Evaluation of the sensitivity after reduction mammoplasty
Our experience and review of the literature

Stefano Chiummariello, Matteo Angelisanti, Sergio Arleo, Carmine Alfano
Cattedra di Chirurgia Plastica e Ricostruttiva dell’Università degli Studi di Perugia, Perugia, Italia

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AIM: The preservation of the sensitivity of the nipple-areola complex after reduction mammoplasty is an important goal of the modern surgery. The aim of this paper is to evaluate the differences in the recovery of sensitivity after reduction mammoplasty using different techniques.

MATERIAL OF STUDY: Using the Semmes-Weinstein monofilament the sensitivity was evaluated in 64 patients undergone to a bilateral reduction mammoplasty: 36 were treated with inferior pedicle technique and 28 with a superior pedicle techniques. The evaluation of the sensitivity was performed in nine points: the nipple, the four quadrants of the areola and the 4 quadrants of the skin around the areola both in the preoperative and at 3 weeks, 3, 6 and 12 months postoperatively.

RESULTS: The major alterations were found in the sensitivity of the nipple: the major deficiencies were seen in women treated with a superior pedicle techniques. Minor differences were found about the sensitivity of the areola and periareolar skin.

CONCLUSION: The techniques which provide the preparation of a glandular flap with superior pedicle have an increased risk of altering the innervation of the nipple-areola complex. The preparation of a glandular flap with inferior pedicle allows the restoration of the pre-operative sensitivity in 6-12 months.

KEY WORDS: Breast sensitivity, Reduction mammoplasty, Sensitivity alteration

Introduction

The reduction mammoplasty is a surgical technique that reduces the volume of the large breasts. During the last 50 years many techniques have been described, each of which was characterized by a particular incision, by the type of vascularization of the nipple-areola complex (NAC) and by the pedicle position. Each has its own characteristics with its own advantages and disadvantages.

The obtainment of an appropriate shape and an adequate volume were the main goals that the surgeon tried to obtain with the surgery, since these are the two main requests of the patients. Recently, however, more frequently is also evaluating the preservation and restoration of adequate sensitivity of the breast. After surgery, many patients do not report changes in the sensitivity of the nipple and areola, if not specifically required. The improvement in the appearance of breasts leads to more sensuality in the woman who overshadows the changes of the sensitivity. In the following months, at the stabilize the aesthetic appearance, many women begin to focus their sensations from the stimulation of nipple-areola complex, lamenting alterations. Many authors have thus began to examine the causes of the alterations of the sensitivity after the breast reduction.

Many factors have been attributed to a decrease in sensitivity after a reduction mammoplasty: the amount of
volume removed, the different quadrants excised, the depth of the separation, the position of the pedicle for the vascularization of the NAC. In particular have focused on this latter the majority of studies. The purpose of this paper is to evaluate the differences of sensitivity of breast in patients undergone to reduction mammoplasty with techniques that use different pedicles to identify which techniques provide less changes as possible.

Materials and Methods

A total of 64 patients, for a total of 128 breast, were evaluated. The age of patients ranged between 19 and 58 years, with an average of 33 years. All patients underwent to bilateral reduction mammoplasty: 36 were treated with inferior pedicle technique (group A) and 28 patients with superior pedicle techniques (group B). Regarding to the superior pedicle techniques were used the Pitanguy technique and the Lassus technique. The lower pedicle technique used was the Robbins technique. All operations were performed according with the original description of the author.

In all the patients the sensitivity was evaluated preoperatively. First were asked them which part of the breast was the most sensitive subjectively and after we proceeded to an objective evaluation. The tests were performed using the Semmes-Weinstein monofilament. The tests were performed with the patient sitting in a comfortable position and with an adequate environmental temperature.

We proceeded to evaluate the sensitivity of nine points: the nipple, the four quadrants of the areola and the four quadrants of the skin around the areola at 2 centimeters from the areola edge. For the areola and the periareolar skin was considered the average value of the measurements in the four quadrants.

Postoperatively, the patients were evaluated with the same method at 3 weeks, 3, 6 and 12 months. To all patients were asked if they complained subjective alterations of sensitivity and to describe them.

Results

In all patients the evaluation was performed preoperatively and were followed until to twelfth month postoperatively. In 12 patients occurred postoperative complications such as seromas, delayed wound healing and necrosis, partial or total, of the nipple areola complex. Of this 12 patients 7 belong to group A and 5 to group B. In consequence these patients were excluded from the study and the post-operative evaluation was performed in 52 patients: 29 of group A and 23 of group B. From the results of tests performed preoperatively appeared that the most sensitive part of the breast in the patients was the nipple. This datum was confirmed by subjective sensations reported by patients. Postoperatively, 9 patients reported subjective alterations at 3 weeks. The alterations complained were allodynia (2 patients, both treated with a superior pedicle technique) and dysesthesia (7 patients, 4 treated with superior pedicle technique and 3 with inferior pedicle). Other patients did not report specific subjective complaints. At 3 months, all nine patients who complained alterations reported their disappearance. The sensitivity of the nipple was lower in patients treated primarily with superior pedicle technique than those treated with inferior pedicle techniques both 3 weeks than 3, 6 and 12 months. In patients of group B was observed a reduction to 3 weeks was almost total in 34.8% of patients (8 patients). Sensitivity was also reduced to 3, 6 and 12 months with failure to restore of the preoperative values. In all patients the reduction of sensitivity was bilateral. In women treated with inferior pedicle techniques (Group A) the sensitivity reduction was found at 3 weeks was mild with full recovery in all patients within 6 months. The sensitivity of the areola was reduced in all patients at 3 weeks, but recovery of the preoperative values was obtained in 3-6 months in group A patients and in 12 months in group B patients. Minor alterations were found in postoperative sensitivity of the periareolar skin: in all patients of both groups, was obtained the restore of preoperative values within 3 months.

Discussion

The nipple-areola complex represents one of the most sensitive parts of the breast of the woman, both from the objective and the subjective point of view, and this represents an important component of the sexual life of the woman herself. The loss or significant reduction of the sensitivity of these areas can represent a serious discomfort for the woman, especially if it is also associated with alteration of the erectile capacity of the nipple. Several authors have noted that women focused on this problem in a relatively late period respect to breast reduction surgery.

In the first 6-12 months after surgery prevail the satisfaction for the new volume and the new shape of the breast and the disappearance of some symptoms such as neck pain and back pain. After this period, women tend to forget the preoperative symptoms and focus on changes in the sensitivity of the breast. Schlenz et al. found that 50% of women with reduced sensitivity and 75% with complete loss of sensitivity and erectile function, complained the issue only after 6 months postoperatively. The reduced sensitivity to vibration or temperature were considered less important by the patients themselves.
For these reasons, today more and more surgeons are focusing their studies on the adoption of techniques that give a better appearance from the aesthetic point of view (small scar and adequate shape of the breast), associating minimal complications in terms of sensitivity. This has become possible by the development of methods that allowed the objective determination of altered sensitivity: the use of Semmes-Weinstein monofilament represent a simple and objective method 2-5. The appearance of studies with contradictory results by the use of these monofilaments, has led to the development of new methods for the evaluation that provide results more objective and reproducible, such as the Pressure-Specified Sensory Device (SSPD) used by Mofid et al. 6.

From the results obtained in our experience, and confirmed by the data of the literature, the surgical technique adopted for the breast reduction is one of the main criteria that determine the onset of post-surgical alterations of sensitivity. The superior pedicle techniques, which require a resection of tissue at the base of the breast, are associated with a higher risk of onset of sensory deficits compared to the inferior pedicle techniques 1,3,7. To similar results came Schlenz et al. who found, at one year, a reduced sensitivity in 69.5% of patients who had undergone a breast reduction with a superior pedicle techniques and a insensitivity in 13% 3. Mofid et al. found no significant differences in the pre and post-operative sensitivity in patients who undergoing breast reduction with medial or inferior pedicle techniques 6.

The superior pedicle techniques are characterized by an increased risk of injury to the nerve structures that innervate the NAC and consequently a higher risk of post-operative insensitivity. Anatomically, the innervation of the nipple and areola are complex and are subject to change in each woman. Several studies have demonstrated that the nipple-areola complex and the surrounding skin are innervated by the anterior and lateral cutaneous branches of intercostal nerves. Regarding the latter there is significant anatomical variability: from second to sixth are involved in the innervation. The fourth intercostal nerve, with its anterior and lateral branches, seems to be most frequently responsible for innervation of the NAC: through its anterior branch, which runs into the subcutaneous tissue, innervates the upper-medial area of the areola, and through its lateral branch, which runs deep, innervates the nipple and the infero-lateral area of the areola 1,3-5.

The superior pedicle techniques involve a greater risk of lesion of fibrous septum in which run the dominant lateral branches of intercostal nerves responsible for the innervation: the recovery of sensitivity is achieved due to the recovery of the anterior branches from the neuapraxia and regeneration of lateral branches 1,3,7. The inferior pedicle technique protect lateral branches of the intercostal nerves providing a better postoperative sensitivity. Chiari et al. with L Short-scar Mammaplasty using a superomedial pedicle for the NAC but isolating and preserving the breast lateral neurovascular pedicle, have obtained a restoring the sensitivity to one year, regardless of the amount of tissue removed 2.

Conclusions

Although the main target of a reductive mammoplasty is the obtainment of an adequate volume and shape of the breast and the disappearance of the symptoms that the patient complains, the maintenance of sensitivity is increasingly searched by surgeons.

The techniques which provide the preparation of a glandular flap with superior pedicle have an increased risk of altering the innervation of the nipple-areola complex. The preparation of a glandular flap with inferior pedicle allows the restoration of the pre-operative sensitivity in 6-12 months.

In conclusion, the conservation of the sensitivity must be taken into consideration by the surgeon at the time of the choice of surgical technique as a final target of surgery.

References


