Screening Mammography After Autologous Breast Reconstruction Is Not Beneficial

Researchers have found that patients who have undergone mastectomy and autologous tissue reconstruction do not benefit from routine mammography screening of the reconstructed breast (Ann Surg Oncol. 2014;21:3256-3260).

Previous studies have shown that the majority of disease recurrences after autologous reconstruction present as a palpable abnormality, an irregularity such as swelling or dimpling, skin change, or pain. Furthermore, there is general agreement that screening mammography is not indicated for patients with implant reconstruction because the implant is placed under the pectoralis major muscle, thereby displacing the entire mastectomy site anteriorly and making local recurrences superficial to the reconstruction and easier to detect during a physical examination (J Clin Oncol. 2009;28:173-180).

However, with autologous reconstruction, the autologous tissue is placed over the pectoralis major muscle, potentially making physical examination less sensitive in the detection of local chest wall recurrences. Because there currently are no guidelines for screening in patients with autologous reconstruction, the authors of the current study set out to investigate whether mammography is worthwhile in these patients.

STUDY FINDINGS

Mary Freyvogel, DO, lead author of the current study and clinical assistant professor of surgery at Case Western Reserve University School of Medicine in Cleveland, Ohio, along with colleagues identified 615 patients who underwent autologous reconstruction after mastectomy at their institution between 2000 and 2009. Of these, 541 patients had complete follow-up data and were included in the analysis. Patients with invasive (72%) or noninvasive (16%) breast cancer were included, as well as patients who had undergone prophylactic mastectomy (3%). A total of 432 patients (80%) had a transverse rectus abdominus myocutaneous flap performed and 109 patients (20%) underwent surgery with a deep inferior epigastric perforator flap.

Researchers found that 397 patients (73%) had a screening mammography of the reconstructed breast, with a total of 2131 screening mammograms completed during the study period. A suspicious finding on mammography led to 25 biopsies in 25 patients. Two of these biopsies (8%) were malignant, making the mammographic cancer detection rate 0.5% among the 397 patients screened and 0.09% among the 2131 mammograms performed.

Nearly all patients (537 patients) had a documented annual physical examination. Abnormalities found during a physical examination led to 77 biopsies being performed in 66 patients, 30 of which were found to
be malignant (39%). Therefore, the yield for malignancy was much higher for biopsies performed because of suspicions based on a physical examination compared with mammography findings (39% vs 8%).

In total, 27 of the 541 patients (5%) who underwent autologous reconstruction developed a local disease recurrence at a median of 2.6 years after their primary surgery. Recurrence occurred within the skin flap in 16 patients, within the axilla in 7 patients, and within the deep chest wall in 4 patients. Locoregional recurrence was initially found on clinical examination in 24 of 27 patients and with mammography screening in 2 patients. One patient had a clinically silent chest wall recurrence that was observed on a positron emission tomography scan that was performed after she was found to have a brain metastasis.

When the 2 patients whose disease recurrence was found initially on mammography were reexamined, an abnormality in the breast was felt. Therefore, of all local recurrences, 26 of 27 patients (96.3%) could be identified on clinical grounds without imaging. Another finding was that the patients who developed a local disease recurrence had a much higher rate of eventual systemic recurrence (29.6% vs 11.7%).

**IMPLICATIONS FOR PRACTICE**

Dr. Freyvogel and her colleagues conclude that autologous breast reconstruction is safe and does not mask local disease recurrences during clinical examination, and that screening mammography in the reconstructed breast adds little benefit over clinical evaluation for local recurrence.

Furthermore, the mammographic cancer detection rate among patients in the current study was 0.5% among those patients screened and 0.09% among the total mammograms performed, a rate well below the 1.9% rate that was proposed previously as necessary for screening mammography to benefit asymptomatic women in their 40s (Radiology. 2008; 248:398-405).

“I feel the take-home from this study should be a huge emphasis on patient education regarding the importance of self-breast exams postoperatively, as almost all recurrences were clinically detectable,” says Dr. Freyvogel. “I understand that our study was retrospective in nature, leading to some limitations, however, I believe the findings were very compelling.”

“The available data are all retrospective and it is unlikely a prospective study will be done to show a mortality benefit to screening mammography after autologous reconstruction,” says Martha Mainiero, MD, director of the Anne C. Pappas Center for Breast Imaging at Rhode Island Hospital and associate professor of diagnostic imaging at The Warren Alpert Medical School of Brown University, both in Providence, Rhode Island. “The benefit of screening mammography for autologous reconstruction is less than for screening mammography in the standard asymptomatic population, as the local recurrence rate is low and recurrences often occur in areas that are accessible to clinical examination or not well visualized on mammography,” says Dr. Mainiero.

“The benefit of continued mammography in this group of women was minimal,” adds Dr. Freyvogel. “Although we were not able to decipher one group of women who would benefit from screening in our study, I absolutely feel that this decision should be at the discretion of the treating physician. It is difficult to make a blanket recommendation for all women based on one retrospective study. For this reason, patients should be evaluated individually.”

The study authors acknowledge other limitations, such as the inclusion of patients from a single institution and the lack of available follow-up data for 74 of the 615 patients initially identified as having undergone a mastectomy and autologous reconstruction. They are hopeful that with more robust research, evidence-based guidelines can be established.

“There is not enough scientific data available so that we can really address this issue in evidence-based guidelines, but overall, screening mammography after autologous reconstruction is not routinely performed,” says Dr. Mainiero. “Mammography has been shown to detect some recurrences before clinical examination, and there may be individuals who benefit from screening mammography due to a high risk of recurrence or to relieve anxiety. However, that is generally the exception rather than the rule, and in my practice, women with autologous reconstruction are infrequently referred for screening mammography.”

In addition, Dr. Freyvogel and her colleagues are careful to state that mammography performed for the workup of clinical abnormalities is very important and useful in helping to differentiate benign findings, such as fat necrosis, from a cancer recurrence. On that note, Dr. Mainiero pointed out that with increased experience in the imaging of patients treated with autologous reconstruction, radiologists are now much better at distinguishing fat necrosis from disease recurrences, thereby avoiding unneeded biopsies and stress for patients.

The authors conclude that conveying the results of this study to patients can help to reassure those who are nervous about not having routine screening mammograms in their reconstructed breast.

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