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Post-reconstruction dermatitis of the breast

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Summary *Background:* Approximately one-third of women diagnosed with breast cancer undergo mastectomy with subsequent implant-based or autogenous tissue-based reconstruction. Potential complications include infection, capsular contracture, and leak or rupture of implants with necessity for explantation. Skin rashes are infrequently described complications of patients who undergo mastectomy with or without reconstruction.
Methods: A retrospective analysis of breast cancer patients referred to the Dermatology Service for diagnosis and management of a rash post-mastectomy and expander or implant placement or transverse rectus abdominis myocutaneous (TRAM) flap reconstruction was performed. Parameters studied included reconstruction types, time to onset, clinical presentation, associated symptoms, results of microbiologic studies, management, and outcome.
Results: We describe 21 patients who developed a rash on the skin overlying a breast reconstruction. Average time to onset was 25.7 months after expander placement or TRAM flap reconstruction. Clinical presentations included macules and papules or scaly, erythematous patches and plaques. Five patients had cultures of the rash, which were all negative. Skin biopsy was relatively contraindicated in areas of skin tension, and was reserved for non-responding eruptions. Treatments included topical corticosteroids and topical antibiotics, which resulted in complete or partial responses in all patients with documented follow-ups.
Conclusion: Our findings suggest that tension and post-surgical factors play a causal role in this hitherto undescribed entity: "post-reconstruction dermatitis of the breast." This is a

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manageable condition that develops weeks to years following breast reconstruction. Topical corticosteroids and antibiotics result in restoration of skin barrier integrity and decreased secondary infection.

Introduction

It is estimated that 231,840 American women were diagnosed with breast cancer in 2015 and nearly 1 in 3 of these patients underwent mastectomy as part of their treatment.[1] During this time period, over 106,338 breast reconstruction surgeries using either implants or autogenous tissues were performed as reported by the American Society of Plastic Surgeons.[2] Although both implant and autogenous tissue reconstructions have high success rates with low overall rates of complications, the most commonly reported complications of tissue expansion and permanent implants or autogenous tissue reconstruction include infection, hematoma, extrusion, capsular contracture, leak, flap necrosis, and donor site complications.[3–5] The rates of complications with either reconstruction are substantially increased by radiation therapy.[6,7]

In general, skin rashes are an infrequently described complication of patients who undergo mastectomy with or without reconstruction. When skin rashes do occur in these patients, they are often attributed to radiation therapy, allergic contact dermatitis to bandages, tape, or topical medication, or dry skin.[8] Previous studies had also hypothesized that leaking silicone implants were associated with a variety of autoimmune disorders as well as cutaneous manifestations; however, these reports have more recently been largely disproven.[9–15]

In our consult service at a tertiary care cancer center, we have observed 21 cases, over a 13-year period (1999–2012), of a rash overlying the affected breast or breasts weeks to years following breast reconstruction, unrelated to a contactant, radiation therapy, or the type of breast reconstruction. Currently, there is no published literature describing a similar rash on the skin overlying a breast in patients after breast reconstruction or augmentation. This current study describes the clinical features of rash and response to treatment in patients after implant-based or autogenous tissue reconstruction post-mastectomy for breast cancer. On the basis of clinical presentation and resolution of symptoms with topical steroids and antibiotics, we hypothesize that this represents an eczematous dermatitis of the breast. A better understanding of this previously undescribed rash will facilitate diagnostic accuracy and appropriate therapeutic interventions, including skin biopsy. Herein we describe our clinical findings and discuss this as a new entity: "post-reconstruction dermatitis of the breast."

Methods

We conducted a retrospective analysis of 21 female patients with breast cancer referred to the Dermatology Service for diagnosis and management of rash post-mastectomy and tissue expander and implant placement or TRAM flap reconstruction. We included patients treated with total mastectomy, with or without axillary lymph node dissection, adjuvant chemotherapy, or radiation. Parameters studied included reconstruction types (tissue expanders with either silicone or saline implants, or transverse rectus abdominis myocutaneous flap (TRAM flap)), time to rash onset from mastectomy and either tissue expander placement or TRAM flap reconstruction, clinical presentation at the time of dermatologic evaluation, associated symptoms, results of microbiologic studies, management, and patient outcomes. Photographic images were obtained when available. It should be noted that, at MSKCC from 1999 to 2012, 10,793 implant based individual breast reconstructions and 1490 autologous-based breast reconstructions were performed. An Institutional Review Board waiver was approved for this study.

Results

Demographics and baseline characteristics of the 21 patients are presented in Table 1. Our patients ranged in age from 34 to 65 years at the time of breast cancer diagnosis, mean of 48 years. All but one patient underwent immediate reconstruction after mastectomy with tissue expansion and permanent implants; the remaining patient underwent immediate reconstruction using a TRAM flap. Nine patients had axillary lymph node dissection, 11 received adjuvant chemotherapy, and 3 patients underwent radiation therapy. Five patients underwent bilateral mastectomies: 4 patients with unilateral breast cancer and prophylactic mastectomy of the contralateral breast, and one with pathology in bilateral breasts. Of the patients who received implant-based breast reconstruction, 11 (58%) of the patients were reconstructed with saline implants while the remaining 8 (42%) had silicone gel implants. One patient had not yet undergone permanent implant replacement. All patients had uneventful post-operative recoveries without delayed healing or skin-limited infections and none had evidence of capsular contracture. One patient had a documented possible allergy to surgical tape, 3 patients had documented contact allergies to latex, one patient was allergic to bacitracin, and one patient had a contact allergy to the Jackson Pratt drain.

Average time to rash onset was 25.7 months after tissue expander placement or TRAM flap reconstruction (range 1 month–9 years). Nine patients presented in the first 6 months, 5 patients presented between 6 months and 1 year, and 7 patients presented greater than 1 year after tissue expander placement. Ten patients (48%) initially developed the rash with tissue expanders in place, prior to permanent