

The Reductive Mastopexy with Implant Approach

Abel Mounir

First Trust Hospital, D'Urton Ln, Broughton, Preston, United Kingdom

*Corresponding author

Abel Mounir, M.D. M.Sc, First Trust Hospital, D'Urton Ln, Broughton, Preston, United Kingdom. E-mail: cosmeticsurgery1@gmail.com

Submitted: 25 Aug 2018; Accepted: 14 Sep 2018; Published: 14 Nov 2018

Abstract

Background: When it comes to reduce overall breast volume, maintain nipple-areola viability a reduction mammoplasty is always indicated. However, breast reduction has proven to be less effective in restoring upper-pole fullness. Breast implant could augment the upper pole and achieve a shape that is aesthetically pleasing. Combining both procedures would be technically called reductive mastopexy with implants. This study was undertaken to show the effectiveness and safety of this treatment combination.

Methods: A retrospective review was conducted of 48 consecutive patients who underwent onestage mastopexy/augmentation using the reductive approach. Data collected included the following: patient's characteristics implant information, operative technique and postoperative results. Complication and revision rates were assessed to determine the efficacy of the reductive mastopexy/augmentation.

Results: All patients (N=48) were available for follow-up, an average 18 months postoperatively. Overall complication rate was 14.5 percent. No severe complications were recorded. The most common complication was wound separation (02), followed by capsular contracture (02), and Bottoming out (01). Seven patients (14.5 percent) underwent some form of revision surgery following the one-stage procedure. The revision rate due to bottoming out was 2.2 percent.

Conclusions: When performing the one-stage augmentation/mastopexy procedure, using the reductive mastopexy approach does effectively reduce the internal tension from the lower pole of the breast and helps to prevent the occurrence of bottoming out.

Keywords: Bottoming Out, Silicone Implant, One Stage Mastopexy with Implant, Ptosis Recurrence, Breast Reduction and Mastopexy, Augmented Matopexy

Introduction

There are two principal approaches used by surgeons for the reshaping of the female breast when combining breast augmentation and mastopexy. The first is the one-stage procedure when both the mastopexy and the breast augmentation are performed at the same operation. In this technique a temporary closure is usually obtained using staples or temporary sutures and the skin then excised accordingly [1]. The second is a two stage approach where the mastopexy is performed first followed by a breast augmentation at a later stage. Many surgeons prefer the two stage approach because of the advantages of a better control over the adjustment of the skin envelope and fewer surgical complications overall. On the other hand the one stage approach has an understandable popularity particularly among patients because of the perceived reduction in recovery time, convenience and costs. Indeed, since it was first described by Gonzales-Ulloa this double procedure has been a subject of controversy [2]. Spear et al reported that revision surgery following a combined augmentation-mastopexy operation was required in almost half of the cases [3]. It has been widely

noted that the procedure is often associated with problems such as poor scarring, wound breakdown, mal-positioning of the implant and even nipple necrosis. Later complications after a one-stage procedure commonly include recurrent ptosis and bottoming out. These are two distinctly different complications. With recurrent ptosis both the nipple and the breast tissue drop inferiorly while sometimes the implant can stay in a high position. In bottoming out the gland and the implant migrate inferiorly while the nipple tends to migrate superiorly. The phenomenon of bottoming out has also been described following mastopexy or breast reduction alone [4]. Indeed, different techniques have been developed to try to prevent the problem including internal suspension of the pedicle and dermal and muscle flaps [5]. The A cellular Dermal Matrix as a type of internal brassiere has also been employed to support the inferior pedicle and has been shown to reduce the occurrence of bottoming out [6-8]. While it would seem that the presence of a breast implant following a onestage augmentation-mastopexy procedure would be more likely to exacerbate bottoming out, the above techniques to try to prevent this late complication are very difficult to perform when an implant is inserted at the same time as the uplift.

Consequently there has been no published report suggesting a clear strategy on how to prevent bottoming out after a one-stage procedure.

The goal of this study is to analyze and discuss the impact of reducing the breast parenchyma from the lower pole when performing a one stage Mastopexy/Augmentation. Effectively, adding an implant enhances the superior pole. The reduction of some of the breast from the lower pole does automatically take some of the unwanted weight from the lower pole. This is a simple concept, which could prevent the bottoming out deformity. Our retrospective review suggests that this man oeuvre has proven to be effective in reducing the internal tension in the lower pole of the breast and therefore reduces the risk of “bottoming out”. I present my experience with the reductive mastopexy approach and the key points that are necessary to produce a satisfying cosmetic result.

Patients and methods

All Patients, irrespective of their age, were offered a preoperative clinical examination, detailed measurements, and digital photography. I discussed with all of them the choice of their reductive mastopexy whether vertical or wise pattern superior pedicle procedure and the expected postoperative steps and Informed consent were taken. Excluded from this study are patients with ptotic tuberous breasts and patients with severe hypoplasia where any reduction from the lower pole of the breast would be inappropriate. For this study, Kirwan’s classification has been used and each type of ptosis was treated differently: A Reductive Vertical Mastopexy as described by Lassus and modified by Lejour was offered to patients with ptosis Grade I and II (Group A), where a conventional Wise skin pattern Reductive Mastopexy was offered for all patients with ptosis Grade III (Group B) [9-11].

The Vertical Reductive Mastopexy with Implant

The surgery starts by dissecting a sub glandular pocket through an incision in the breast crease using electrocautery. After the implant is placed in the sub glandular pocket, the surgeon uses the resulting skin tension provided by the implant to proceed with the skin deepithelialization exactly as in a mastopexy alone. The pedicle epidermis that surrounds the areola is then deepithelialized including the lower segment (Figure 1a). Next the resection of the tissue from the lower pole of the breast follows by a king vertical incisions creating medial and lateral pillars. The tissue resection does not necessitate the exposition of the implant and is usually between 50 to 100 grams (Figure 1b). This reduction is achieved without performing any skin undermining. Next the lateral and medial pillars are sutured together using Monocryl 2.0. This manoeuvre results in a degree of ‘coning’ of the breast tissue and allows some control over the projection of the breast (Figure 1c). It has been often reported that when using the Lejour technique, the gathered skin of the vertical scar may stretch and could contribute to bottoming out occurrence [12]. Therefore, for a better postoperative monitoring of the length of the vertical scar the authors prefer to excise the resulting dog-ears (Figure 1d). Finally, and before skin closure the lower pole of the breast is sutured to the fascia of the pectoralis muscle at the level of the T-junction. For a tension-free skin closure, sometimes it is necessary to adjust the size of the implant accordingly. Indeed, although, I have set a volume limit around 300 cc, which does offer the patient a one cup and half size increase, implant as you go’ would seem to be an appropriate expression to describe this approach. Depending on the skin tension we can adjust the size of the implant. Even more, in one patient the author has even postponed the planned augmentation as he felt that the blood supply to the nipple was compromised because of the resulting internal tension on the pedicle. In term of implant’s profile we use Allergan CUI silicone

implants with different profiles. Thus, a low profile implant will be chosen for patients with no hypoplasia, where only a small increase in the projection of the breast is needed. However, those patients with moderate hypoplasia, where the lack of breast parenchyma starts to be obvious, would need a high profile implant in order to produce more projection of the breast.



Figure1A: High profile silicone implant placement and skin deepithelialization under skin tension.



Figure1B: Reduction of the breast tissue from the lower pole of the breast.



Figure1C: Closure of the deep dermis using 2-0 Monocryl.



Figure 1D: Dogear resection of the lower pole to keep the N-IMF distance at 7 cm

Wise Pattern Reductive Mastopexy with Implants (Video)

During the initial consultation, patients presenting grade III ptosis would be warned that because of the poor quality of their skin, any conservative skin excision could increase the risk of ptosis recurrence and bottoming out. For these patients a conventional Wise skin pattern with superior pedicle will be planned and marked. The surgery starts by inserting the implant in a Sub-glandular pocket. Next skin deepithelialization follows. Once the nipple has been lifted and temporarily sutured to its new position, the implant is secured and covered adequately with the breast parenchyma before assessing and reducing the bulge from lower pole of the breast. Finally, the excess skin from the lower breast is excised reducing the N-IMF distance to 7 cm. The total breast tissue removed is normally between 80 to 120 grams. A post-operative review was performed of all the patients who underwent combined breast augmentation and mastopexy by the authors between the years 2008 and 2012.

This retrospective analysis has included the examination of the age, medical history, smoking, and complications. The postoperative follow-up included the measurement of nipple to inframammary fold distance. The N-IMF was measured after 12, 18 and 24 Months. These measurements were distributed into three groups. Depending on the N-IMF distance there was (Table 1):

Table 1: Postoperative N-IMF distance measurement after 24 Months:

	Group 1: N-IMF ≤ 8 cm	Group 2: N-IMF ≤ 10 cm	Group 3: N-IMF ≥ 12 cm
Vertical pattern After 24 Months (Group A: Total 33 patients)	N= 12	N= 14	N= 07
Wise Pattern After 24 Months (Group B: Total 15 patients)	N= 02	N= 09	N= 04

Nipple –Inframammary fold distance= N-IMF
N= Number of Patients

- Group 1:** patients with N-IMF less than or equal to 8 cm
- Group 2:** patients with N-IMF less than or equal to 10 cm and
- Group 3:** patients with greater than or equal to 12 cm.

Results

During the 3-year period of this review, there were 48 patients who have been operated on by using the reductive mastopexy approach. The age of these patients at the time of surgery was 20 to 71 (average 37). The preoperative brassiere cup size was between a C to a D cup. 33 patients presented with ptosis Grade I/II and were treated with a vertical pattern (Group A) and 15 patients presented a ptosis Grade III and were treated with a Wise pattern (Group B). There were 3 complications in Group A; 1 wound separation, 1 capsular contracture necessitating revision surgery, and 1 delayed augmentation. In this group, 12 patients were smokers but only one patient had a wound separation. In Group B, there were 4 complications; 1 wound separation, 1 “bottoming out” and 2 capsular contractures. In this group, 7 Patients were smokers and 1 of them had a wound separation. No partial or total NAC necrosis occurred in either group. The measurement of the nipple to inframammary fold showed no correlation between the variation of the N-IMF distance and the bottoming out occurrence (Table 2). Our assessment was based on the so called “44:55” ratio.

Table 2

	No. of patients	Complications	No. of complication
Group A: Minus-plus mastopexy Vertical pattern	33	- Wound sep. - Bottoming out - Capsular contracture - Postponed augmentation	- 01 - 00 - 00 - 01 - 01
Group B: Minus-Plus mastopexy (Wise pattern)	15	- Wound sep. - Bottoming out - Capsular cont - Postponed mastopexy	- 01 - 01 - 02 - 00

Effectively, when assessing the key parameters that define the aesthetic ideal of the breast, Malluci et al have suggested that in an attractive breast the upper pole should not be as full as the lower pole with 45% of the breast being made up of the upper pole “U” and 55% by the lower pole “L” [13]. In his study, he also showed that when bottoming out occurs, there is an inverse disproportion between the upper pole and lower pole where the U: L ration could become 28: 72. For our study, we did set a ratio 35:65 as the limit to define the deformity as a bottoming out. The examination of the post-operative photographs analyzing the U: L ratio as described by Mallucci et al, showed that we had one (2%) clear bottoming out necessitating surgical correction. Our retrospective study demonstrates that the Reductive Mastopexy with implant Provides most patients with long-standing satisfaction (Figure 2 & 3).



Figure 2A



Figure 2B



Figure 3B



Figure 2C



Figure 3C



Figure 2D



Figure 3D

Figure 2A 2B 2C 2D: Left) Preoperative 31 year-old women with a C cup size and ptosis grade I. Right) Thirteen months after mastopexy with implants (300 cc) using the reductive mastopexy approach.

Figure 3A 3B 3C 3D: Left) Preoperative 42 year-old women with a D Cup size who had somewhere else a mastopexy with implants 4 years ago. Note the double-bubble deformity present on both sides. Right) Nineteen months after undergoing a redo mastopexy with a smaller implants (310 cc) using the reductive mastopexy approach.

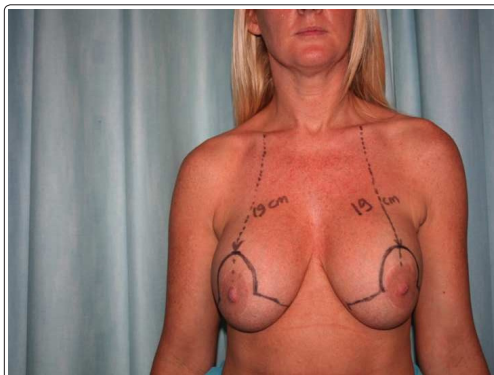


Figure 3A

Discussion

The goal of our study was to assess the long term effect when reducing the bulge of the lower pole of the breast when performing the one stage mastopexy with implant. Although I believe that this approach would also work for the submuscular augmentation, to make this study more uniform, I have chosen to include patients who had a subglandular implantation only. Also, I have excluded from this study, Patients with ptotic tuberous breasts and patients with severe hypoplasia because in these patient the lack or/and maldistribution of the breast tissue would make any tissue excision contra-indicated. Indeed, the plication or the redistribution of the breast tissue in

these patients has proven to be a better option [14]. Actually, when performing one-stage mastopexy/augmentation surgeons do usually prefer to use the concept of tailor-tacking technique to assess and to determine the amount of any skin to be deepithelialized. Thus, in breast tailor-tacking the skin excision is performed conservatively depending on the size of the implant used. This means the bigger is the chosen implant, the less amount of skin is removed. Clearly, this approach could reduce the efficiency of the mastopexy manoeuvre and may explain why some authors have reported a high redo rate after one-stage mastopexy/augmentation [15].

Actually, patient requesting breast reshaping surgery usually does express herself by saying “I am happy with size of my breast but I want them uplifted and a little bit more fuller. I am C cup and wish to go to a D cup”. This fact has created a self-selected population, which is the subject of this article. Thus, the implant’s selection was based on two parameters: the size and the profile of the implant. In regard of the size, I have set a volume around 300 cc. All patients requesting more than one and half cup size increase would be offered a staged operation without exception.

Effectively, these patients would necessitate the use of at least 400 to 550cc implant. For medico-legal reasons, the use of such implants during the one-stage mastopexy/augmentation could be seen as an inappropriate choice if the patient experiences any wound healing problems or poor scarring. In terms of implant’s profile selection, because the mastopexy/augmentation is three-dimensional concept, the augmentation should be designed to increase the projection of the breast. Indeed, this increase should be adjusted by selecting the adequate profile of the implant for each breast. Thus, we have noticed that the choice of the implant profile has an impact on the breast tissue migration inferiorly. Indeed, if at the end of the surgery, the breast is over projected because a high profile implant has been placed, this increases the effect of the force of gravity and makes bottoming out and even double bubble deformities more likely (water fall effect). This observation is a subject of a future separate study. In fact, Quan et al, while studying the changes in breast morphology 3 years after cosmetic breast surgery, he noticed that during the early to 1-year postoperative period, the tissue is redistributed from the superior pole to the inferior pole of the breast leading to bottoming out [16]. This observation concurs with Flowers’ suggestion [17]. He noticed that most mastopexy operations leave heavy breast bulk remaining in the lower pole of the breast. The thrust of that bulk eventually causes “re-stretching” of the skin that is already “programmed” to expand and accommodate breast enlargement. To avoid bottoming out he suggested transposing some of the lower pole tissue bulk to the upper pole, which is usually deficient. In the same logic, Regnault et al have presented the minus-plus mastopexy technique. Nevertheless, bottoming out still described as one of the most common complication after mastopexy surgery after suture spitting and excess scarring [18,19]. However, our results show that although postoperatively 11 patients had an N-IMF distance equal to or more than 12 cm only one patient presented a true Bottoming out (Figure 4). This is because the bottoming out deformity is the result of two parameters: 1) the stretching of the N-IMF distance to at least 12 cm and 2) the descent of the implant and breast tissue inferiorly forcing the upward rotation of the nipple. Therefore, to reverse and correct this complication would involve a skin and breast parenchyma re-excision from the lower pole to reduce the N-IMF distance and to reposition the breast crease. Furthermore, it seems that in the literature bottomingout is often referred to as pseudoptosis

or ptosis recurrence. If this is true our results are very acceptable compared to most studies. However, It is important to notice that a truly objective comparison is not possible. This is because most authors have used different surgical techniques including the circumareolar mastopexy where the reductive mastopexy concept cannot be used. Although there has been no published studies suggesting a clear strategy on how to prevent bottoming-out after one-stage mastopexy with implant, our retrospective study suggest that the reduction of a portion of the lower breast parenchyma does reduce the tension, facilitates the skin closure, improves the shape of the breast and reduce the late occurrence of the bottoming out.

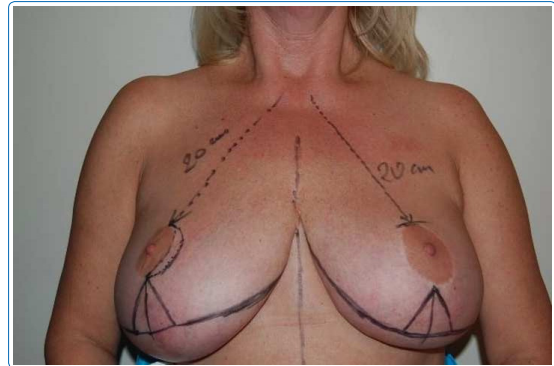


Figure 4: Marking of the lower quadrant of the breast to correct the bottoming out after mastopexy with implant.

Conclusion

This article discuss the impact of the reductive mastopexy approach and identifies key parameters such as careful choice of technique and implants selection, which should be considered in each patient to optimize the cosmetic outcome.

Acknowledgment

The author thanks Mr. E. Latimer-Sayer and Dr M. Shiffman for the careful reviewing of the manuscript and constructive comments.

References

1. Whidden PG (1978) the tailor-tack mastopexy. *Plastic Reconstr. Surg* 62:347.
2. Gonzalez-Ulloa M (1960) Correction of hypertrophy of the breast by exogenous material. *Plast. Reconstr. Surg* 25: 15.
3. Spear SL, Boehmler JH, Clemens MW (2006) Augmentation/mastopexy: a 3-year review of a single surgeon’s practice. *Plast Reconstr Surg* 118: 136S-151S.
4. Reus W F, Mathes SJ (1987) Preservation of projection after reduction mammoplasty: Long-term follow-up of the inferior pedicle technique. *Plast. Reconstr. Surg* 82: 644.
5. Johannes Franz Hönig, Hans Peter Frey, Frank Michael Hasse, Jens Hasselberg (2009) Auto augmentation Mastopexy with an Inferior-Based Pedicle. *Aesthetic Plastic Surgery* 33: 302-307.
6. De Bruijn HP, Johannes S (2008) Mastopexy with 3D preshaped mesh for long-term results: development of the internal b bra system. *Aesthetic Plast Surg* 32: 757-765.
7. Brown RH, Izaddoost S, Bullocks JM (2010) Preventing the “bottoming out” and “stargazing” phenomena in inferior pedicle breast reduction with an acellular dermal matrix internal brassiere. *Aesth. Plast Surg* 34: 760-767.
8. Spear SL, Seruya M, Clemens MW, Teitelbaum S, Nahabedian MY (2011) Acellular dermal matrix for the treatment and prevention of implant-associated breast deformities. *Plast*

-
- Reconstr Surg 127: 1047-1058.
9. Laurence Kirwan (2002) A Classification and Algorithm for Treatment of Breast Ptosis. *Aesthetic Surgery Journal* 22: 355-363.
 10. Lassus C (1996) A 30-year experience with vertical mammoplasty. *Plast Reconstr Surg* 97: 373-380.
 11. Lejour M, Abboud M, Declety A, Kertesz P (1990) [Reduction of mammoplasty scars: from a short inframammary scar to a vertical scar]. *Ann Chir Plast Esthet* 35: 369-379.
 12. Elizabeth J. Hall-Findlay (2004) Vertical Breast Reduction: New Trends in Reduction and Mastopexy. *Semin Plast Surg* 18: 211-224.
 13. Mallucci P, Branford OA (2012) Concepts in aesthetic breast dimensions: analysis of the ideal breast. *J Plast Reconstr Aesthet Surg* 65: 8-16.
 14. R. A. Moscona, L. Fodor (2008) One-Stage Periareolar Breast Augmentation and Mastopexy for Tuberous Breasts and Mild to Moderate Hypoplastic and Ptotic Breasts. *Innovations in Plastic and Aesthetic Surgery* 371-376
 15. Scott L Spear MD, Mervin Low MD, Ivica Ducic, MD, PhD (2003) Revision Augmentation Mastopexy: Indications, Operations, and Outcomes, *Annals of Plastic Surgery* 51: 6.
 16. Quan M, Fadl A, Small K, Tepper O, Kumar N, et al. (2010) Defining pseudoptosis (bottoming out) 3 years after short-scar medial pedicle breast reduction. *Aesthetic Plast Surg*. 35: 357-364.
 17. Flowers RS, Smith EM Jr (1998) "Flip-flap" mastopexy. *Aesthetic Plast Surg* 22: 425-429.
 18. Regnault P, Daniel RK, Tirkanits B (1988) the minus-plus mastopexy. *Clin. Plast. Surg* 15: 595-600.
 19. Rohrich RJ, Gosman AA, Brown SA, Reisch J (2006) Mastopexy preferences: a survey of board-certified plastic surgeons. *Plast Reconstr Surg* 118: 1631-1338.

Copyright: ©2018 Abel Mounir. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.