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Implant-based immediate breast reconstruction in the previously augmented patient

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Summary *Background:* Millions of women have undergone augmentation mammaplasty with implants and breast cancer continuing to be the most common non-cutaneous malignancy in female patients. Reconstructive surgeons will inevitably encounter breast cancer patients with prior augmentation. Implant-based techniques represent the most common form of breast reconstruction overall and remains a common option among those who were previously augmented.
Objective: The purpose of this study is to evaluate outcomes of implant-based reconstruction in previously augmented women.
Methods: A retrospective review from September 2004 to December 2009 was performed. 38 women (63 breasts) with a history of prior augmentation (PA) who underwent implant-based reconstruction were identified and compared to a non-prior augmented (NPA) control group (77 patients; 138 breasts). Normative data, augmentation details, reconstruction method, complication rates, and revision rates were evaluated.
Results: The total complication rate was significantly different between the two groups with 18 complications (28.6%) occurring in 9 PA breasts and 20 complications (14.5%) in 19 NPA breasts (p-value 0.037). When analyzed by specific complication subtypes, capsular contracture was the only complication that bordered significance between the two cohorts (p-value 0.057). Complication rates were otherwise similar regardless of augmentation or reconstruction type.

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Conclusion: Implant-based reconstruction is a safe option for previously augmented patients that is able to provide outcomes similar to non-augmented patients. Results are not affected by the location of previous implants or the implant-based reconstruction method. There may be a higher incidence of capsular contracture in the previously augmented patient that warrants further investigation and preoperative discussion.

Introduction

The development of augmentation mammaplasty dates back to 1962 with the work of Cronin, Gerow, and Dow Corning. Since then the number of augmentation mammaplasty procedures performed each year has shown persistent growth, and remains to be one of the most common procedures performed by plastic surgeons today.[1] According to the American Society of Plastic Surgeons, more than 280,000 Americans underwent cosmetic breast augmentation in 2012.[1] In total, it has previously been estimated that more than 2 million women have undergone augmentation mammaplasty in the United States.[2] With more than three-hundred thousand augmentations performed each year, this number continues to grow.

Breast cancer represents the most common non-cutaneous malignancy in the female population and will affect one in every eight women.[3] Therefore as time progresses and the population of women with augmentation matures, it is no surprise that the reconstructive surgeon will encounter more and more patients with breast cancer that have had prior augmentation.

While many options are available for breast reconstruction, previous series have shown that patients with a history of prior augmentation were more likely to have implant based reconstruction.[4–8] Moreover, patients with a history of prior augmentation tend to have a lower BMI and therefore are often not good candidates for typical autologous techniques.[2,9]

Although many of the health and safety issues, including the frequency/stage of breast cancer and the effect on screening, associated with breast augmentation have been thoroughly discussed over the past couple decades, the literature is relatively sparse with regards to characteristics and outcomes of post-mastectomy reconstruction in previously augmented patients.[4–8] A few recent studies have explored the reconstruction outcomes of prior augmented patients.[10–12] The purpose of our study was to compare the outcomes of implant-based reconstruction in women who have had prior breast augmentation to a control group of patients who have not. To our knowledge, this study is the largest study comparing reconstruction outcomes and complications of previously augmented patients to non-augmented patients.

Patients and methods

A retrospective chart review of all patients who underwent implant-based breast reconstruction following skin-sparing mastectomy between September 2004 and December 2009 was performed. All women with a history of prior augmentation (PA) within the group were identified. During that time frame, a total of 345 patients (571 breasts) underwent implant-based breast reconstruction. From that group, 38 patients (63 breasts) had a prior history of breast augmentation. For comparison we randomly selected one of every four women (25%) without a history of previous augmentation over the time period, which totaled 77 patients (138 breasts). All patients had undergone skin-sparing mastectomy. Patients who underwent nipple-sparing mastectomy were excluded. Implants/expanders were placed in a subpectoral pocket with an acellular dermal sling in all patients.

Demographic variables including: height, weight, body mass index, preoperative breast cup size, degree of preoperative ptosis, and surgical risk factors such as smoking, previous radiation therapy, or significant co-morbidities were evaluated for all patients. Details pertaining to their prior augmentation including: implant type, volume, and position (subglandular versus subpectoral) were recorded. Details of the implant or tissue expander type, intraoperative fill volume, total operative time, and final permanent implant volume were recorded. Postoperative complications including seroma, hematoma, infection, or capsular contracture were recorded for all patients. Capsular contracture was graded on Baker scale 1 through 4 by the operating surgeons at postoperative follow-up. Capsulectomy or capsulorrhaphy were performed to revise capsular contractures unless the patient refused the operation. We also examined whether revisional surgery was performed and the total number of revisions necessary for each group.

Pearson's chi-square and Fisher's exact test were used for all unadjusted bivariate categorical data comparisons. Student's t-test was used for pairwise continuous data comparisons. Poisson regression was used to estimate the relationship between number of complications and prior augmentation status, prior implant location, and reconstruction procedure type. A p-value < 0.05 was considered statistically significant. All statistics were performed using statistical package R.

Results

A total of 11 patients (19 breasts) from the 38 previously augmented group underwent immediate placement of a permanent silicone implant at the time of mastectomy (Figure 1). Six of these patients had undergone prior