

Surgical Implications for Women With Breast Cancer

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Presenter's disclosures of conflicts of interest are found at the end of this article.

<https://doi.org/10.6004/jadpro.2019.10.3.7>

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Treatment for breast cancer is not a one-size-fits-all approach but must correspond to the needs of the individual patient. At JADPRO Live 2018, Sherry Goldman, MSN, NP, CBCN, of Cedars-Sinai Medical Center, in Beverly Hills, California, explained the different surgical rationales for lumpectomy, mastectomy, and mastectomy with reconstruction, listed the benefits and disadvantages associated with nipple-sparing surgery, and discussed the appropriate use of sentinel node biopsy for the diagnostic and surgical management of women with breast cancer.

PATHOLOGIC EVALUATION

Before providers make any kind of surgical decision, said Ms. Goldman, detecting breast cancer requires pathologic evaluation, and the type of biopsy employed depends on many factors. Fine-needle aspiration was once used as the main diagnostic tool to detect breast cancer by extracting cells from a lump. Now, core needle biopsy is used, as it removes a small amount of tissue from the breast with a larger needle that cores out actual tissue and provides much more accurate information about what breast cancer is. Core needle

biopsy can be ultrasound-guided or magnetic resonance imaging (MRI)-guided; therefore, it is used not just for palpable lumps but also for abnormal imaging. Stereotactic needle-guided core biopsy performed under mammogram allows abnormal calcifications to be biopsied, as well. Incisional and excisional biopsies are not used as often to make the diagnosis of breast cancer, as this usually requires going to the operating room.

BREAST CONSERVATION

As Ms. Goldman explained, the history of the surgical treatment of breast cancer dates back to 1882 when the Halstead radical mastectomy occurred, involving the removal of the entire breast, chest muscle, and axillary nodes. Although that procedure was performed up until the mid-1970s, breast cancer surgery has made significant improvements in morbidity and cosmetic outcomes in more recent years. Published in 2002, a 25-year follow-up study showed no significant difference in disease-free or overall survival between patients undergoing radical and modified radical mastectomies (Fisher et al., 2002).

“This made us realize that we did not have to do such aggressive surgery,” said Ms. Goldman.

Starting in the early 1980s, breast conservation therapy introduced lumpectomy, axillary lymph node dissection, and radiation therapy into the armamentarium, with even better cosmetic outcomes than modified radical mastectomy and comparable survival outcomes. However, Ms. Goldman emphasized the importance of radiation with breast conservation surgery in improving survival outcomes.

“Radiation increases survival rates by about 35%, so that needs to be offered to women,” said Ms. Goldman, adding that a recent randomized control trial demonstrated a 50% reduction in recurrence rate with radiation compared to no radiation (Whelan, Julian, Wright, Jadad, & Levine, 2000).

AXILLARY LYMPH NODE DISSECTION

As Ms. Goldman explained, the first place cancer generally travels to is the axilla (some inner quadrant lesions will travel to the inferior nodes).

“Because cancer usually goes to the lymph nodes before it goes to the rest of the body, we stage a patient by trying to see how many of the lymph nodes were affected,” said Ms. Goldman.

Axillary lymph node dissection is a surgical procedure that incises the axilla to identify, examine, or remove lymph nodes, but because only a small number of patients with early breast cancer will have positive nodes, said Ms. Goldman, not every patient with breast cancer needs to undergo such an aggressive procedure.

SENTINEL NODE BIOPSY

With a sentinel node biopsy, a contrast is injected into the tumor to determine whether cancer has spread beyond a primary tumor into the lymphatic system. The sentinel node (meaning “guard” node) is the first lymph node into which a tumor drains. If the sentinel node is negative, no axillary lymph node dissection is needed. If positive, the surgeon may continue with the dissection. The end result, said Ms. Goldman, is the preservation of the other lymph nodes and fewer side effects, including lymphedema, pain, and numbness.

“In cases of breast conservation surgery with a sentinel node biopsy, I don’t think I’ve ever seen lymphedema,” said Ms. Goldman, who noted that the sentinel lymph node biopsy is most appropriate in women with unifocal breast cancers less than 3 cm who have negative clinical examination

by palpation and ultrasound of the axilla, and have not had previous surgery (Van Zee et al., 2003). Patients with clinically palpable or positive lymph nodes usually have axillary lymph node dissection; however, if neoadjuvant chemotherapy is given and the lymph nodes are no longer palpable or seen on imaging, a sentinel lymph node biopsy can also be done, Ms. Goldman added.

SKIN-SPARING MASTECTOMY

Developed in the 1990s to preserve the skin envelope, skin-sparing mastectomy is a variation to the mastectomy optimized for breast reconstruction (Cunnick & Mokbel, 2004). The surgeon removes only the skin of the nipple, areola, and the original biopsy scar, and then removes the breast tissue through the small opening that is created. Nipple reconstruction can be performed with a skin graft or a tattoo after the procedure. Studies of local recurrence have identified rates between 2% and 4.5%, said Ms. Goldman, which is comparable to other surgical procedures for breast cancer (Cunnick & Mokbel, 2004).

BREAST RECONSTRUCTION

Tissue expander and an implant reconstruction are two methods to either directly insert an implant of silicone or saline into a breast after mastectomy or to put in a tissue expander that stretches the tissue so that the breast will receive an implant. The latter is preferred by the majority of surgeons, said Ms. Goldman, because it allows more time for the breast to adjust to a foreign body and reduces complications. If an implant is inserted without tissue expansion, the procedure offers shorter operation time and faster recovery, but may require revisional surgery in the future. It is not recommended if there is insufficient skin to cover the implant following mastectomy, said Ms. Goldman.

Autologous tissue transfer (flaps) is another approach to reconstruction that offers the advantage of natural tissue, better symmetry with the other side, and a “tummy tuck.” Drawbacks, however, include a long operation and long recovery. This procedure is not recommended for smokers, obese patients, patients older than 70 years, patients with a history of prior abdominal surgery, or patients with a history of cardiac, pulmonary, or collagen vascular disorders (Teymouri et al.,

2006). “This is one of the most unique operations I have ever seen and leads to a natural-looking breast,” said Ms. Goldman. “We have come such a long way in breast reconstruction that if we can dispel the fear of reconstruction for women, it will help them a great deal.”

Latissimus flap is another way to perform reconstruction. With this approach, surgeons make an incision under the breast into the latissimus, pull the tissue forward, and then insert an implant. “Although these are probably the best-looking breasts,” said Ms. Goldman, “they are also the most difficult to heal from, and range of motion is compromised. It may not be the best choice for athletes such as golfers or tennis players.”

Nipple-sparing mastectomy is the most recent kind of reconstructive surgery and involves the preservation of the skin envelope and nipple areolar complex. It is performed with immediate reconstruction, said Ms. Goldman, who noted that a series of small studies have reported good cosmesis and very few complications in a select population of patients. However, data on recurrence rates are limited. A study by Massachusetts General showed that the rate of nipple loss due to necrosis was only 1.7% for all of these performed (Smith et al., 2017). “It has been a very successful type of surgery,” said Ms. Goldman, “but it’s limited because you don’t want to have large tumors involved, and you don’t want to have the disease too close to the nipple.”

CRYOABLATION

Finally, with cryoablation, the newest procedure for women with breast cancer, a thin needle-like device is inserted into the tumor and a blast of extreme cold (liquid nitrogen) destroys the cancer cells. It is a nonsurgical, noninvasive, deep-freezing technique (Simmons et al., 2016).

“There is no hospitalization, no sedation, no pain, and no scarring involved,” said Ms. Goldman. “It may sound like the stuff of science fiction, but it is becoming a reality. Over time, the body reabsorbs and destroys the cancer cells, and once that happens, there is no trace of cancer seen.”

A recent trial of 86 patients with 87 cancers demonstrated successful ablation in 66 cancers (76%; Simmons et al., 2016). According to Ms. Goldman, when undergoing cryoablation, it is im-

portant to have a radiologist who is proficient in ultrasound to define the spot well. The process involves two freezing cycles. In the first cycle, the needle is inserted for 5 to 7 minutes, followed by a thawing phase. The second freezing cycle is to ensure cell death. Common indications for cryoablation include hepatocellular carcinomas, renal cell carcinoma, and breast fibroadenomas.

“This is a huge advance for women, and when compared to Halstead radical mastectomy, it shows how far we’ve come,” said Ms. Goldman. “In the past, women had no choice—they lost half their trunks. Now, we have a procedure you can walk away from with a Band-Aid on your breast and no recovery time. This process is too new to know the outcomes, but we are on our way.” ●

Disclosure

Ms. Goldman has no conflicts of interest to disclose.

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