To Treat or Not to Treat? A Postmastectomy Question

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A 47-year-old premenopausal woman with no known family history of breast cancer and an unremarkable medical history presented to her primary care physician after palpating a mass in her left breast. A mammogram and ultrasound demonstrated a 3.2 × 1.3-cm mass at 3 o’clock, 4 cm from the nipple, in her left breast. A biopsy showed invasive ductal carcinoma, intermediate nuclear grade, with associated high-grade ductal carcinoma in situ (DCIS). Estrogen and progesterone receptors stained positive, HER2 was negative by FISH, and Ki67 was 25%. Breast MRI confirmed the primary mass and showed a 2-mm left internal mammary lymph node (Figs. 1A and 1B). A positron emission tomography scan was not performed because the small size of the internal mammary node precluded adequate sensitivity. The patient underwent mastectomy with axillary sentinel lymph node biopsy. Pathology revealed a unifocal 5.2-cm grade 2 invasive ductal carcinoma spanning the upper and lower outer quadrants, with associated intermediate-grade DCIS. Lymphovascular space invasion and perineural invasion were seen histologically. None of the 5 lymph nodes removed from the left axilla contained malignancy. The closest margin for both invasive disease and DCIS was 6 mm. Upon evaluation by a medical oncologist, an Oncotype-DX (Redwood City, CA) test was performed, with a score of 19. The patient completed 4 cycles of adjuvant docetaxel and cyclophosphamide and initiated 5 years of tamoxifen.

Questions

1. Would you recommend adjuvant radiation therapy?
2. If you recommended radiation therapy, describe your target volumes and dose prescription.
3. Would her preference for reconstruction influence your decision?

Conflict of interest: none.

See expert opinions on page 285.
What would you do? Follow the discussion on Twitter at #gyzone, and take the poll at www.redjournal.org/poll.
Radiation but With Delayed Reconstruction

The Danish 82b trial revealed significant benefits from postmastectomy radiation therapy (PMRT) among premenopausal women, including a survival benefit in even a subset enrolled with node-negative disease (1). Although risks of locoregional recurrence in modern US series of patients with T3N0 disease have been modest, some women may harbor occult residual disease in areas like the internal mammary region that might never yield clinically appreciable locoregional recurrence but nevertheless serve as a nidus for distant metastases.

Reassuring features of this case are that the patient has received chemotherapy and has begun endocrine therapy (2). Her internal mammary node is very small and might not have harbored malignancy in the first place (though I would be interested in the extent of lymphovascular invasion seen), and if it did, might be sufficiently treated by systemic therapy alone. Still, given the low risk associated with modern techniques of PMRT delivery, with the ability to reduce mean heart doses well below those in historical studies, and recent evidence suggesting that PMRT need not necessarily substantially compromise outcomes of breast reconstruction (3), I would offer PMRT, explaining the rationale and risks to aid in decision making. If treating, I would administer 50 Gy to the chest wall and internal mammary, supraclavicular, and infraclavicular (level III) nodal regions, followed by a boost to 60 Gy to the chest wall scar and possibly also the CTV of the internal mammary node seen on magnetic resonance imaging. I would attempt to use a conformal three-dimensional plan and use a beamlet IMRT approach if needed. If she desires breast reconstruction, I would recommend a delayed autologous flap.

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References


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Post-mastectomy Radiation Yes but Internal Mammary Nodes No

I would recommend adjuvant radiation therapy in this case (1). The volumes to cover should include the chest wall and regional nodes to 50 Gy in 25 fractions. Because this patient has a left-sided, node-negative tumor, I would exclude the internal mammary nodes based on the argument of a narrow risk:benefit ratio supported by the following data:

- The incidence of involved internal mammary nodes in a cohort of 1679 women from China treated with extended radical mastectomy between 1956 and 2003 with T3N0 tumors was only 4.8% (2).
- Cardiac morbidity increases with even small increases in radiation doses to the heart (3).

I would not alter an oncologic recommendation based on the patient’s desire for reconstruction. However, I have adopted a risk-stratified approach to use of a chest wall boost, and I would not add it in this situation. Additional data supporting the use of postmastectomy radiation therapy (PMRT) in this patient include the following:

- A retrospective review of T3N0 patients treated with and without PMRT demonstrated that use of PMRT in those
with lymphovascular space invasion improved locoregional failure (P = .017), disease-free survival (P = .023), and overall survival (P = .0004) (4).

- Two large database analyses evaluating T3N0 patient cohorts treated with and without radiation therapy have demonstrated cause-specific and overall survival benefit in those receiving PMRT (5, 6).

- Retrospective review of patients treated on 2 prospective National Surgical Adjuvant Breast and Bowel Project trials with node-negative, estrogen receptor—positive tumors found an association between the Oncotype Dx recurrence score (RS) and the risk of locoregional recurrence in those with a score >18 (7).

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References


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Post-mastectomy Radiation, All in

This 47-year-old premenopausal woman with T3N0 breast cancer has what some would consider borderline indications for postmastectomy radiation (PMRT). To specifically address the 3 questions posed: (1) Yes, I would offer PMRT; (2) I would treat the chest wall, supraclav, axilla, and internal mammary chain to 50 Gy; and (3) reconstruction would not affect my decision to treat. In this case, although the primary tumor is just over 5.0 cm, hormone receptor positive, and Her2-negative, with an intermediate Oncotype score, there are adverse histologic features of lymphovascular invasion (LVI) and perineural invasion (1). In a retrospective review of 70 patients with T3N0 breast cancer treated without PMRT, Floyd et al reported that LVI was a significant predictor of local relapse (2). At 5 years the locoregional recurrence rate was 21% with LVI compared with 4% without LVI. Jagsi et al also reported a higher rate of locoregional recurrence with LVI, suggesting that this, along with other factors, should be taken into consideration in decision making regarding indications for PMRT among node-negative patients (3).

The patient had 5 sentinel nodes removed and a 2-mm internal mammary node of unclear significance. I would therefore treat the chest wall, internal mammary, supraclav, and, given no complete axillary dissection, the full axilla.

The issue of reconstruction does not affect my decision because I believe the oncologic benefit outweighs any minor additional toxicity or complications that may occur as a result of the radiation to the reconstructed chest wall.

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References


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