Breast Desmoid Tumor after Ductal Carcinoma Treatment: Salvaging a DIEP Flap Reconstruction

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In June 2015, a 45-year-old white female returned to our plastic surgery department with a chief complaint of chest wall pain and a palpable mass in the right lower quadrant of her right reconstructed breast. Two years before, she was diagnosed with triple-negative invasive ductal carcinoma in that breast. The patient received neoadjuvant chemotherapy, lumpectomy, and a negative sentinel lymph node biopsy. Although she completed postlumpectomy radiotherapy, she later elected to proceed with bilateral nipple-sparing mastectomies and immediate deep inferior epigastric perforator (DIEP) flap reconstruction in March 2014.

In early 2015, she noticed a palpable tumor at the base of her right reconstructed breast. Positron emission tomography–computed tomography (PET-CT) and a subsequent magnetic resonance imaging revealed an invasive mass at the 6 o’clock position rapidly growing in the interval between these imaging studies. Ultrasound-guided biopsy demonstrated a 5.8 x 6.8 x 3.4-cm mass with preliminary diagnosis of breast desmoid. Chest wall resection with 2-cm grossly negative margins was performed. The specimen included segments of ribs 4 through 6, intercostal musculature, parietal pleura, DIEP flap adipose tissue, and breast skin (Fig. 1). Intraoperative frozen section analysis supported the diagnosis, and final negative pathologic margins were confirmed. During resection, the right DIEP pedicle was identified and preserved, salvaging the DIEP flap reconstruction without compromising oncologic safety. The resulting chest wall defect (Fig. 1) was addressed using a polymethyl methacrylate and Marlex mesh construct with a pedicled latissimus dorsi myocutaneous flap for vascularized coverage (See Figure, Supplemental Digital Content 1, which displays pedicled latissimus dorsi musculocutaneous flap covering the mesh construct, http://links.lww.com/PRSGO/A301). The patient recovered uneventfully and at 1-year follow-up, there is no evidence of breast cancer recurrence or desmoid relapse.

Breast desmoid tumors, also known as breast fibromatosis, are a rare cause of breast tumors accounting for less than 0.2% of all cases.1 Although they lack metastatic potential, desmoids grow aggressively, effect considerable local damage, and are thus considered semimalignant.2 Typical histological findings include uniform fibroblasts, spindle cells, and multiple mitotic figures. Wide local excision has been the primary approach to this disease.3,4 According to a recent report, fewer than 250 cases of breast desmoid tumors have been described in the world literature. Breast surgery, in general, seems to contribute to the development of breast fibromatosis,5 possibly by activating scarring processes. In the largest published case series of patients with breast desmoid tumors (n = 32), 14 had received previous breast surgery (44%). Two patients had a similar background as ours, having undergone mastectomy and autologous reconstruction before desmoid tumor occurrence in the dissection field.1 However, the authors did not comment whether reconstruction employed free tissue transfer or perforator flap techniques. Our experience represents the first report of a patient with successful desmoid resection and salvage of a previous perforator flap breast reconstruction. This underlines the importance of reconstructive surgeon participation in tumor ablative portions of the procedure. An opportunity presented to preserve the DIEP flap vascular pedicle and perforators without sacrificing negative margin status. Partial or total flap loss, fat necrosis, and wound healing problems were, thus, avoided. Furthermore, the patient is recurrence free at 1-year follow-up.

Nevertheless, breast desmoid tumors remain a rare entity, and only loose associations exist as to potential etiopathogenesis, resulting in a lack of clear treatment guidelines.

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REFERENCES

Fig. 1. Chest wall defect after desmoid tumor resection (A) and resected desmoid tumor (B).