Abstract:

The internal bra: a solution for ptosis in mastopexy and breast reduction surgery

M. S. See, J. Farhadi

Common sequelae of breast mastopexy and reduction procedures are ptosis and pseudoptosis. We describe a surgical technique, which is applicable to both procedures to address this common problem.

A modified Lejour approach (inverted T scar with a short horizontal component) with a superior dermoglandular pedicle is used for mastopexy. For breast reduction, a similar approach is employed, but with tissue excised from the lower pole of the breast, just inferior to the pedicle. A dermoglandular sling is fashioned from the remaining tissue of the lower pole, thereby supporting the entire weight of the breast. The skin envelope is then draped over the lower pole and closed with a tension-free suture.

A total of 116 patients were operated on using this technique between 2007 to 2010. These included patients who underwent mastopexy (19), mastopexy-augmentation (9), breast reduction (32), and symmetrising procedures in conjunction with breast reconstruction (56). The commonest complication was superficial wound dehiscence, for which all patients were treated conservatively. All patients were followed up for 1 year, with only 3 patients developing pseudoptosis.

Comment [jf1]: Sling or hammock? Or?

We present a novel technique which employs vascularised autologous tissue to address the common problems of ptosis and pseudoptosis in breast surgery.

The internal bra: a solution for ptosis in mastopexy and breast reduction surgery

M. S. See, J. Farhadi

Introduction

Breast mastopexy and reduction mammaplasty aim to create an aesthetically pleasing breast by repositioning the nipple at its correct anatomical position, excising parenchymal tissue as necessary, reshaping the breast and discarding excess skin with minimal scarring.

There are a multitude of techniques that have been described for both mastopexy and reduction mammaplasty. Despite the variations in these techniques, the potential complications from these procedures tend to be similar (see table 1). However, the commonest complications are recurrent ptosis and pseudoptosis, and the consequent need for revision surgery (Rohrich et al).

While earlier authors focused on the shape and projection of the breast, more recently the focus has been shifted onto achieving longevity of results. This paradigm shift brought about a further collection of techniques, each of them unique, varying in the amount of parenchymal dissection and technical difficulty (quote papers).

The aim of our study is to devise a technique that can be used as an adjunct to any mastopexy or reduction mammaplasty procedure, to address this common problem of recurrent ptosis and pseudoptosis.

Method

We conducted a retrospective study on all the patients undergoing breast surgery by a single surgeon between January 2007 and December 2010. The demographic data, indications and outcome were recorded.

Surgical technique

The patient is marked pre-operatively. For patients undergoing mastopexy, we employ Lejour's technique. For the patients undergoing reduction mammaplasty, a standard Wise pattern was used.

Under general anaesthesia, the patient is placed in the supine position with the arms secured in mid-abduction. The pre-operative markings are reinforced and key points are marked with skin staples. The areolar is also marked using a nipple marker (Galveo nipple marker, Mercian Surgical).

In all our procedures, we used a superior pedicle for the nipple. In the mastopexy patients, as per the Lejour technique, the keyhole pattern around the nipple-areolar complex (NAC) is de-epithelialised and the lower boundary below the level of the NAC is incised (Figure 1). The breast parenchyma in the lower pole is then dissected off the overlying skin and the underlying pectoralis fascia so that the breast can be moved as a whole unit. We perform the glanduloplasty by suturing the two edges of the de-epithelialised lower pole, thereby narrowing the base of the breast (Figure 2).

The key element in our technique is the creation of a dermoglandular sling, which is used to support the whole weight of the uplifted breast and maintaining it in that position. To achieve this, excess skin from the lower pole is marked out as shown in Figure 3a and de-epithelialised (Figure 3b). The lower edge is incised thus creating superiorly based dermoglandular flaps (Figure 3c). The free edges of the flaps in the midline of the breast are sutured together to create a sling (Figure 3d), which is then tucked underneath the lifted breast, functioning as an internal bra, which supports the breast parenchyma. This sling is taut enough when supporting the weight of the entire breast that it obviates the need to secure it to the pectoralis fascia (Figure 4). This also allows a tension-free closure of the skin.

In the reduction mammaplasty, tissue is excised from the inferior pole of the breast, just inferior to the NAC pedicle. Once the breast pillars are brought together and the glanduloplasty performed, the dermoglandular flaps are created from the horizontal component of the Wise pattern (Figure 5).

Results

For the period of January 2007 to December 2010, a total of 116 patients were operated on by a single surgeon using this technique. The age of the patients ranged between 19 and 69 years (mean 43.4 years). The indications for surgery are listed according to figure 6. The weight of tissue excised from each breast varied between 0 grams (mastopexy) and 1800 grams.

Figure 7 shows examples of some of the results achieved using this technique. Table 2 shows a summary of the complications incurred by our patients. Five patients required revision surgery, three for recurrent ptosis or pseudoptosis, and one for capsular contracture and one for correction of nipple asymmetry.

Discussion:

In reviewing the literature for breast mastopexy, there does not appear to be one ideal technique that is superior to the rest. With the proposal of various algorithms and permutations of manoeuvres, one can infer that a technique, which produces good results in some hands, may not necessarily achieve similar results in others. However, we feel that the internal bra can be used as an adjunct to the majority of mastopexy or reduction mammaplasty procedures.

There are many advantages to this technique. This technique is easy to perform. The dermoglandular sling is created under direct vision and therefore associated with a short learning curve and minimal increase in the total operating time. This dermoglandular sling is also shaped out of tissues that would otherwise be discarded, i.e. the de-epithelialised skin and parenchyma of the lower pole of the breast. By suturing these tissues together in the midline, this action not only produces the sling, but also serves to narrow the breast base. The subsequent creation of the internal bra by tucking the sling underneath the breast parenchyma does not cause any excessive disruption to the breast parenchyma, thereby avoiding

any increased risk of fat necrosis. Although the senior author does not routinely suture the caudal edge of the sling to the pectoralis fascia, this step can be employed to correct a very ptotic breast. Finally, the internal bra can be manipulated such that the breast parenchyma that it supports is displaced medially in order to improve the appearance of the cleavage. The latter manoeuvre may require anchoring sutures.

The greatest drawback of our technique is that it does not achieve upper pole fullness of the breast. The internal bra simply supports the weight of the breast parenchyma and maintains it in a stable position. Although in some cases upper pole fullness is achieved, this is more by chance. We thus feel that in the more ptotic and low volume breast should be addressed using either auto-augmentation (Graf et al, Foustanos et al, Ritz et al) or augmentation-mastopexy with implants. The other disadvantage to this technique is that it cannot be used in the periareolar mastopexy, or in reduction mammaplasty where an inferiorly based pedicle is used.

Our results demonstrate the low incidence of complications associated with this technique. The rate of recurrent ptosis and pseudoptosis is 2.5%, and the rate of revision surgery in our cohort of patients is 4.3%. Both of these figures are significantly lower than figures quoted in the literature (Rohrich et al)

One major limitation of this study is the relatively short length of follow up. However, in reality, the majority of patients are rarely followed up beyond a year from surgery if they have had an uneventful recovery. Furthermore, a recent study by Quan et al demonstrated objective evidence that pseudoptosis and tissue redistribution of the breast are limited to the first post-operative year.

In conclusion, the internal bra is a useful adjunct in most mastopexy or reduction mammaplasty procedures in the prevention of pseudoptosis or recurrent ptosis.

Table 1: List of complications associated with mastopexy and reduction mammaplasty procedures.

Complications of Mastopexy and Reduction Mammaplasty	
General	**Specific**
Haematoma	Asymmetry
Infection	Fat necrosis
Wound Dehiscence	Nipple Loss
Scarring	Altered Nipple Sensation
	Problems Breastfeeding
	Ptosis and Pseudoptosis
	Revision Surgery

Figure 1: In the mastopexy patients, as per the Lejour technique, the keyhole pattern around the nipple-areolar complex (NAC) is de-epithelialised and the edge of this de-epithelialised area below the level of the NAC is incised.

Figure 2: The glanduloplasty is performed by suturing the two edges of the de-epithelialised lower pole, thereby narrowing the base of the breast

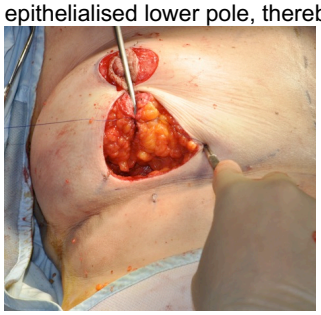

Figure 3a, b, c & d: To create the dermoglandular sling in the mastopexy, excess skin in the inferior pole of the breast is marked out and de-epithelialised. The lower edge is incised thus creating superiorly based dermoglandular flaps. The free edges of the flaps in the midline of the breast are sutured together to create a sling

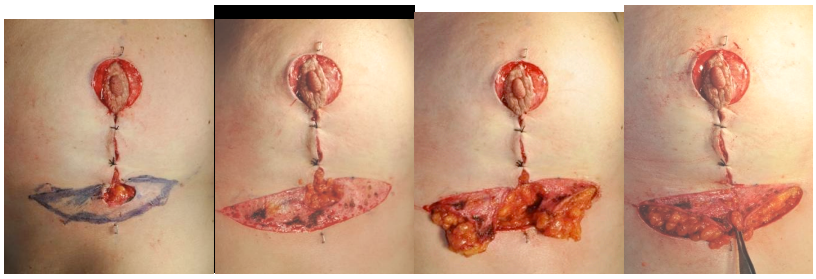

Figure 4: The dermoglandular sling is taut enough when supporting the weight of the entire breast that it obviates the need to secure it to the pectoralis fascia.

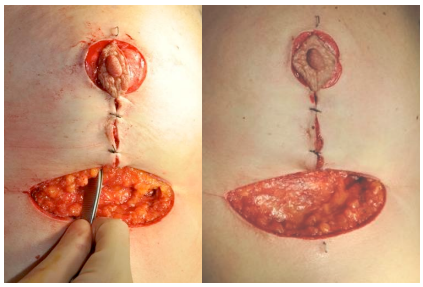

Figure 5: In the reduction mammaplasty, tissue is excised from the inferior pole of the breast. Once the breast pillars are brought together and the glanduloplasty performed, the dermoglandular flaps are created from the horizontal component of the Wise pattern.

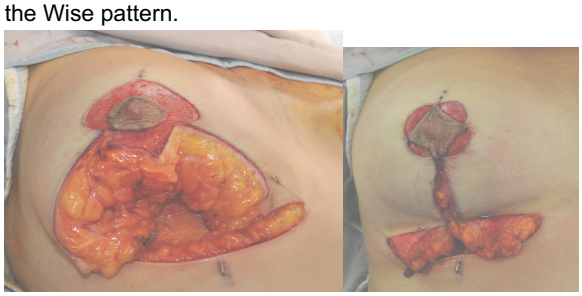

Figure 6: Indications for surgery in our cohort of 116 patients

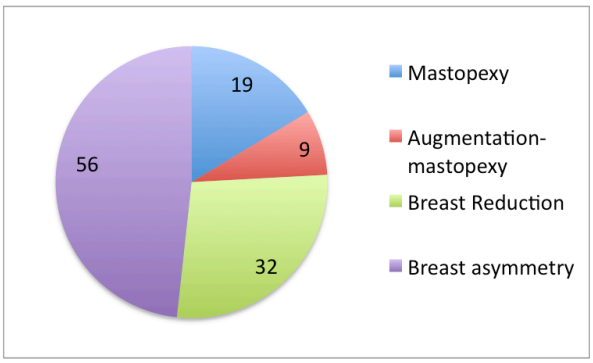

Figure 7: Some examples of the post-operative outcome in patients using the internal bra technique

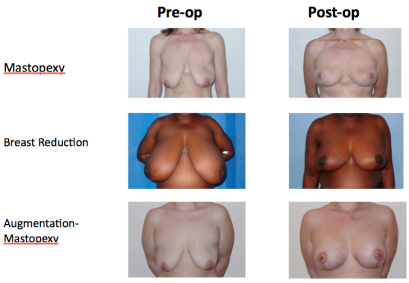

Table 2: Summary of the complications incurred by our patients.

Type	No. of patients
Minor wound dehiscence	8
Haematoma	2
Mild infection (antibiotics)	3
Keloid scarring	1
Fat necrosis	2
Capsular contracture	1
Partial nipple loss	1
Pseudoptosis	3