patients [13,14], less than that presented here, which was 27 patients. Colombo [16], on the other hand, presented a very robust study with 100 patients, a large sample. The study by Thionet et al. [8], had no case of hematoma, however, it had a casuistry 3 times smaller than the one presented here (27 cases). The author justifies the absence of

hematoma by the use of major liposuction, prior to tissue resection, which would preserve the lymphatics and decrease the chance of hematoma and seroma. In this study, we observed 1 case of seroma (3.7%) and 2 cases of hypertrophic scarring at 6 months, which were treated with a topical corticosteroid tape 12 h a day for 4 months with problem resolution.

The posterior perforating flap of the 4 intercostal vessel, as previously mentioned, was based on the island flap described initially for breast reconstruction [12,13]. It is a flap fixed on the chest wall, however with mobility that can easily reach the “A” point. In cases of supero lateral quadrantectomy, Daher [12], and Carramaschi [13] demonstrated their safety and versatility. Comparing its volume with the inferior poster flap, it is much smaller and does not present the same risks of postoperative ptosis, as described by the author [8]. Since the width is 6 cm, the base thickness is 8 cm to 10 cm and the retro areolar thickness is 2 cm to 3 cm. The flap volume described here is 3 cm × 3 cm at the base and can extend up to 9 cm in length. It is worth remembering the inferior pedicle, areolar or not, described by Liacyr Ribeiro in 1973, resembles the Thionét flap [8], and had its effectiveness improved with the use of the brace of the pectoralis major muscle, described by Milton Daniel in 1993, thus avoiding flap ptosis at PO [17]. In other words, this corroborates Thionét’s concern with the possibility of flap ptosis due to its size and weight [8].

The main limitations of this study are the absence of NAC sensitivity tests, which would demonstrate the maintenance of sensitive innervation; and also, of preoperative arteriography or transoperative arterial Doppler examination that showed the perforating branches of the 4 intercostal artery.

Conclusion

The surgical treatment of grade III gynecomastia using the horizontal scar technique, without vertical scar and with NAC repositioning, proved to be effective because it allows for a large and wide tissue resection, with low morbidity and with good aesthetic results.

Ethical Approval

“All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparables ethical standards”.

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