



NippleSparingMastectomy in Breasts with Ptosis: Pre-Staging the Nipple

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# Introduction

Plastic surgeons are bound by aesthetics. We are striving to restore patient's anatomy back to their original form or better than they were before. With this high goal in mind, nipple sparing mastectomy would optimally be performed on every patient if cancer didn't dictate otherwise. But that would mean that every patient has non-ptotic breasts with nipples in a youthful anatomic position. Unfortunately, patients with Grade 2 or 3 ptosis are not ideal candidates for nipple sparing procedures.

In our hands, the solution to this problem is prestaging the patient's reconstruction for a total of three surgeries: nipple reposition and breast envelope tightening (mastopexy/reduction), nipple sparing mastectomy with expanders, and exchange for implants. The pre-staged approach can be done on prophylactic and low stage cancer patients who have Grade 2 or 3 ptosis. The patients with breast cancer must meet more criteria than simply having ptosis. In this scenario, the plastic surgeon must collaborate with the breast surgeon in a multi-disciplinary approach to ensure the patient's cancer care isn't being compromised for a better aesthetic outcome. Factors such as size of breast, tumor size and location, nodal involvement, hormonal status may preclude patients from undergoing nipple repositioning prior to mastectomy.

By lifting the nipples in a higher position and tightening the breast skin envelope before the mastectomy, the patient is able to achieve a better aesthetic result.

DISCLOSURE: This white paper includes a demonstration of the use of a medical device. The steps demonstrated with respect to the use of any medical device in this white paper may not be the complete steps of the procedure. Individual physician preference and experience, as well as patient needs, may dictate variation in procedure steps. Before using any medical device, review all the Instructions for Use with particular attention to the indications, contraindications, warnings and precautions.

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## Mastopexy/Reduction

The most important part about a mastopexy and/or reduction is the preoperative markings. The markings set the stage for the shape and symmetry of the newly lifted breasts. Wise-pattern is the incision pattern predominately used since almost all of these patients have a significant amount of excess breast skin and tissue in the horizontal and vertical planes. Other mastopexy incision patterns, i.e. Vertical, L-shaped, or J-shaped, could be used, but we have not performed them for staged patients.

With the patient in a standing position, the midline is marked starting from the suprasternal notch. Inframammary fold (IMF) and breast meridian extending below the IMF are then marked. The new location of the nipple is marked by placing your hand under the breast, and with your fingers, project anteriorly where the new nipple location is going to be on the breast meridian line (Pitanguy's point). The breast is then rotated superior-medially to create the intended lateral breast shape and a vertical line is placed to create the lateral vertical limb. The medial vertical limb is created by rotating the breast superior laterally to create the desired medial shape. Both vertical limbs should align through the breast meridian above Pitanguy's point and below the IMF. We use a Wise Pattern to inset the nipple and complete the markings of the vertical limbs, keeping the vertical limb length less than 7 cm. Making the vertical limbs longer with a superomedial pedicle helps decrease the tension on the closure. For patients with a large areola or breasts that extend more laterally, making the vertical limbs with a wider divergent angle helps ensure all areola is removed and cones the breast pocket more.

Once the Wise pattern skin resection is marked, determining the nipples' vascular pedicle is next. Deciding what pedicle to use should be based off the surgeon's preference and/or location of tumor to be excised. Our preference is the superomedial pedicle. This pedicle tends to give us a better shape and vascular supply with less "T" point tension. Lateral, inferior, and medial pedicles are other options that have been utilized. With a superomedial pedicle, it is important to start the

pedicle marking at the 12 o'clock position of the keyhole, extend the marking down and around the nipple leaving at least a 1 cm dermal cuff around the nipple. The line is brought back to the horizontal marking ending 3-4 cm away from the medial vertical limb. This ensures capturing the arteries within the pedicle. A 38 mm cookie cutter is used to circumscribe the Nipple Areolar Complex (NAC). Using a #15 blade, the cookie cutter markings and superomedial pedicle incisions are made, followed by deepithelialization of the pedicle using an electrocautery Bovie<sup>®</sup>. The remaining incisions are made along the rest of the markings before defining the pedicle. It is important to free the pedicle first to minimize vascular injury. Inferior breast tissue is excised en-bloc and oriented for pathological evaluation. If more tissue is needed to be excised, it is preferred to remove tissue from the lateral portion of the breast.

The breast is irrigated out with 1 to 2 liters of warm saline prior to hemostasis achievement and placement of a #15 French BLAKE® drain. The incisions are stapled closed before the patient is set up right to validate breast symmetry and nipple position. Equality between each breast is important, but not critical as the future implant will determine breast volume. Once the symmetry of the nipples and breasts are achieved, the patient is laid back down and staples are removed. Closure is performed around the nipple using a deep interrupted 3-0 MONO-CRYL® Plus and a running 4-0 MONOCRYL® Plus. The vertical and horizontal scars are closed using a deep running 3-0 STRATAFIX™ Spiral Monocryl Plus Unidirectional barbed suture followed with a superficial 3-0 MONOCRYL® Plus.



**Figure 1** Pre-operative markings for superior pedicle therapeutic mammoplasty. (Gainer & Lucci, 2011).<sup>1</sup>

# Nipple Sparing Mastectomy

After the mastopexy/reduction mammoplasty, the nipple sparing mastectomy is done within 2-3 months post-operatively. We feel that 2-3 months is adequate time for healing of the skin and tissue, although the prophylactic patient can wait longer. We use the inframammary fold incision due to it being longer in length and convenience. If remaining areola from the first surgery is present, a vertical incision can be used to further remove the pigmentation without excess "T" point tension or it can be addressed at the time of the exchange. While the breast surgeon performs the mastectomy, the FlexHD® Pliable dermis is constructed for anterior coverage of the MENTOR<sup>®</sup> CPX<sup>®</sup>4 Breast Tissue Expander, Smooth, Medium Height profile or MENTOR® ARTOURA® Breast Tissue Expander, Smooth, High profile on the back table. We tend to use a slightly wider expander for prepectoral versus submuscular reconstruction. We use 0.7-1.2 mm thickness of FlexHD® Pliable. Our preference is the thinner dermis for faster integration and decreased seroma formation. For expanders greater than 600 cc, we utilize a Large Flex-HD<sup>®</sup> Pliable kit and for expanders less than 600 cc, a Medium FlexHD® Pliable kit is used. The two pieces [Figure 2] of dermis from one

kit is sewn together with a purse-string suture along the outer portion of the dermis before the expander is placed inside the dermis. A 3-0 PDS® on a CP2 needle is used for joining and purse-string sutures. Once the mastectomy is done, we use 1-2 liters of warm saline to irrigate the pocket. The expander is held in front of the breast where the bottom portion of the expander is at the inframammary crease. We then use a marking pen to place a dot on the sternum where the medial tab should be sewn. For bilateral cases this allows for correct vertical alignment between the two expanders. The construct of dermis and expander are placed in the prepectoral space. Each tab is secured to the patient using an interrupted O PDS® on a CT2 needle. Once the expander is secured in the pocket, a #15 French BLAKE® drain is tunneled away from the expander exiting the skin as far away from the breast as possible. Typically, we will place one drain in each breast. For breasts larger than >600 grams, we will place two. A BIOPATCH® Protective Disk with CHG is placed around the drain site and the drain is secured using a 2-0 Nylon suture. Each incision is closed in a minimum of two layers with a 3-0 MONOCRYL® Plus suture on a PS2 needle.



#### Figure 2

Two pieces of FlexHD® Pliable dermis sewn together with purse-string sutured on the outer portion with 3-0 PDS® on a CP2 needle. This makes a pouch that the expander is incapsulated by to give you an anterior coverage construct.

Figure 2A- anterior view and Figure 2B - posterior view

## Exchange for Implants and Other Finessing Details

After the expansion, the patient is returned to the operating room to exchange tissue expanders for implants and fat grafting. We typically wait to do the exchange about 3-4 months after the mastectomy. The vertical or IMF incision can be used depending on if one scar needs correction or surgeon preference. We prefer the IMF incision. Once the expander is removed, inspection and correction of the pocket is one of the most important steps involved in this surgery. We first place the implant into the breast pocket to visualize soft tissue or capsule that may need to be corrected or manipulated. Rarely will we do an inferior or lateral capsulotomy because we feel that it can lead to stretching of the pocket, resulting in more rippling and wrinkling of the implant. Often the lateral pocket needs to be reinforced to help minimize the amount the implant displaces. A 2-0 Silk suture on a taper needle is used to secure the lateral dermis to tighten the pocket.

With its recent introduction, our implant of choice is a MENTOR® MemoryGel® Xtra Breast Implant. We think this implant has advantages over other implants in reconstruction due to its precision fill that provides increased projection, fullness and firmness when compared to MemoryGel® Breast Implants<sup>2</sup>. When using these devices, we have seen a minimization of implant wrinkles transmitted through the skin. Implant profiles are selected based on the patients' needs using the expanded volume and size of expander placed at mastectomy. It is important to realize that expanders have a 64 cc to 112 cc displacement volume that must be accounted for when selecting an implant<sup>3</sup>. In our experience, MemoryGel Xtra Implants have resulted in less need for additional fat grafting surgeries after exchange than surgeries with MemoryGel® Implants.

We prefer to perform the first fat grafting surgery at the time of exchange. The prepectoral dermis integrates to create a vascular environment for fat grafting. Care should be taken to avoid overloading the vasculature resulting in high amounts of fat necrosis. The primary target area for fat grafting will be in the upper pole and medially. We have found that total skin envelope fat grafting does provide improved implant warmth and is a desirable goal. The optimal amount of fat that we graft in one procedure is 100-150 mL per breast.

## Conclusion

Overall, patients who are prophylactic, or low stage cancer, who don't initially meet criteria for Nipple Sparing Mastectomy (NSM) can still get an NSM with this staged approach. Working closely with your breast surgeon makes this multi-surgery process smoother and insures that everyone is on the same page. It is the mastopexy/reduction mammoplasty that is truly the most important step because it resets the footprint of the breasts that then makes an NSM achievable.

# **Case Histories**

CASE 1: 44-year-old female with left breast cancer.



A) Her breasts are asymmetric with the right breast being bigger. She wears a bra size D and has Grade 2 ptosis.

B) Two months after left lumpectomy with oncoplastic reconstruction and right reduction for symmetry. A Wise pattern skin reduction with an inferior pedicle was utilized. Right breast had 632 grams of tissue removed and the left breast had 308 grams of tissue (including the cancer) removed. The patient did not have positive margins and wanted to continue with Nipple Sparing Mastectomies. She also had depigmentation of the left nipple due to arterial insufficiency. C) Three months after bilateral Nipple Sparing Mastectomies. Patient had 600 cc Smooth, High Profile, MENTOR® ARTOU-RA® Breast Tissue Expanders wrapped in FlexHD® Pliable large dermis placed in the prepectoral space. She had her expanders filled to 600 cc volume in the office.



D) One year after exchange of tissue expanders for implants and two fat grafting surgeries. Patient has 650 cc High Profile, MENTOR® MemoryGel® Breast Implants. The patient underwent left nipple areola tattoo for matching.

# **Case Histories**

### **CASE 2**:

40-year-old female with a PALB2 genetic mutation.





B) Three months after bilateral Nipple Sparing Mastectomies. Patient had 750 cc Smooth, High Profile, MENTOR® ARTOURA® Breast Tissue Expanders wrapped in FlexHD® Pliable large dermis placed in the prepectoral space. Her expanders were filled to 720 cc in the office.



C) One year after exchange for implants and one fat grafting surgery. She has 800 cc High Profile, MENTOR® MemoryGel® Breast Implants.

# **Case Histories**

### CASE 3:

45-year-old female with BRCA1 gene mutation.



A) She wears a bra size D and has Grade 2 ptosis. Her breasts are fairly symmetric in size.

B) Two months after bilateral mastopexy. A Wise pattern with an inferior pedicle was used.

C) Three months after bilateral Nipple Sparing Mastectomy. Patient had 550 cc Medium height, MENTOR® CPX®4 Breast Tissue Expanders placed in the submuscular space with an inferior dermal sling. Her expanders were ultimately filled to 550 cc.



D) Two years after exchange for implants and four fat grafting surgeries. She has 650 cc Ultra High profile, MENTOR® MemoryGel® Breast Implants.

#### REFERENCES

1. Gainer, S.M., & Lucci, A. (2011). Oncoplastics: Techniques for reconstruction of partial breast defects based on tumor location. Journal of Surgical Oncology, 103(4), 341-347.

2. Product Dimensions for MemoryGel and MemoryGel Xtra Breast Implants Mentor R&D Compression Benchtop Testing -July 2017.

3. McCue, J., Lacey, M. and Cunningham, B. (2010). "Breast Tissue Expander Device Volume: Should It Be a Factor?." Plastic and Reconstructive Surgery, 125(1), pp.59-61.

#### IMPORTANT SAFETY INFORMATION

MENTOR® MemoryGel® Breast Implants, MENTOR® MemoryShape® Breast Implants, and MENTOR® Saline-filled Breast Implants are indicated for breast augmentation in women (at least 22 years old for MemoryGel® Implants and MemoryShape® Implants, and 18 years old for Saline Implants) or for breast reconstruction. Breast implant surgery should not be performed in women with active infection anywhere in their body, with existing cancer or pre-cancer of their breast who have not received adequate treatment for those conditions, or who are currently pregnant or nursing.

Breast implants are not lifetime devices and breast implantation may not be a one-time surgery. The most common complications for breast augmentation and reconstruction with MemoryGel® Implants include any reoperation, capsular contracture, and implant removal with or without replacement. The most common complications with MemoryShape® Implants for breast augmentation include reoperation for any reason, implant removal with or without replacement, and ptosis. The most common complications with MemoryShape® Implants for breast reconstruction include reoperation for any reason, implant removal with or without replacement, and ptosis. The most common complications with MemoryShape® Implants for breast reconstruction include reoperation for any reason, implant removal with or without replacement, and capsular contracture. A lower risk of complication is rupture. The health consequences of a ruptured silicone gel breast implant have not been fully established. MRI screenings are recommended three years after initial implant surgery and then every two years after to detect silent rupture. The most common complications with MENTOR® Saline-filled Implants include reoperation, implant removal, capsular contracture, breast pain, and implant deflation.

For MemoryGel® Implants, patients should receive a copy of Important Information for Augmentation Patients about MENTOR® MemoryGel® Breast Implants or Important Information for Reconstruction Patients about MENTOR® MemoryGel® Breast Implants. For MemoryShape® Implants, patients should receive a copy of Patient Educational Brochure - Breast Augmentation with MENTOR® MemoryShape® Breast Implants or Patient Educational Brochure - Breast Reconstruction with MENTOR® MemoryShape® Breast Implants, and a copy of Quick Facts about Breast Augmentation & Reconstruction with MENTOR® MemoryShape® Breast Implants, and a copy of Quick Facts about Breast Augmentation & Reconstruction with MENTOR® MemoryShape® Breast Implants. For MENTOR® Saline-filled Implants, patients should receive a copy of Saline-Filled Breast Implants: Making an Informed Decision. Your patient needs to read and understand the information regarding the risks and benefits of breast implants, with an opportunity to consult with you prior to deciding on surgery.

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For detailed indications, contraindications, warnings, and precautions associated with the use of all MENTOR® Implantable Devices, which include MENTOR® Saline-filled Implants, MemoryGel® Implants, MemoryShape® Implants, ARTOURA® Expanders, and CONTOUR PROFILE® Expanders, please refer to the Instructions for Use (IFU) provided with each product or visit www.mentorwwllc.com.

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- \* Local or systemic infection
- \* Dehiscence and/or necrosis due to poor revascularization
- \* Specific or nonspecific immune response to some component of the graft

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