

Spontaneous Tissue Expander Migration in an Irradiated Field: A Case Report

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Summary: A 59-year-old woman with a history of bilateral breast cancer, bilateral mastectomy, and bilateral latissimus dorsi flap reconstruction with tissue expanders, before expansion, developed spontaneous unilateral tissue expander migration on the side that had been irradiated. During the operation to return the migrated tissue expander to the chest, the expander was found at the back with a seroma. The chest pocket had collapsed, and a subcutaneous tunnel inferior to the flap inset was encountered, indicating the path of migration. To our knowledge, this is the first case reported of spontaneous tissue expander dislodgement to the donor site. This case is unique in that the patient had bilateral procedures but developed tissue expander migration only on the irradiated side. This highlights the need during pocket creation to account for the fibrosis caused by radiation that can create a constricted pocket promoting migration. (*Plast Reconstr Surg Glob Open* 2021;9:e3996; doi: [10.1097/GOX.0000000000003996](https://doi.org/10.1097/GOX.0000000000003996); Published online 17 December 2021.)

According to the 2020 National Plastic Surgery Statistics published by the American Society of Plastic Surgeons, nearly 140,000 breast reconstruction procedures were reported in the annual survey.¹ In 2018, over 4000 latissimus dorsi flaps (LDF) were performed for breast reconstruction. Given its well-vascularized tissue,² LDF reconstruction is versatile: the timing can be immediate or delayed; it can be used in patients with a history of radiation³ or comorbidities such as obesity, diabetes, or tobacco use; it can be combined with tissue expander placement to increase the volume of the reconstructed breast. It has low morbidity: while non-significant (seroma, hematoma, etc.) complications range from published percentages of 21%–60%, significant complications like ischemia, necrosis, or other life-threatening complications occur infrequently.^{4–6} The spontaneous movement of a tissue expander to the latissimus dorsi donor site does not appear to be reported in the literature. This unique situation highlights additional consideration when operating in an irradiated field.

CASE REPORT

A 59-year-old female patient with a BRCA1 mutation (deletion of exon 14) presented with a history of bilateral

breast cancer spanning 14 years, for which she was treated with lumpectomies and adjuvant chemotherapy, as well as radiotherapy on the left. She ultimately opted for prophylactic bilateral mastectomies. Delayed reconstruction was performed 6 months later, with LDF and Mentor Artoura Ultra High Profile Smooth tissue expanders. The latissimus dorsi muscle was tacked down around the tissue expanders. No intraoperative tissue expansion was performed. A total of six #15 French Blake drains were placed: two at each donor site, one at each chest. There were no intraoperative complications, and the immediate postoperative period was uncomplicated. Following sequential drain removal, seroma resolution, and complete healing, expansion was anticipated; however, the left tissue expander could not be located in the chest with the magnet. Instead, it was detected in the back. The patient returned to the operating room to reposition the expander. During the procedure, the lateral aspect of the left latissimus dorsi donor site scar and that of the left chest flap inset scar were incised. The tissue expander, which appeared to be intact, was seen lodged in the left lateral back at the donor site. The chest pocket was completely collapsed, and a lateral subcutaneous tunnel was observed, seemingly indicating the migration path. The tissue expander was removed and placed in a triple antibiotic solution. Serous fluid (<100 cm³) was evacuated at the donor site, and the seroma cavity was debrided with a curette. The chest pocket was recreated for the expander, and the tunnel was closed with 2-0 Vicryl sutures. The expanders were filled with 200 cm³ of saline. Postoperatively, the expanders were serially filled for a total volume of 600 cm³ on each side before being exchanged for anatomically shaped silicone implants to her satisfaction (Fig. 1).

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Fig. 1. Postoperative photographs taken after implant placement. A, Anterior view showing bilateral mastectomy scarring and site of LDF reconstruction. B, Posterior view showing donor site scarring and on the left, the implant dislodgment site. C, Left anterolateral view and site of prior left lateral chest seroma marked with an arrow.

DISCUSSION

To our knowledge, this case report is the first presenting a spontaneous tissue expander dislodgement to a donor site in breast reconstruction. Of note, given the bilateral reconstruction with a unilateral complication on the irradiated side, the patient effectively served as her own control. Radiation injury triggers inflammation and excess collagen production, as well as reduced secretion of remodeling enzymes. Subsequent fibrosis causes tissue contraction and reduces tissue compliance.^{7,8} We hypothesize that the irradiated tissue's poor compliance led to the tissue expander moving down a path of less resistance to the donor site.

CONCLUSIONS

A spontaneous tissue expander dislodgement points to reduced tissue compliance, a factor that must be considered at the time of pocket dissection. A history of radiation with noticeable fibrotic changes should prompt a wider dissection of the pocket.

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