Indications and Controversies in Lipofilling for Partial Breast Reconstruction

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KEYWORDS

• Lipomodeling • Fat grafting • Breast conservative treatment • Sequelae

KEY POINTS

- Sequelae after conservative breast cancer treatment are deformities difficult to treat with the classic approach.
- Lipomodeling is a reproducible technique with very good results, but the surgical plan should include one or more fat transfer sessions.
- The radiologic impact of fat grafting to the breast is not different from that observed with other breast surgeries.
- The advent of fat grafting to the breast revolutionized the aesthetic results with a natural volume replacement.

INTRODUCTION

The sequelae after conservative breast cancer treatment are a challenge,[1] and until now, no technique gave a very good result. Flaps, like the latissimus dorsi musculocutaneous flap,[2,3] were the only treatment proposition, and usually they were associated with new scars and long surgery and recovery.

Most often, patients who had conservative breast surgery present for correction of the remaining deformity a few years after the end of cancer treatment, when they are ready to move forward and get over this episode of their life. Correction of the deformity allows them to reintegrate the breast into their body image.

After very good results achieved with fat transfer in breast reconstruction,[4,5] the authors have decided to try and use it for the treatment of conservative breast surgery sequelae. This decision was supported by an imaging study that they conducted on breast reconstruction–associated fat grafting. This study showed no new pathologic lesion and no impact on the screening process.[6]

The purpose of this article is to present the information that should be presented to patients and the preoperative workup, surgical technique, results that can be obtained, advantages and disadvantages, eventual radiologic modifications after lipomodeling, and in the end, the medicolegal aspects linked to a coincidence between the appearance of a local recurrence and fat transfer.

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TECHNIQUE JUSTIFICATION

The use of fat grafting in breast surgery is an old concept.[7] In a more recent period, Illouz[8] and Fournier[9] suggested from the beginning of modern liposuction to use the aspirated fat to obtain moderate breast augmentation. Bircoll[10] presented the same technique and underlined the advantages of this technique[10,11]: easy, no scars, early return to normal activities, and no implant, without talking about the secondary benefit of liposuction of the donor areas. These 2 articles resulted immediately in many very outspoken opposing reactions.[12–17] The critics insisted on the fact that fat injections in a normal breast can produce microcalcifications and cysts, making it difficult to detect cancer. Even if Bircoll explained in his replies[18,19] that the calcifications after fat transfer are different in localization and radiologic aspect than those seen in tumors, and that after breast reduction the same aspects are encountered and they do not effect breast screening, the result of the debates remained negative for fat grafting to the breast.

In 1998, the purpose of the authors' research subject on fat transfer to the breast was to improve the technique to decrease the fat necrosis images and to tackle the taboo that suspended any work in breast fat grafting.

Observing the efficacy and success that fat grafting had when transferred to the face, the authors came up with the idea to use this technique in breast reconstruction. At first, they used fat grafts in addition to breast reconstruction with total autologous latissimus dorsi flap.[20] Afterward, they widened the indication for most patients who had breast reconstruction by autologous latissimus dorsi flap and desired a better result, with a better cleavage, better breast form, and consistency. The authors conducted an imaging study[6] using mammogram, ultrasound, and MRI. This study showed that the impact on breast imaging did not interfere with cancer surveillance. For this reason, they progressively widened fat grafting indications for different breast reconstruction cases, then for thoracic mammary malformations, to the breast conservation treatment sequelae, and more recently, in aesthetic surgery of the breast. The first presentations to the French Society of Plastic and Reconstructive Surgery[21] and worldwide[22] received the same hostile polemic as the earlier work in 1987. The authors responded point for point, and with every presentation, the hostile reactions diminished, and, in the end, fat grafting was adopted as one of the techniques used in breast reconstruction.[4,23]

PATIENT INFORMATION

The first consultation should expose the patient's medical history and her expectations from the reconstruction. Each patient is informed in detail by informed consent about the operation, advantages, disadvantages, and possible complications. The authors focus particularly on fat loss that is normal in the first months, on the fact that a second surgery may be needed if the initial deformity is severe, and on variation in result with weight changes. They also inform the patient about ecchymosis and the minimal scarring that are to be expected in the donor site.

A thorough clinical examination is performed with the patient standing, and the affected breast is compared with the contralateral breast in order to identify and mark the areas that need correction. The authors also evaluate breast symmetry, global volume, fullness, nipple-areola complex position, importance of global volume loss, and presence of retractile scars. They evaluate the volume of fat needed to harvest and transfer, and the associated procedures, like fasciotomies, symmetrization or nipple reconstruction, and areola tattoo.[24] They identify fat donor sites. Most often they harvest from the abdominal area, because it does not require positional change during surgery; the second choice for harvesting is the trochanteric region, often in combination with harvest from the inner thighs and knees and also from the posterior thighs. The patient should have stable weight when surgery is performed because the transferred fat retains the memory of the donor site, and if the patient loses weight after lipomodeling, she is going to lose a part of the surgery benefit.

Before lipomodeling, the pathology result of the initial breast cancer, to confirm that the resection was complete, and consent from her oncologist are needed.

According to the authors' protocol, all patients have ultrasound, mammogram, and breast MRI before surgery and breast ultrasound and mammogram 1 year after surgery.

The risk of recurrence is clearly explained to the patient along with the risk of a coincidental occurrence between lipomodeling and local relapse. In the case of recurrence, a mastectomy and immediate breast reconstruction can be performed.[25]

SURGICAL TECHNIQUE

The lipomodeling technique used in the treatment of breast conservation deformity is derived from that used for breast reconstruction.[2,3] The purpose of fat grafting is to transfer fat from a site