Radiologic Evaluation of Women Following Cosmetic Breast Augmentation with Silicone Implants and Fat Grafting

Jennifer A Cameron MD, MPH, Eric Auclair MD, Michael Nelson MD,
Bruce L Cunningham MD

Abstract:

Background: Autologous fat grafting is an increasingly popular adjuvant treatment for improving outcomes in reconstructive breast surgery, yet one of its more controversial uses in cosmetic breast augmentation[1,2]. Patients who have undergone breast augmentation with silicone implants and autologous fat grafting could potentially present a more significant challenge for mammographic screening[3]. In this study we obtained preoperative and postoperative mammograms of women with a history of breast augmentation by both silicone implants and autologous fat grafting. The imaging studies were evaluated by radiologists to determine if the calcifications from the deposited fat, adjacent to implants, would be classified differently on the standard BI-RADS[4] score. The purpose of this study was to determine if a difference exists in the radiographic detection of benign verses malignant calcifications in this population; with the goal of preventing additional patient morbidity, such as further imaging or biopsies.

Methods: Three radiologists reviewed the pre and postoperative mammograms of 52 women having undergone silicone implants with autologous fat grafting for cosmetic breast augmentation. All mammograms had previously been evaluated and scored radiologically. One radiologist was given the patient's surgical history, and the other two were completely blinded. All three radiologists completed a standard questionnaire for each mammogram, identifying the BI-RADS[4] score, radiographic findings, impressions and recommendations.

Results: There were a total of 57 postoperative mammograms evaluated; average follow up was 29 (range 0-72) months. All mammograms were assigned a BI-RADS assessment category 2, indicating benign pathology[4]. All were congruent with the previous readings by initial radiologists. Although some radiographic findings and impressions differed slightly, the blinded radiologists did not recommend any additional imaging or biopsies.

Conclusions: One of the concerns in using autologous fat grafting, in the setting of implant based breast augmentation, is the possibility of unreliable mammographic screening for breast cancer. Our study shows that autologous fat grafting is a safe technique for improving outcomes in cosmetic breast augmentation with silicone implants. Radiologists are able to reliably distinguish calcifications associated with fat grafting from those more suspicious for breast cancer and patients having this procedure will not be unfairly burdened with additional morbidity.

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