

Primary Breast Augmentation with Fat Grafting



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KEYWORDS

- Fat grafting breasts • Breast fat grafting complications • Breast augmentation
- Breast reconstruction

KEY POINTS

- Fat grafting is safe.
- Fat grafting can be used for all types of cosmetic and reconstructive breast procedures, producing soft, natural results.
- Fat is a fragile tissue that must be handled with care to maintain its viability.
- Centrifugation condenses the fat and makes the volumes grafted more predictable and reproducible.
- Fat must be placed into the breast in small aliquots to minimize the chance of fat necrosis.
- Potential complications include fat necrosis and body contour irregularities.
- There is a significant learning curve associated with fat grafting to the breasts.

INTRODUCTION

As early as 1895, Czerny¹ introduced the concept of fat grafting to the breasts when he published an article describing a breast reconstructed using a fist-sized lipoma from the buttock to replace breast tissue removed caused by mastitis. Eugene Holländer² began experimenting with fat injections to breasts and in 1912 was the first to describe fat injections to the breast. He showed the correction of not only a missing portion of a breast but also the improvement of scarring of the chest. In 1919, Erich Lexer³ published his 2-volume book, *Die freien Transplantationen* (translation: free transplantations), which advocated fat grafting for numerous purposes, including correction of breast asymmetry.³

After Fournier⁴ and Illouz⁵ developed the technique of liposuction in the mid-1980s there was renewed interest in fat grafting with the newly acquired semiliquid lipoaspirate. However, in 1987 the American Society of Plastic Surgeons (ASPS) issued a position paper that condemned the practice of fat grafting to the breasts, because they were concerned that the grafted fat would obscure a breast cancer. Sydney Coleman^{6–9} began to report his positive experiences with fat grafting to the face and body in the 1990s and emphasized the need for gentle extraction of the fat, purification by centrifugation, and placement of the fat in tiny aliquots to maximize revascularization. He witnessed such reliable results in the male pectoralis muscle, as well as in massive iatrogenic liposuction deformities and buttock augmentation,

Disclosures: Royalties received for instruments sold by Mentor, paid consultant for the Armed Forces Institute of Regenerative Medicine, Mentor Worldwide LLC, and MusculoSkeletal Transplant Foundation (MTF) (S.R. Coleman). No disclosures (A.P. Saboeiro).

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Clin Plastic Surg 42 (2015) 301–306

<http://dx.doi.org/10.1016/j.cps.2015.03.010>

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that he decided to perform fat grafting to the breasts in a limited number of patients, and we reported these results in 2007.¹⁰ Our findings showed that breasts can be remarkably enhanced in terms of size and shape with autologous fat. Furthermore, we believed that the grafted breasts could be easily imaged radiologically and that the grafted fat did not hide breast cancer. A few oil cysts and a few calcifications were noted that could be easily distinguished from lesions seen with malignancy. In 2009, Rigotti and colleagues¹¹ reported no increase in breast cancer recurrence rates in women who underwent breast reconstruction with fat, and more recently it has been reported that radiographic follow-up of breasts grafted with fat is not problematic and should not hinder the procedure.^{12–14} With all of this new information on fat grafting to the breasts, the moratorium condemning the procedure has been reversed and the ASPS position statement has been revised.¹⁵ In 2009, the ASPS Fat Graft Task Force stated that, “Fat grafting may be considered for breast augmentation and correction of defects associated with medical conditions and previous breast surgeries; however, results are dependent on technique and surgeon expertise.” We think that the Coleman method for fat grafting to the breast is predictable and stable over time, and this is discussed in this article.

TREATMENT GOALS AND PLANNED OUTCOMES

Although optimal breast size is not universal, the usual goal of most breast procedures is to create a breast shape that is pleasing, youthful, and natural. The shape of the female breasts depends on numerous factors, including the underlying rib cage, the pectoralis muscle, the breast parenchyma and subcutaneous fat, and the elasticity of the overlying skin. Not all of these areas can

be directly injected with fat, but they can be influenced and disguised with fat. In the breast/chest area, we have used fat grafting in the following clinical presentations:

1. Primary breast augmentation in patients desiring a modest increase of approximately 1 cup size. If the patient has additional body fat and desires more volume, a secondary procedure can be performed (**Figs. 1** and **2**). Placement around existing breast implants is also possible to disguise the edges and improve capsular contractures. In addition, wrinkling and rippling can be disguised with the addition of fat around the implants as well.
2. To take the place of implants that have been removed. There is a size limitation with 1 fat grafting procedure; therefore, a secondary procedure may be necessary (**Fig. 3**). For correction of tuberous breasts and Poland syndrome, the constricted lower pole of the tuberous breast can be preferentially expanded to improve the overall shape, and the missing or atrophic pectoralis muscle and breast in Poland syndrome can be simulated using fat.
3. To provide coverage over a bony sternum or to fill a pectus excavatum.
4. To precisely fill a lumpectomy or biopsy defect.
5. To reverse radiation damage after breast cancer treatment.¹¹ The apparent stem cell effect of placing fat beneath radiated tissues is healing of the damaged tissue and improving the quality of the skin, often making further reconstruction possible.
6. To reconstruct a breast after mastectomy. If no previous reconstruction has been performed, fat can be used to create the entire breast in multiple stages. If an implant or flap reconstruction has been performed, fat can be placed into specific residual defects.

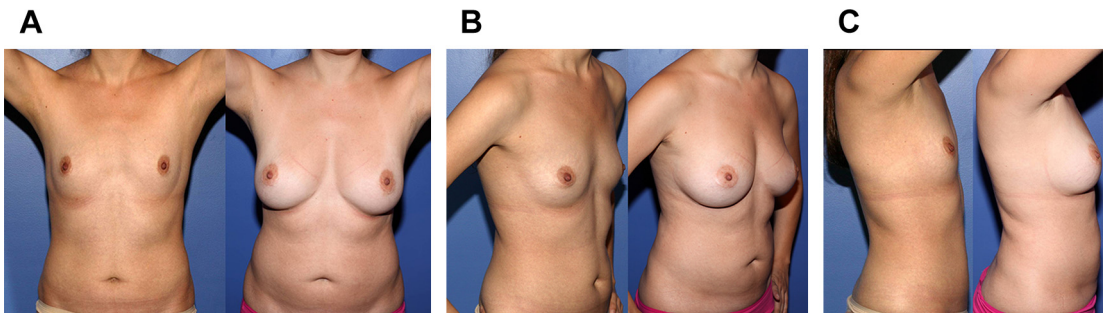


Fig. 1. (A–C) A 35-year-old woman who desired larger breasts with a natural feel and slope. She wore the BRAVA device before each of 2 surgeries. She also had a third surgery on 1 breast only. During the first procedure, 232.5 cm³ were placed into the right breast and 230 cm³ were placed into the left. During the second procedure, 272.5 cm³ were placed into the right breast and 287.5 cm³ were placed into the left. During the third procedure, 112.5 cm³ were placed into the lower pole of the left breast only. The total volume placed on the right was 470 cm³, and the total placed on the left was 630 cm³. She is shown before her first surgery and 10 months after the third procedure.

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