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## Post-Mastectomy Fat Graft/Fat Transfer ASPS Guiding Principles

### INTRODUCTION

Plastic surgeons' clinical interest in fat graft/fat transfer and fat injection procedures remains high and some applications are becoming increasingly mainstream in plastic surgery practice. Many scholarly papers published on the subject have encouraged physicians considering the current applications and techniques of fat grafting. Before engaging in the practice of autologous fat grafts, plastic surgeons should give consideration to the safety, efficacy, and evidence of various applications and techniques. Recommendations herein are limited to fat transfer to the post-mastectomy breast with no native breast tissue present.

### BACKGROUND

Scientific literature describes fat grafting for various indications, both cosmetic and reconstructive including, but not limited to the breast. In 1987, ASPRS published its first Fat Grafting Report, as produced by the Ad-Hoc Committee on New Procedures. The committee advised against the use of autologous fat injection in breast augmentation, labeling it experimental and citing the possibility that injected fat could hinder breast cancer detection. In 2007, the ASPS constituted a Fat Grafting Task Force charged with reviewing the scientific evidence on indications, risk/complications, safety/efficacy, patient selection and technique. Ultimately, in 2009 the ASPS Executive Committee approved Guiding Principles that did not provide specific recommendations for the clinical use of fat grafts, citing a lack of strong data and literature. However, the review of the scientific evidence by the Task Force indicated that there were no reports suggesting an increased risk of malignancy associated with fat grafting and limited data suggested that fat grafts may not interfere with radiologic imaging for breast cancer detection. Soon after, in 2011, a joint ASPS/ASAPS Task Force issued a Position Statement to address concerns regarding advertising claims and/or clinical practices using stem cells and fat grafting.

The growing utilization of fat grafting and rapidly increasing demand for evidence-based guidance was brought to the attention of the ASPS Patient Safety Committee. In January 2012, the Patient Safety Committee was charged with reviewing the available scientific evidence on fat grafting to determine whether an update to the existing ASPS Fat Grafting Guiding Principles was merited. In the past, fat grafting has been considered experimental, however, the quality of evidence to date indicates fat grafting to the post-mastectomy breast with no native breast tissue is a safe and effective modality in breast reconstruction. Thus, the 2012 Post-Mastectomy Fat Graft/Fat Transfer ASPS Guiding Principles serve as an update and supplement to the 2009 Fat Transfer/Fat Graft and Fat Injection ASPS Guiding Principles.

### DISCLAIMER

These guiding principles should not be construed as a rule and are not meant to serve as the standard of medical care. When interpreting and applying these guiding principles to their individual practices, physicians should use their personal and professional judgment.

### SCIENTIFIC EVIDENCE

An evaluation of available literature on autologous fat grafting following mastectomy with no remaining native breast tissue indicates that the body of evidence is comprised mostly of case series, and when combined, the studies provide consistent evidence, thus resulting in grade B recommendations. A grade B recommendation encourages clinicians to employ the available information while remaining cognizant of newer, evidence-based findings. The existing evidence suggests autologous fat grafting as an effective option in breast reconstruction following mastectomy while demonstrating moderate to significant aesthetic improvement. In addition, the available evidence also cites autologous fat grafting as a useful modality for alleviating post mastectomy pain syndrome. Furthermore, the evidence suggests autologous fat grafting as a viable option for improving the quality of irradiated skin present in the setting of breast reconstruction.

## Risks and Complications

Based on available literature, complication rates associated with fat grafting are relatively low. Risks and complications reported in the literature include bleeding, calcifications, fat embolism, fat necrosis, infection, oil cysts and graft volume loss; risks and complications of autologous fat grafting are not necessarily limited to these reports. Cases of severe complications and death appear to be extremely rare. Fat grafting to the post-mastectomy reconstructed breast does not delay breast cancer detection or increase breast cancer recurrence.

## Technique: Efficacy and Outcome

The safety, efficacy and final outcome of any given case is dependent on the technique used. Although there is no standardization for technique, detailed descriptions of fat graft harvest, preparation, storage and injection have been described in the literature. Overall, autologous fat grafting to the post mastectomy breast with no remaining native tissue yields aesthetic improvement and significant patient satisfaction.

## GUIDING PRINCIPLES

- 1. Aesthetic Outcome:** Studies indicate that breast cancer patients undergoing fat grafting as an adjunct to post-mastectomy breast reconstruction experience moderate to significant aesthetic improvement, particularly for volume, contour and superomedial fullness. The evidence also suggests that cosmetic outcome is significantly enhanced after serial fat grafting and that, overall, patients are satisfied with aesthetic results.
- 2. Breast Cancer Recurrence:** Evidence suggests that in post-mastectomy breast reconstruction patients, fat grafting does not increase the risk of breast cancer recurrence. As surveillance is integral for the management of any breast cancer patient, fat grafting to post-mastectomy reconstructed breasts does not delay diagnosis of breast cancer recurrence. When reviewed by experienced radiologists, the presence of oil cysts and fat necrosis on mammography, ultrasound and MRI imaging is distinguishable from suspicious lesions. Surveillance should continue to be rigorous and it is encouraged that radiologists who are experienced in breast imaging work with plastic surgeons to facilitate imaging accuracy.
- 3. Complications:** Although there is variability in physician technique for fat grafting, the evidence suggests that post-mastectomy breast reconstruction with fat grafting is effective and is associated with a low risk of complications. Furthermore, there is increasing evidence that fat grafting is an effective surgical technique for treating post-mastectomy pain syndrome.
- 4. Radiation Therapy:** There is a growing body of evidence that suggests no increased risk of complications when fat grafting is employed in the presence of previously irradiated tissue.
- 5. Technique:** The number of fat grafting sessions required varies per patient. Studies suggest that a majority of patients require more than one fat grafting session to achieve adequate aesthetic results, and that each additional session will contribute to gradual improvement of the overall outcome.

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