



Breast Surgery

Preoperative Saline Implant Deflation in Revisional Aesthetic Breast Surgery

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Abstract

Background: Preoperative saline deflation is a clinically useful intervention in revisional breast surgery. It allows suspensory ligament recovery, reveals true glandular volume, and simplifies mastopexy markings. Presently unknown are the volumetric changes that occur after deflation.

Objectives: The authors report the three-dimensional (3D) changes that occur with preoperative deflation prior to revisional breast surgery.

Methods: We reviewed available charts of revisional breast surgery patients who underwent preliminary saline implant deflation. Our protocol is deflation 4 weeks prior to revision. Three weeks following deflation, the patient is evaluated to finalize the operative plan, including the need for implants, mastopexy, and adjunctive procedures. A subset underwent 3D imaging to quantify the volumetric changes over the 3-week deflation period.

Results: Between 2002 and 2014, 55 patients underwent saline implant deflation prior to 57 revisional surgeries. Seventeen were revised without implants and 40 with implants. The 3D subset of 10 patients showed a mean 15.2% volume increase and 0.18 cm notch-to-nipple distance decrease over the 3 weeks following deflation and prior to definitive surgical correction.

Conclusions: Breast volume increases and the notch-to-nipple distance decreases during the 3-week interval prior to reoperation. This “elastic breast recoil” occurs after the mass effect of the implant is removed, resulting in recovery of stretched suspensory ligaments and gland reexpansion. We believe 4 weeks is optimal for gland normalization. Ideal candidates include patients requiring secondary mastopexy without implants, implant downsizing in the same pocket, and secondary augmentation mastopexy. Preoperative saline deflation and 3D analyses are useful for preoperative planning in reoperative breast surgery.

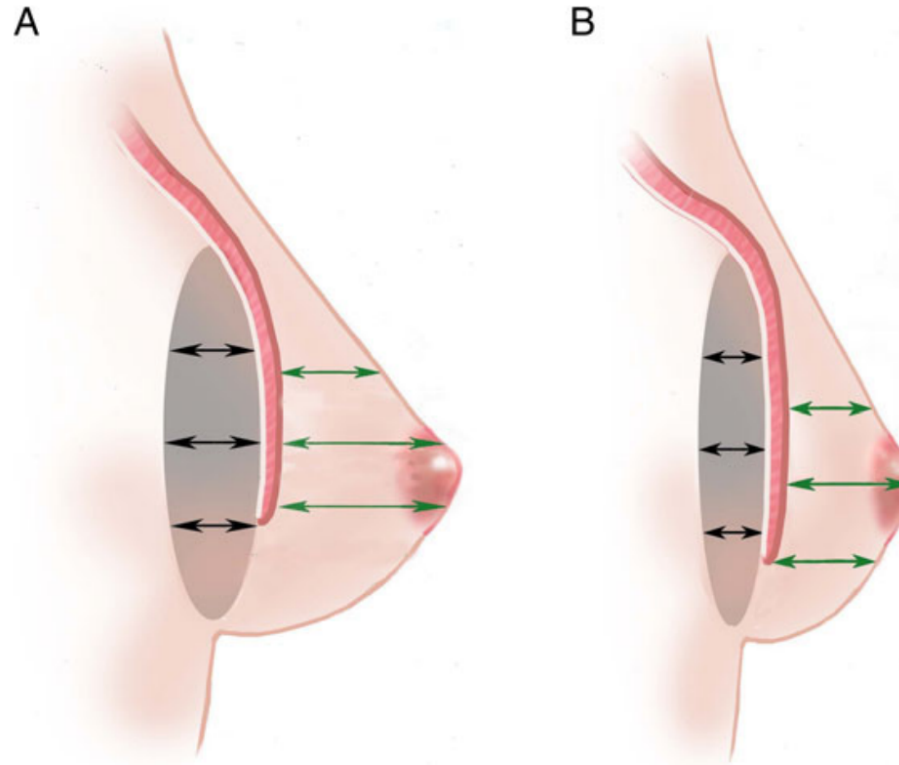


Figure 1. Elastic breast recoil. (A) The interstitial pressure of the saline implant exerts outward force (black arrows) onto the breast parenchyma (green arrows) which also exerts pressure onto the implant and skin envelope. (B) After saline deflation,

the interstitial pressure exerted by the saline implant onto the parenchyma (black arrows) drops, and the parenchyma is able to re-expand back towards its pre-augmented volume (green arrows).

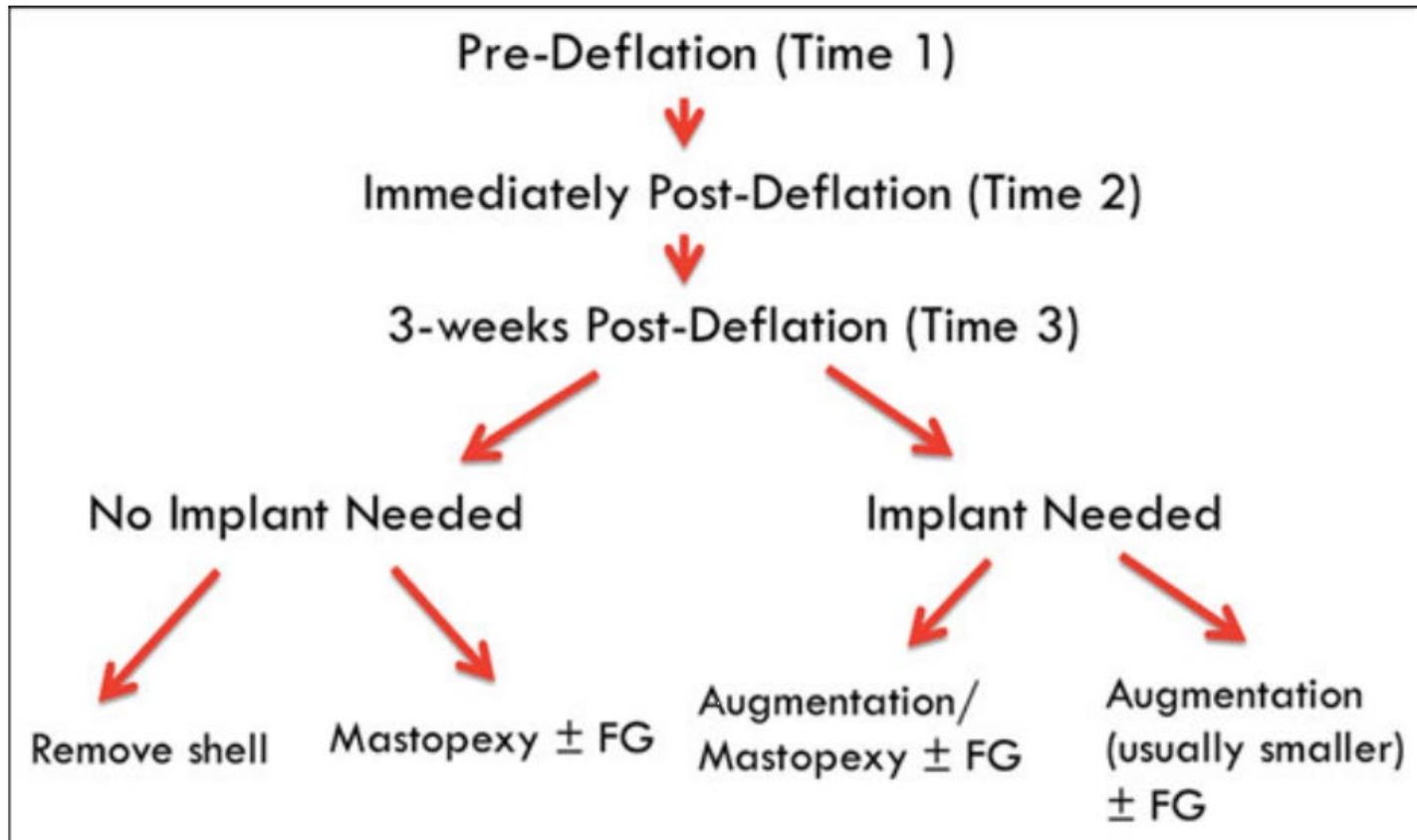


Figure 2. Preoperative saline deflation algorithm. FG, fat grafting.



Figure 4. This 44-year-old woman was initially treated 11 years ago with bilateral augmentation mastopexy using 410 cc smooth round saline implants. She subsequently developed macromastia with asymmetry of lower pole mass. Additionally, she has widened nipple areolar complexes (NACs) bilaterally. (A, D, G) Initial presentation. (B, E, H) Immediately after deflation. (C, F, I) Eighteen months after replacement with 225 cc smooth round saline implants, with bilateral reduction (L = 203 grams, R = 115 grams).

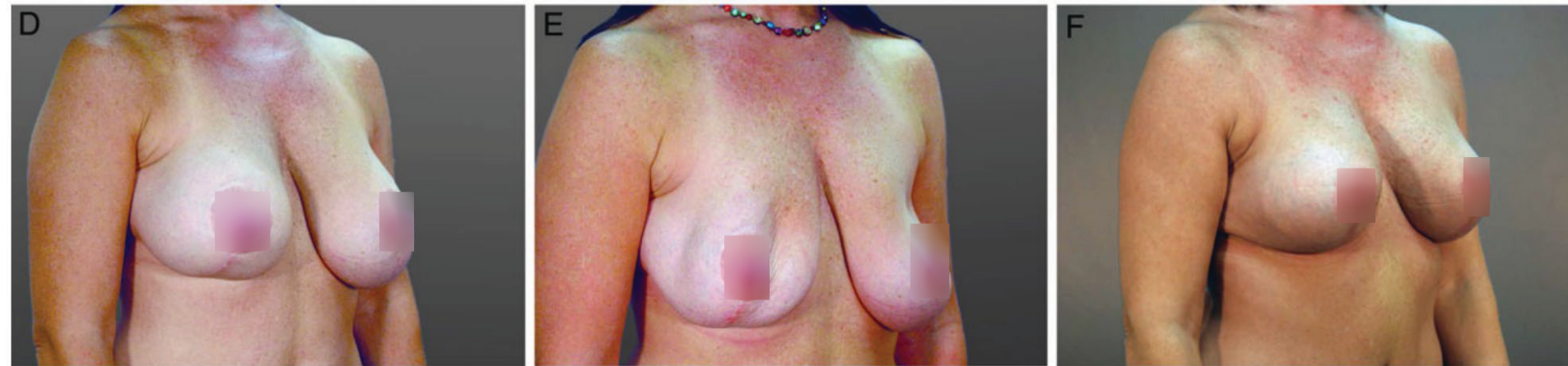


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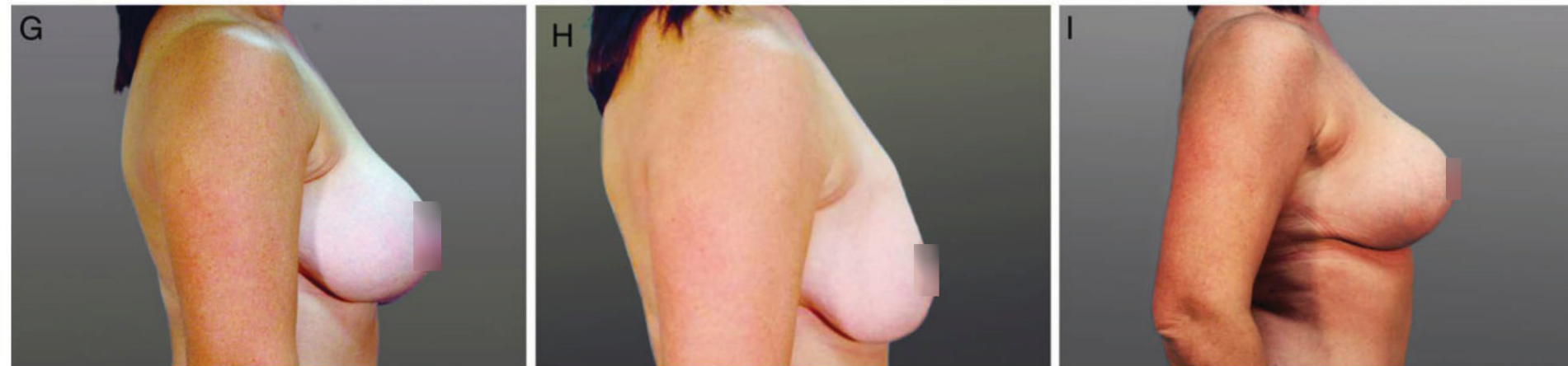


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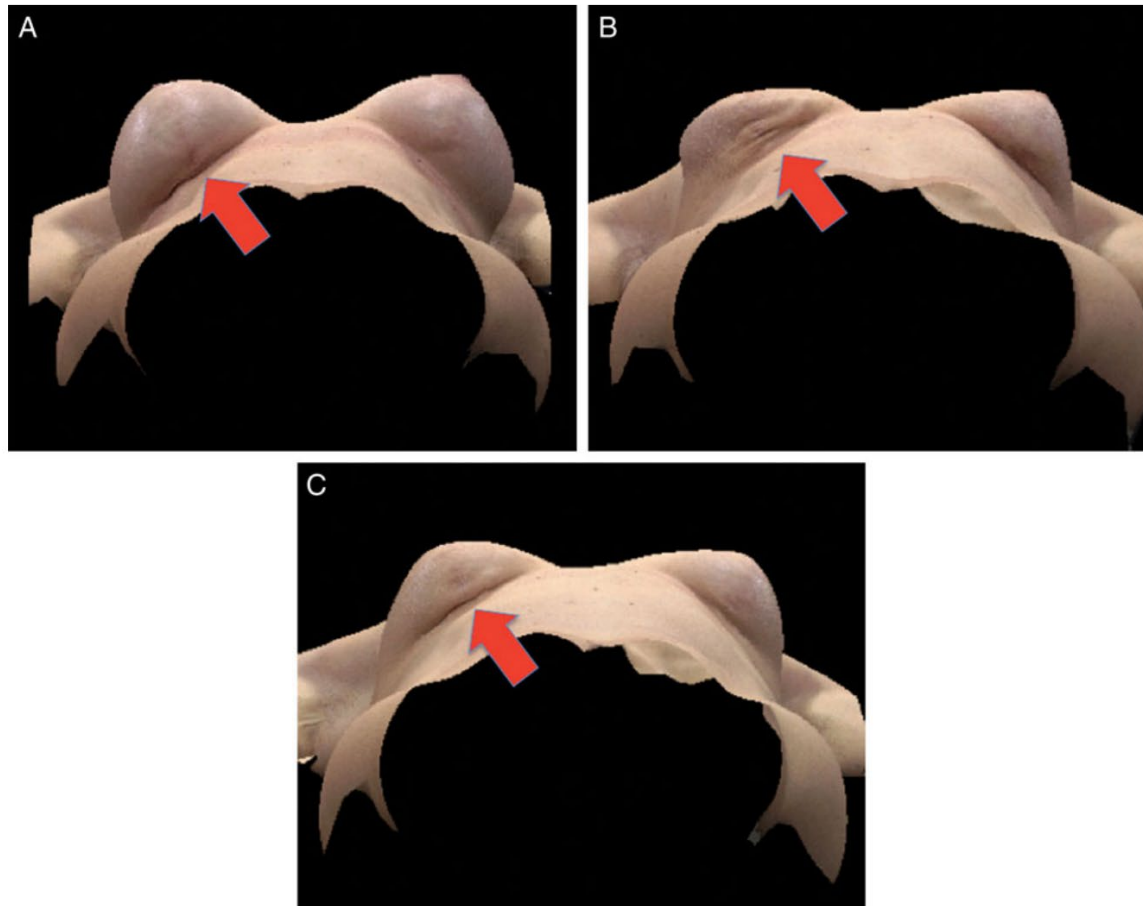


Figure 5. Three-dimensional imaging of a 61-year-old woman who underwent the deflation process. This gland recovery is most noticeable in the basal view. The red arrow indicates the lower pole of the breast. (A) Before deflation. (B) Immediately post-deflation. Note the soft tissue irregularities in the lower pole skin immediately after deflation (red arrow). (C) Three weeks post-deflation. These lower pole soft tissue irregularities (red arrow) have resolved by 3 weeks.



CONCLUSIONS

Breast volume appears to increase after saline implant deflation in the 3 week interval prior to reoperation. A possible explanation for this is shortening of the suspensory ligaments and recovery of parenchyma that have previously been stretched by the implant, with resultant re-expansion of the gland. This “elastic breast recoil” phenomenon is important to note prior to secondary breast surgery. We find that a 4-week period is optimal for the gland to normalize prior to definitive correction. Ideal candidates include patients requiring secondary mastopexy without implants, implant downsizing in the same pocket, and secondary augmentation mastopexy. Preoperative saline deflation and 3D analysis are useful for preoperative planning in reoperative breast surgery.