

Nipple-sparing mastectomy has low rate of breast cancer recurrence

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Women with breast cancer who undergo nipple-sparing mastectomy (NSM) have a low rate of the cancer returning within the first five years, when most recurrences in the breast are diagnosed, findings of a single-center study show. The new study, published as an "article in press" on the *Journal of the American College of Surgeons* website in advance of print publication, found an overall 5.5 percent recurrence rate among 311 operations at a median (midrange) follow-up of 51 months, with no recurrence involving the retained nipple.

Unlike a standard mastectomy, which removes the whole [breast](#) and breast skin including the nipple, NSM removes the [breast tissue](#) but leaves intact the breast skin, nipple, and areola (the ring of darker skin around the nipple). Some physicians have reservations about the oncologic, or cancer-related, safety of nipple preservation because of lack of long-term follow-up, said principal investigator Barbara L. Smith, MD, PhD, FACS, a surgical oncologist and director of the Breast Program at Massachusetts General Hospital, Boston, where the study took place.

"More women are requesting NSM because of the superior cosmetic results, but doctors don't want to take any chances with [breast cancer patients](#)' safety for the sake of cosmetic improvement," Dr. Smith said. "Our study, which has one of the longest reported follow-ups after therapeutic NSM in the United States, provides additional support that it's safe to leave the nipple intact during mastectomy with only a few exceptions."

Their recurrence rate, she said, is comparable to reported rates of disease recurrence after standard mastectomy. Furthermore, the procedure has several advantages over standard mastectomy.

"Often, a woman feels more whole when she keeps her nipple," Dr. Smith said. "Not only does the breast look more natural after NSM, a woman who still has fully intact breast skin can often choose to have a single-stage breast reconstruction with an implant, rather than needing a tissue expander (an inflatable breast implant) to stretch the skin over several months."

More Women Eligible for Nipple Preservation

As the Massachusetts General Breast Program team has gained experience over the past decade since the hospital began performing NSM, its patient selection criteria have expanded, Dr. Smith said. According to the authors, women with breast cancer are candidates for the NSM procedure unless they have any of the following conditions: clinical or imaging evidence of cancerous involvement of the nipple and areola, which doctors call the nipple-areola complex; locally [advanced breast cancer](#) involving the skin; [inflammatory breast cancer](#); or very large or sagging breasts, which would result in an unacceptable location of the nipple.

Dr. Smith credited their success with NSM to advances in [breast cancer treatment](#), her team's study of breast anatomy, and their surgical techniques. Earlier European approaches to NSM typically left some breast tissue under the nipple and then applied radiation to the nipple during the operation, she said. However, she said her team and most U.S. surgeons thoroughly remove the breast tissue under the "envelope" of breast skin and nipple because they believe that recurrence rates will be lower using this technique. They then remove and test the breast tissue under the nipple. If the biopsy result shows cancer, the surgeon later

removes the nipple in an outpatient procedure. Some patients can keep most of the areola, she noted.

Conceivably, however, breast tissue could remain at the nipple-areola complex or skin flaps, which might lead to a cancer recurrence, the study authors wrote. Therefore, in this study, they reviewed medical records of 297 patients whose breast cancer was treated with NSM from June 2007 through December 2012, to analyze rates and patterns of recurrence. Fourteen of these patients had cancer in both breasts and underwent NSM on both sides, for a total of 311 surgical procedures.

More than three-fourths of the women had stage 0 or stage 1 breast cancer, and the remainder had stage 2 or 3 cancer, the investigators reported. They determined that ductal carcinoma in situ, in which cancer cells have not left the milk ducts, was the diagnosis in 23 percent of cases, and the other 77 percent had invasive cancer. Results of the nipple biopsy found cancer in 20 of 311 breasts (6.4 percent), requiring later removal of the nipple or nipple-areola complex.

Because any mastectomy involves cutting nerves in the breast there is a loss of sensation at the nipple. In NSM, a small chance exists that the nipple will wither and the tissue will die, a condition called necrosis. The rate of nipple necrosis in this study was reportedly 1.7 percent.

High Survival Rate

Patient follow-up rates ranged from four to 101 months after NSM, with most patients having follow-up exams with their oncologists or other physicians for three to five years (56 percent) or longer (21 percent). According to the researchers, the disease-free survival rate—the percentage of patients who were alive and without breast cancer recurrence—was 95.7 percent at three years and 92.3 percent at five years.

Breast cancer recurred in 17 patients at 51 months' median follow-up. Among these, 10 patients had only local-regional recurrence, meaning the cancer returned in the breast, chest wall, or underarm lymph nodes; two patients had both local-regional and distant recurrence (return of their cancer elsewhere in the body); and seven had distant recurrences alone. The rate of local-regional recurrence that this study reported was 3.7 percent.

No patient had a recurrence involving the nipple-areola complex, the investigators found. Furthermore, they reported that no breast cancer developed at the nipple in any of the other 1,871 NSM procedures performed at their hospital between 2007 and 2016 for cancer treatment or as a "prophylactic" mastectomy—an operation performed to try to prevent breast cancer in women. The nipple is an uncommon site for breast cancer to start, even in high-risk patients.

No known study has compared NSM with standard mastectomy by randomly assigning women to one or the other operation, Dr. Smith said. However, she added, it appears from the low local [recurrence](#) rate in this and other reported studies that [breast cancer patients](#) who undergo NSM have no increased risk of their [cancer](#) returning because they keep their nipple.

"Women planning a mastectomy should ask their surgeon whether they are eligible for a nipple-sparing operation," she said.

More information: Barbara L. Smith et al, Oncologic Safety of Nipple-Sparing Mastectomy in Women with Breast Cancer, *Journal of the American College of Surgeons* (2017). [DOI: 10.1016/j.jamcollsurg.2017.06.013](#)

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