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Mastopexy: Management of Breast Ptosis and Complications

S. El Harrak[1*], D. Jaadi[1], H. Sqalli[1], S. Ezzaim[1], J. Hafidi[1], N. Gharib[1], A. Abbassi[1] and S. El Mazouz[1]

[1]Department of Plastic and Reconstructive Surgery, Ibn Sina Hospital, Rabat Morocco

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***Corresponding author:** S. El Harrak

Abstract **Review Article**

Beautifully shaped, "perky" breast is a symbol of youth and sexuality, and the lack of this trait can cause insecurity and self-esteem issues for many women. In this manuscript, we will describe the most frequently techniques used to manage breast ptosis, and the most common complications.

Keywords: Mastopexy, Breast ptosis, Breast augmentation, Breast surgery.

INTRODUCTION

Breast ptosis is one of the more common issues seen in plastic surgeon's offices, particularly those performing a significant amount of aesthetic breast surgery.

Breast ptosis presents in many forms and can be congenital in nature, or acquired due to causes such as aging, weight changes, and pregnancy.

Patients with ptosis generally desire the same result, youthful and "perky" breasts. However, due to wide variations in breast volume and tissue quality, ultimate results vary with each patient, and as a result, preoperative management of expectations is critical.

There are many surgical options that can be customized to patients' needs, but these generally address repositioning of the glandular tissue and nipple areolar complex and management of skin excess.

Complications can occur but can be minimized with careful patient selection, preoperative planning, and execution of surgery.

Pathophysiology of breast ptosis

When trying to understand the pathophysiology, we notice that there are multiple factors which can affect breast ptosis:

- Ptosis of the breasts can be *developmental* due to naturally poor skin elasticity and weak Cooper's ligaments, often in conjunction with heavier, denser breast tissue.
- *Pregnancies or weight changes*, can highly affect breast ptosis because the skin elasticity and ligamentous support becomes attenuated.
- *Aging* is also a significant issue, as the skin and soft tissue support naturally weakens over time.
- *Lifestyle* choices can also affect the breasts, patients who smoke or sustain significant sun damage to the breasts, as well as women who rarely use bras or engage in frequent high impact exercise can accumulate more damage to the soft tissues of their breasts.

Classification

Classification of the type and degree of breast ptosis can be helpful in determining the best surgical course. Regnault [1] help to divide ptotic breasts into predictable categories, he created the classification of breast ptosis used by most plastic surgeons today. His system is predicated on the relationship of the nipple to the inframammary fold (IMF):

- *Grade I ptosis (A):* the nipple is situated within 1 cm of the inframammary fold and is above the lower pole of the breast.
- *Grade II ptosis (B):* the nipple is 1–3 cm below the inframammary fold but is still located above the lowest point of the breast.
- *Grade III ptosis (C):* the nipple is more than 3 cm below the inframammary fold and is situated at the lowest part of the breast

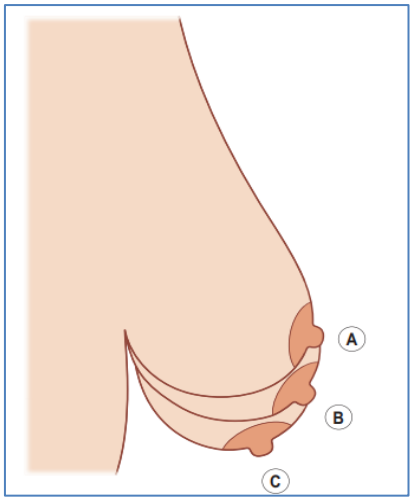

Fig-1: Regnault's classification of breast ptosis [3]

Surgical approach

It is important to keep the concept of ptosis separate from the issue of volume. Women can experience ptosis with breasts that have volume deficiency; or have volume excess as in the case of symptomatic macromastia. In the cases of volume deficiency, augmentation mastopexy is generally the best option, while in situations of symptomatic macromastia, breast reduction surgery offers the definitive correction [3].

It is very important to know the medical history of the patient, if the patient has a family or personal history of breast cancer or a history of surgery, injury, or radiation to the breasts, and if their weight is stable or if they plan to have future pregnancies, as these changes could have a negative effect on the results.

With regard to mammography, a preoperative screening at age 35 is recommended. The correction of breast ptosis is achieved via various surgical approaches. The type of surgery is selected according to the degree of ptosis and whether the patient wishes to correct breast shape, volume, or both.

Scar patterns include circumareolar, circumvertical, and inverted-T patterns. Pedicles can be designed from all directions and are independent of the scar pattern. In our department, we use superior pedicle for circumareolar and circumvertical mastopexy, and the superomedial pedicle is reserved for the inverted-T mastopexy because it is most reliable.

1- Periareolar mastopexy

Periareolar mastopexy is indicated for patients with mild or moderate ptosis (grade I ptosis), or nipple asymmetry, with little lower pole skin redundancy, who possess reasonable skin and parenchyma quality. This technique is mainly used to reposition the nipple, at most 2 cm.

The periareolar mastopexy technique re-drapes the circumareolar skin to buttress the parenchyma. An eccentric oval is drawn around the areola, including more skin superiorly to elevate the nipple. The skin in between the nipple edge and the outline is de-epithelialized, and the incision is then closed around the nipple.

Although this technique has the advantage to hide the scar at the areolar border, it also has a high rate of patient dissatisfaction and revision, secondary to loss of breast projection. Periareolar mastopexy should preferably be combined with breast augmentation [4].

Fig-2: Surgical procedure of periareolar mastopexy

2- Vertical mastopexy

The vertical mastopexy is indicated in moderate breast ptosis; grade II according to Regnault's classification.

After marking the future position of the nipple areolar complex NAC, in the breast meridian axis, we mark 2 vertical lines that connect a few centimeters above the inframammary fold.

The skin in the lower pole of the breast is then resected and shaped.

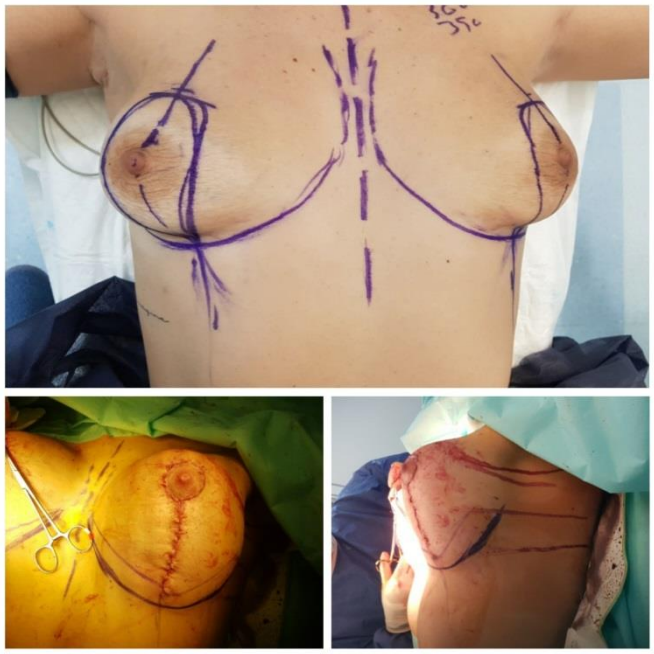

Fig-3: Vertical mastopexy, pattern and technique.

In some cases, a patient may be in a "gray area" (grade II-III) between techniques (circumvertical and an inverted-T scar pattern). In these cases, the patient should go into surgery knowing that the larger scar pattern is a possibility, so they are not surprised or disappointed after wards if that scar pattern is used. This will also allow the surgeon the greatest amount of flexibility in order to achieve the best overall result.

3- Inverted-T mastopexy

Inverted-T Mastopexy is indicated for patients with severe ptosis because these patients have an excessive skin envelope to parenchyma ratio.

The most popular skin incision approach has been the traditional Wise-pattern, as plastic surgeons widely use it for reduction mammaplasty.

WISE-pattern

We start by making

- The midline
- The meridian axis of the breast
- The inframammary fold

Then we mark 5 important points

- **A:** correspond to the future position of the nipple areolar complex (NAC), 17 to 19cm from the sternal knots
- **A':** 5cm below point A
- **B:** correspond to intersection of the breast axis and the inframammary fold
- **C:** 4cm outside of point A'
- **D:** 4cm inside of point A'

Point A, C and D are connected by a semicircle

Finally, we mark 2 vertical lines 6 to 8cm below the point C and D, and 2 horizontal lines joining the inframammary fold.

We always use the superomedial pedicle in the grade III ptosis

Fig-4: WISE-pattern

Regardless of the incision pattern used to excise the redundant skin symmetrically and the parenchyma is then trimmed and redistributed, in order to obtain the desired volume and projection.

To improve upper pole fullness, the lower pole parenchyma can be suspended from the pectoralis fascia. Although inverted-T mastopexy has a considerable scar burden.

Fig- 5: inverted-T mastopexy, immediate post-operative aspect

Complications

The risk of a major complication with mastopexy, if performed judiciously, is fairly low. But zero risk does not exist in surgery; the main complications are [6]:

1- Scarring

Patients must understand that sub optimal scarring is a possibility and should be prepared for this issue, in some cases, genetics, excessive skin tension, or spitting sutures can exacerbate the degree of scar

thickness. Scarring can often be reduced with steroid injections, silicone sheeting and massage.

Fig-6: Example of hypertrophic scar after performing mastopexy in a 19 years old patient.

2- Wound healing issues

Small wounds can be common along the incisions most often near the vertical and inframammary incisions. Wounds most commonly appear between weeks 3 and 6, unless there is an early issue due to poor blood supply and spitting sutures.

We can reduces this risk with resecting appropriate amounts of skin, reducing tension to surface wound closure via deep and long-lasting sutures. Occasionally, revision surgery is necessary.

Fig-7: example of a small wound in the junction of the vertical and the inframammary fold incision

3- Nipple areolar complex (NAC) necrosis

Tissue necrosis of a nipple areolar complex or a skin flap, is an extremely rare but terrible complication. Using the superomedial pedicle helps to reduce the risk of this problem.

If ischemia is noted on the table, options include releasing the skin and re-checking the pedicle to ensure there is no kinking in the blood supply. If the nipple is clearly devascularized, an option is to convert to a free nipple graft. This is a reasonable maneuver within the first 12 h.

4- Asymmetry

Some degree of postsurgical asymmetry is to be expected after surgery, and patients undergoing mastopexy need to understand this.

In the case of more noticeable asymmetry, skin adjustments can often be made under local anesthesia.

5- Recurrent ptosis

This risk is very common in patient from the age of 40, and it is explained by weak skin or attenuated Cooper's ligaments. As with asymmetry issues, recurrent ptosis can be improved but may require re-tightening via the patient's old incisions.

Fig-8: Recurrent ptosis in a 45 years old patient

CONCLUSION

Mastopexy is the only solution to correct breast ptosis, after a precise examination of the patient the technique is chosen according to the degree of ptosis, and more the ptosis is important more scars there will be. For grade I ptosis it is preferably to do a periareolar mastopexy associated with an augmentation by prosthesis, the grade II is the indication for vertical mastopexy, and inverted T mastopexy is reserved for significant grade III ptosis, although in patients between grade II and III the possibility of making a T scar is possible if the surgeon considers that the result during the operation is not optimal.

A good understanding of the complications makes possible to avoid them, as for example, strong and deep sutures avoid the problem of scarring, and the choice of the superior medial pedicle in grade III ptosis prevent the problem of the NAC. As regards asymmetry, a precise preoperative marking is necessary before performing a mastopexy.

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