

Case Report

Immediate breast reconstruction post-mastectomy in a patient with prior breast augmentation mastopexy and lumpectomy with radiation: A case report

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Abstract

Mastectomy for invasive ductal carcinoma can be followed by either immediate or delayed breast reconstruction. Immediate implant reconstruction is more cost-effective, practical, and can provide substantial psychosocial benefits for the patient. However, patients with prior breast surgeries and radiation exposure carry an increased risk of postoperative complications such as mastectomy flap necrosis, and therefore are often not offered the procedure. We present a patient who received mastopexy augmentation followed by lumpectomy with radiation, who then many years later underwent a successful skin-sparing mastectomy with immediate reconstruction. To our knowledge, this is the first study to demonstrate the feasibility of immediate implant-based breast reconstruction following skin-sparing mastectomy in a patient with several prior breast surgeries and radiation exposure to the same breast.

Keywords: Augmentation; immediate reconstruction, invasive ductal carcinoma, mastectomy, mastopexy

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Introduction

Breast cancer affects one in every eight Canadian women at some point during their lifetime, with invasive ductal carcinoma (IDC) being the most common type (1). Early-stage IDC is often treated with breast conservation surgery and radiation (2). Local cancer recurrence following breast conservation surgery occurs in less than five percent of patients at 10 postoperative years and is frequently managed with surgical mastectomy (2,3). Following mastectomy, a delayed or immediate reconstruction can be performed to re-create the breast mound. Immediate reconstruction is growing in popularity due to reduced overall costs and potentially improved aesthetic outcomes (4). Breast envelope viability is of critical importance for immediate implant reconstruction. Patients with prior breast surgeries and radiation exposure are often not offered the procedure due to fears surrounding postoperative complications, such as mastectomy flap necrosis (5).

We present a 59-year-old female who received mastopexy with augmentation followed by lumpectomy with radiation, who then several years later underwent a successful mastectomy with immediate implant reconstruction. To our knowledge, this is the first documented case of immediate reconstruction following mastectomy in a patient with several prior breast surgeries and radiation exposure.

Case presentation

The patient was a 59-year-old female who underwent mastopexy and augmentation in the late 1990s, with prostheses placed in both breasts. In 2015, the patient was found to have a 1.4 cm mass in her right breast, later characterized as IDC. The patient subsequently underwent a successful right-sided lumpectomy with adjuvant radiation therapy. Two sentinel nodes were identified.

In 2021, the patient presented with a new two-centimeter mass in her right breast. This mass was determined to be HER-2 negative, estrogen receptor-positive, and progesterone receptor-positive IDC. At this time, the patient had no other comorbid conditions. On examination, the patient appeared to have developed a capsular contracture in her right breast and her left breast implant appeared to have ruptured (Figure 1).

Due to her previous periareolar incision from mastopexy and the risk of the compromised vascular supply, it was determined that she would not be a good candidate for nipple-sparing mastectomy. As such, the patient consented to a right-sided skin-sparing mastectomy with sentinel lymph node biopsy followed by immediate reconstruction with permanent implant and placement of AlloDerm, a type of acellular dermal matrix.

For the mastectomy, a right circumareolar incision was made with electrocautery-raised skin flaps. The breast tissue and pectoral fascia were removed from the chest wall using electrocautery and the tumour specimen was excised. Gamma probes were used to direct the dissection of the axilla, where a single sentinel lymph node was identified and excised.



Figure 1. Preoperative imaging showed a right-sided capsular contracture

Following the mastectomy, the pocket was irrigated with bacitracin solution and the lateral border of the pectoralis was elevated, first with blunt dissection and then with a light retractor. A pocket was created in the submuscular plane. The inferior border of the pectoralis was released and a sheet of AlloDerm was used to attach it to the new inframammary fold. The pocket was irrigated, sewn in with 2-0 vicryl, and irrigated again with bacitracin solution. An Allergan Style SSF 560 cc implant was inserted into the submuscular plane and the inferior border of the pectoralis was attached to the superior border of the AlloDerm. A 1/4 Blake was inserted through a separate site and was sewn in. 3-0 monocryl was used for subcutaneous, deep dermal, and skin closure. Incisions were covered with mastisol, steri-strips, and dry gauze.

The patient was seen in follow-up after one week and had her drain removed. After two weeks the patient developed a small seroma (Figures 2 and 3). The seroma was aspirated (approximately 20mL) and no other complications were noted postoperatively.

Discussion

Following mastectomy, an immediate or delayed implant reconstruction can be performed. The rates of immediate breast reconstruction following mastectomy are increasing, partially due to reduced overall costs, reduced number of patient days spent in hospital, increased psychosocial benefit to the patient, and potentially increased aesthetic outcomes (4,6). Delayed implant reconstruction also frequently requires the use of tissue expanders, which can require several outpatient follow-up visits.

A potential drawback of immediate reconstruction is the increased risk of postoperative complications. Immediate implant reconstruction, when compared to delayed reconstruction, carries an increased rate of surgical site infections and non-infectious wound complications (6).



Figure 2. Anterior view of right breast at two weeks follow-up. Small seroma noted along the inferior border of the breast.



Figure 3. Lateral view of right breast at two weeks follow-up. Small seroma noted along the inferior border of the right breast.

Wound complications, such as tissue necrosis or dehiscence, following reconstruction can necessitate repeat surgical interventions and may delay adjuvant cancer treatments (6). Patients with prior lumpectomy and radiation who undergo immediate reconstruction are also thought to have increased rates of mastectomy skin flap loss (5,7). Mastectomy skin flap necrosis can affect aesthetic outcomes and may introduce infection, which may necessitate implant removal (4). Thus, due to concerns surrounding postoperative complications, patients with prior breast procedures and radiation are not usually offered immediate breast reconstructions.

Regarding our patient's past surgical history, breast augmentation mastopexy carries a risk of implant or nipple malposition and poor scarring (8). This procedure can also lead to breast envelope thinning, which may further decrease envelope viability for further surgical interventions. In addition, the patient's prior radiation exposure can cause fibrosis and decreased skin elasticity, which may lead to worsened aesthetic outcomes (4).

Despite the potential risks of her surgical procedure, the only postoperative complication in our patient was a small seroma formation. To our knowledge, there have been no other reports of a patient with several prior breast surgeries and radiation exposure who underwent a successful mastectomy with immediate implant reconstruction. The success of this operation may be partially attributable to the patient's lack of comorbid conditions. Nevertheless, we have demonstrated that prior breast surgeries and radiation exposure may not need to act as a barrier for mastectomy and immediate reconstruction. Further research is required to assess the feasibility of immediate implant reconstruction in the broader population of patients with prior breast procedures and radiation.

Conclusion

We present a patient with a history of breast augmentation mastopexy and lumpectomy with radiation who successfully underwent a right-sided skin-sparing mastectomy with immediate implant reconstruction. This report raises awareness for the possibility of immediate reconstruction following mastectomy in patients with prior breast surgeries and radiation exposure.

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