Ann Surg Oncol (2013) 20:4057–4058
DOI 10.1245/s10434-013-3195-z

Annals of
SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

EDITORIAL – BREAST ONCOLOGY

Postmastectomy Irradiation for DCIS with Narrow Margins: Not for the Festrunk Brothers

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The Fisher Brothers, Bernard and Edwin, popularized the randomized controlled clinical trial in the United States, allowing everyday regular doctors a role in research. Their seminal contributions, include studies of breast conservation for both ductal carcinoma-in-situ (DCIS) and invasive breast cancer.[1–4] Those landmark trials used "no ink on tumor" as the definition of a clear margin. Morrow et al.[5] recently confirmed continuing support for that definition. It is at that point where we diverge.

We too are like brothers—not quite the Fisher Brothers, but more like the Festrunk Brothers[6]: "*two wild and crazy guys*" who have spent our entire careers in the field of breast cancer, debating many issues, including the over-treatment of DCIS and "no ink on tumor" as the definition of a clear margin.

We began our investigations before the Festrunk Brothers appeared on Saturday Night Live. We started by becoming early proponents of breast conservation rather than mastectomy whenever anatomically possible. We introduced the University of Southern California/Van Nuys Prognostic Index (USC/VNPI), a numerical algorithm based on patient age, tumor extent, nuclear grade, presence or absence of comedonecrosis, and margin width to decrease the use of adjuvant radiotherapy for DCIS patients treated conservatively.[7,8] The USC/VNPI can be used to select breast conservation patients who can be treated with excision alone, without radiotherapy, with a low risk of local recurrence. We stood on podiums around the world for three decades exhorting excision alone for patients with low-risk DCIS. We debated numerous medical, surgical, and radiation oncologists who suggested that we were "killing people" by omitting radiotherapy. But we persevered, and in 2008, the National Comprehensive Cancer Network (NCCN) became the first national organization to agree with us that there was a role for excision alone for patients with low-risk DCIS.[9,10] Today, a third of patents in the United States with DCIS are treated with excision alone.[11] Moreover, there is currently major concern regarding the overtreatment of DCIS.[12]

In this issue of the Annals, FitzSullivan et al.[13] address two controversial issues in the management of DCIS: the significance of measured margin widths in mastectomy specimens and the role of radiotherapy after mastectomy. FitzSullivan et al. are doing for mastectomy and DCIS what we tried to do for lumpectomy and DCIS.[14] They demonstrated that the use of measured margin widths clearly establishes different levels of risk for local recurrence after mastectomy. The frequency of local recurrence among nonirradiated patients with margins of <1 mm after mastectomy was 5 %. A margin width from 1.1 to 2.9 mm resulted in a 3.6 % local recurrence rate, while patients with a 3 mm or greater margin width had a local recurrence rate of 0.7 %.

For breast conservation patients, we have previously demonstrated that margin widths of <1 mm, 1.0 to 9.9 mm, and 10 mm or greater stratify excision alone patients into three statistically different risks of local recurrence. Moreover, for those with margin widths of 10 mm or more, there was no significant benefit after the addition of postexcisional radiotherapy.[14]

Applying the same logic to mastectomy patients, Kelley et al.[15] used the USC/VNPI to score a series of 496 patients with pure DCIS who underwent mastectomy. No patient received postmastectomy radiotherapy or tamoxifen. The

First Received: 14 July 2013;
Published Online: 20 August 2013

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probability of local recurrence at 12 years was 3 % for all patients. When patients were stratified into those with USC/VNPI scores of 4 to 9 versus those with scores of 10 to 12, all of the recurrences were in the latter group. The probability of local recurrence at 12 years for those score 4 to 9 was zero, and for those who score 10 to 12, it was 9.6 %

There has been considerable recent controversy regarding the significance of measured margin widths and their predictive role in breast conservation, both for invasive and in situ lesions. Morrow et al.[5] concluded that wider margins offered no benefit and suggested returning to the outmoded definition of "no ink on tumor" as the only valid approach. However, most radiation oncologists, when presented with a postlumpectomy patient in whom the margins are a fraction of a millimeter, prefer reexcision to a wider margin before providing radiotherapy.

Although the percentage of patients with narrow margins is small, 11.6 % in the study of FitzSullivan et al. relapse in this younger cohort with more extensive disease is a tragic outcome, particularly after mastectomy, and should be avoided if possible. FitzSullivan et al. performed extensive intraoperative examination of the mastectomy specimen, a procedure that is unlikely to be duplicated in many laboratories. Nonetheless, they identified predictive factors for postmastectomy recurrence, similar to those identified by Kelley et al.,[15] for which specific interventions are possible.

We would agree with FitzSullivan et al. that postmastectomy radiation is warranted for patients with multiple involved margins that cannot be reexcised. But to be honest, we have never known how to precisely reexcise a close or involved margin after mastectomy. As a general rule, we would rather follow most postmastectomy DCIS patients closely without the addition of radiotherapy. Radiotherapy is time-consuming and expensive; it decreases the cosmetic results of reconstruction; and it potentially causes harm to underlying tissues. In our opinion, for most postmastectomy patients with narrow margins, the risks of radiotherapy outweigh the potential gains. Should there be a local recurrence, we would prefer to excise and irradiate at that point in time. Owen et al.[16] describe a similar successful conservative approach in postmastectomy recurrence. With this policy, most patients who undergo mastectomy for DCIS will never see the inside of a radiation vault. Their time might be better spent watching the Festrunk Brothers[6] on reruns of Saturday Night Live.

DISCLOSURE The authors declare no conflict of interest.

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