

## Discussion: The Oncologic Outcome and Immediate Surgical Complications of Lipofilling in Breast Cancer Patients: A Multicenter Study—Milan-Paris-Lyon Experience of 646 Lipofilling Procedures

Peter G. Cordeiro, M.D.  
New York, N.Y.

The use of fat grafting to correct contour abnormalities has been described in the plastic surgery literature for decades. However, the technique has not been historically embraced because of lack of reliability and high resorption of the grafts with minimal to no take. Newer approaches to grafting, treatment of the lipoaspirate, and even addition of growth factors appear to be producing more reliable results and long-term take of the grafts. As more researchers have examined the mechanism of graft take, studies suggest that adult stem cells, preadipocytes, may be the cells that contribute to long-term survival.<sup>1</sup> These cells have also been known to produce endocrine and paracrine factors that potentially can stimulate (or inhibit) growth of cancer cells.<sup>2</sup> Because fat transfer has been increasingly used to improve contour defects after mastectomy and breast conservation surgery, and for augmentation of the normal breast, we have to raise the question of whether it is safe from the oncologic standpoint.

Treatment of women with breast cancer includes breast conservation therapy and mastectomy. In both cases, a portion of or the entire breast is resected by the oncologic surgeon. Most patients who undergo breast conservation therapy for invasive cancer then receive adjuvant radiotherapy, whereas many who undergo mastectomy do not. However, there is an increasing population that also receives postmastectomy irradiation. The 20-year local recurrence rate and locoregional recurrence rate vary from 8.8 to 14 percent for breast conservation therapy and from 1.0 to 2.3 percent for mastectomy, depending on the institution, the breast oncologic surgeon, and the period of study.<sup>3,4</sup> The type of adjuvant or neoadjuvant chemotherapy also can have some impact.

Thus, the rates of local and locoregional recurrence can be highly variable, depending on the individual patient population that is studied.

This article by Petit et al. describes the oncologic outcomes and early complications of a large series of patients at three major cancer centers who underwent fat transfers for both mastectomy defects following reconstruction and breast conservation therapy deformities. The strength of the article is the large cohort that only a multicenter study can provide. The very low surgical complication rate is a testament to the newer techniques of fat centrifugation and low-volume injections. The reconstructive surgeon's fear that this technique could potentially result in significant fat necrosis and severe infections with consequent loss of reconstructions can clearly be allayed based on this group's data.

However, the principal concern of the oncologic community that these injections may increase local/locoregional recurrence rates remains. The Milan-Paris-Lyon experience provides raw data that are quite useful in that they provides the reader with an approximate local and locoregional recurrence rate for patients who undergo fat transfer after mastectomy/reconstruction (1.38 percent per year) or breast conservation therapy (2.07 percent per year). The authors separate their cancer populations into in situ versus invasive cancer, but not by tumor size, lymph node status, or chemotherapy protocols, which can potentially impact the local and locoregional recurrence rates. Variations in approach to cancer therapy between the three institutions are also not specified. Furthermore, comparisons with rates of local/locoregional recurrence from historical series of the European Institute of Oncology are

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potentially very deceptive because these cohorts of patients might have had a very different distribution compared with the patients in the current study with regard to cancer stage, types of cancer, and surgical/medical treatment. They may or may not be comparable groups.

The rate of local/locoregional recurrence in patients who undergo mastectomy plus lipofilling appears to be reasonably low and possibly not increased over a similar group of patients, although the comparative data are not provided. It is much more worrisome to see a higher rate of local/locoregional recurrence in breast conservation therapy patients who undergo lipotransfer, particularly because the follow-up period in this study is quite short. It would be much more encouraging to see some of these data analyzed using survival curve analysis to get a better handle on what the long-term local recurrence/locoregional recurrence/survival is in both groups of patients and to compare them with oncologically matched controls.

The authors have clearly acknowledged some of the above shortcomings of this article; these inadequacies need to be stressed so that the reader does not assume that these procedures are oncologically safe. More studies clearly need to be performed using a prospective randomized approach with matched patient cohorts. These would be most effectively carried out in a multicenter trial with rapid accrual. Much longer term survival

analysis also needs to be provided. The question concerning oncologic safety of lipofilling for reconstruction of postmastectomy patients and breast conservation therapy patients remains largely unanswered. These procedures should therefore be performed with caution, in carefully selected patients, and in a setting that allows for close follow-up and monitoring of these women.

*Peter G. Cordeiro, M.D.*

Department of Surgery  
Plastic and Reconstructive Surgery Service  
Memorial Sloan-Kettering Cancer Center  
1275 York Avenue, MRI-1007  
New York, N.Y. 10065  
cordeirp@mskcc.org

#### REFERENCES

1. Rigotti G, Marchi A, Galiè M, et al. Clinical treatment of radiotherapy tissue damage by lipoaspirate transplant: A healing process mediated by adipose-derived adult stem cells. *Plast Reconstr Surg.* 2007;119:1409–1422; discussion 1423–1424.
2. Gutowski KA; ASPS Fat Graft Task Force. Current applications and safety of autologous fat grafts: A report of the ASPS fat graft task force. *Plast Reconstr Surg.* 2009;124:272–280.
3. Veronesi U, Cascinelli N, Mariani L, et al. Twenty-year follow-up of a randomized study comparing breast-conserving surgery with radical mastectomy for early breast cancer. *N Engl J Med.* 2002;347:1227–1232.
4. Fisher B, Anderson S, Bryant J, et al. Twenty-year follow-up of a randomized trial comparing total mastectomy, lumpectomy, and lumpectomy plus irradiation for the treatment of invasive breast cancer. *N Engl J Med.* 2002;347:1233–1241.

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