The Autologous Internal Breast Splint: A Novel Technique for the Treatment of Postaugmentation Ptosis

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Background: Many patients who receive breast implants eventually develop breast ptosis and a descent of the inframammary fold. This usually requires either exchange for a larger implant, mastopexy (vertical or “T” incision), or more recently, the use of the so-called “power lift” or sucturing of the posterior leaf of the capsule to the pectoralis major muscle.

Objective: We report on a new technique for correction of postaugmentation ptosis, also called “implant ptosis,” (IP) without making any further incisions on the breast or producing any breast distortion.

Methods: A capsulotomy was performed through existing incisions, and the implant was removed. The posterior capsule was elevated from either the pectoralis major muscle (subglandular implants) or the anterior chest wall (submuscular implants). Approximately one half of the posterior capsule was reflected from its posterior attachments and then sutured to the anterior leaflet of the capsule, creating a “sandwich.” This internal autologous splint elevated and medialized the implant, while adding thickness and strength to the capsule. It was then sutured to the periosteum of the anterior rib at the level of the new inframammary fold. The new implant was then placed in the submuscular position.

Results: Operations were performed between 4 months and 8 years after the original augmentations in 11 women with bilateral breast implants who developed Grade II to III ptosis after augmentation in either the subglandular (n = 4) or submuscular (n = 7) positions. Preoperatively, all patients displayed Type 1 or 2 capsules. Follow-up was from 1 to 3 years after surgery. The technique produced an aesthetically pleasing breast with correction of the ptosis. No additional incisions on the breast were necessary, and no restrictions to breast shape were noted with full arm motion. Long-term follow-up displayed good position of the nipple-areolar complex and high patient satisfaction.

Conclusions: The autologous internal breast splint is a novel technique for the treatment of postaugmentation ptosis that both medializes and elevates the implant when necessary. Although it was performed through previous incisions in this study, it may be coupled with a standard mastopexy procedure. This technique may solve many of the problems associated with postaugmentation breast ptosis and warrants further investigation. (Aesthetic Surg J 2005;25:587-592.)

Augmentation mammoplasty is one of the most popular cosmetic surgical procedures, with more than 334,000 procedures performed in 2004. One cause for concern among postaugmentation patients is implant ptosis (IP). IP is the descent of the breast implant below its desired position. This can be quantified as a lengthening of the nipple to inframammary fold (IMF) distance, out of proportion to the other breast proportions.

IP can result from several different causes. A lengthening of the nipple to IMF distance, while not necessarily lowering the IMF, is a natural postaugmentation phenomenon secondary to gravity in patients who have thin breast skin and little subcutaneous adipose tissue. Another cause of IP is descent of the IMF. This cause can be attributed to overzealous dissection of the IMF at surgery, or complete disruption of the IMF during procedures that cross this boundary, such as the transumbilical breast augmentation (TUBA) procedure.

Once IP occurs, it can exacerbate the “double-bubble” effect of the breast. It may also distort the nipple-breast relationship. This may result in “bottoming-out” of the breast, so that the nipple appears too high above the transverse breast meridian and points upwards, and may also cause the implants to sit too low on the chest wall. Treatment options to reposition the breast implant...
and re-create the IMF include both internally and externally based procedures. External procedures have the disadvantage of causing visible scars and do not address the problems that arise in patients with thin skin and those with little subcutaneous tissue.  

More recently, the techniques of anchoring a capsular flap or creating a sling to the pectoralis major muscle have been described.  

Although successful in addressing breast implant ptosis, these techniques have the disadvantage of causing unnatural tethering of the breast with arm abduction. Internal plication of the capsule at the planned IMF is another well-described option, as is the use of cadaveric dermis sutured to the atrophic capsule to reposition the ptotic breast and implant. Although the latter technique usually leads to excellent initial results, its long-term outcome is less certain because of the previously mentioned patient variables—namely, thin breast skin and little adipose tissue.

Another internal approach to treatment of IP uses a circumareolar incision. This approach is similar to the inframammary approach for plication, with the addition of an internal splint. The splint is the posterior capsule and soft tissue, and adds tissue between the skin and the implant, especially in the lower pole. This not only gives a more natural appearance to the breast, but improves the durability of the repair by adding tissue thickness. Although others have described procedures to aid in maintaining the position of the replaced implant after capsulotomy/capsulectomy, we propose a novel technique that uses the capsule to maintain the position of the new implant. This obviates the need for capsulectomy. This technique can be used for the repositioning of the implant.
and the inframammary fold, regardless of prior implant placement in the subglandular or submuscular plane.

**Materials and Methods**

All patients were informed of the nature of the surgery, as well as the risks and benefits, and agreed to participate in the study. Preoperatively, the IMF was marked with the patient in the sitting position. The “ideal” position of the implant and IMF was determined by physically manipulating the breast to the desired position and shape with the implant in place and marking the new IMF (Figure 1). This automatically produced the anchor point at the inferior edge of the autologous splint. In most patients with IP, the implant falls below the transverse breast meridian (set at the nipple). If the distance is too small, the larger portion of the implant is above the transverse breast meridian. The distance from the nipple to the new IMF should optimally be 5 to 10 cm but varies based on patients’ height and breast size.

The procedure was performed through either a periareolar or inframammary incision. Next, a capsulotomy was performed and the implant was removed. The posterior capsule was then elevated from either the pectoralis major muscle with the muscle fascia (subglandular implants) or the anterior chest wall (submuscular implants) (Figure 2). Approximately one half of the posterior capsule was reflected from its posterior attachments and then sutured to the anterior leaflet of the capsule, creating a “sandwich.” The splint edge was sutured to the periosteum of the anterior rib at the level of the new inframammary fold. This elevated the

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**Figure 2.** A, B, Approximately one half of the posterior capsule was reflected off its posterior attachments and then sutured to the folded-over anterior leaflet of the capsule, creating a “sandwich.” C, D, The internal autologous splint elevated and medialized the implant. It was then sutured to the periosteum of the anterior rib at the level of the new inframammary fold. The capsule leaflet was then scored in a radial fashion (dashed line). The new implant could then be placed in the submuscular position. Note how the nipple position was elevated above the horizontal position of the breast, as shown by the dotted line.
implant above the transverse meridian of the breast, thereby raising the nipple to a more youthful position. The poorly distensible capsule was scored radially to allow for contouring of the anterior breast capsule. This internal autologous splint elevated and medialized the implant. The new implant was then placed in the submuscular position.

Results

The procedure was performed in 11 women, aged 24 to 52 years, who had received bilateral breast implants and developed Grade II-III ptosis. Surgery took place from 4 months to 8 years after the original augmentation. Implants placed both in the subglandular (n = 4) and submuscular (n = 7) positions were included in the project. Follow-up was from 1 to 3 years after surgery. The technique was used to treat capsular contracture and implant malposition (Figure 3), disrupted inframammary folds (Figure 4), and also to produce a more natural postaugmentation appearance (Figure 5). No additional incisions were made on the breast, and no unnatural restrictions to full motion of the arms.
resulted from the surgery. Long-term follow-up demonstrated good positioning of the nipple-areolar complex. Patients expressed high levels of satisfaction with their results upon subjective questioning. Asymmetry of the IMF occurred in one patient; otherwise, no complications were noted.

Discussion

The autologous internal breast splint is a novel, reproducible technique for the treatment of postaugmentation ptosis and implant displacement by both medializing and elevating the implant as necessary. This technique makes use of the capsule in the repair, providing a strong “splint” to maintain the breast implant in the proper position. It adds longevity to a previously accepted technique. It also adds soft tissue to thin, inferior pole areas. We find the new technique useful for implant displacement, such as inferior and horizontal correction of folds caused by the creation of excessively large lateral pockets for the implant in the initial procedure, and for the correction of symmastia. It also involves less surgical trauma to the breast than a capsulotomy; we believe this will lower the risk of a future capsular contracture. The technique was used to treat patients with capsular contracture and implant malposition, disrupted inframammary folds and also was used to achieve a more natural-appearing postaugmentation appearance. Long-term follow-up demonstrated a longer-lasting result with little impact on patient function and no breast distortion with movement. Although our cases were performed through previous incisions, the technique may also be coupled with a standard mastopexy procedure.

Conclusion

The autologous internal breast splint described here results in an aesthetically pleasing breast with the planned correction of IP. This technique may solve many of the problems associated with postaugmentation breast ptosis and warrants further investigation.

References

This project was not funded by nor did the authors directly or indirectly receive any proceeds from any product(s) mentioned in this paper.

This paper was presented at the International Confederation for Plastic, Reconstructive and Aesthetic Surgery 13th Annual Meeting, August 10-15, 2003, Sydney, Australia.

Accepted for publication August 5, 2005.
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1090-820X/530.00
doi:10.1016/j.asj.2005.09.014