

Axillary Node Metastatic Disease Four Years after Mastectomy and a Negative Axillary Node Dissection-a Critique of our Therapeutic Approach

ISSN: 2578-0379



***Corresponding author:** Jameel Ali-MD, MMedEd, FRCSC, FACS, Division of Women's Health, St. James Medical Complex, Breast Surgical Oncology, Trinidad and Tobago, Canada

Submission:  August 28, 2023

Published:  September 08, 2023

Volume 5 - Issue 3

How to cite this article: Jameel Ali-MD, MMedEd, FRCSC, FACS* and Kristy Samaroo. Axillary Node Metastatic Disease Four Years after Mastectomy and a Negative Axillary Node Dissection-a Critique of our Therapeutic Approach. Surg Med Open Acc J. 5(3). SMOAJ.000615. 2023.

DOI: [10.31031/SMOAJ.2023.05.000615](https://doi.org/10.31031/SMOAJ.2023.05.000615)

Copyright@ Jameel Ali-MD, MMedEd, FRCSC, FACS, This article is distributed under the terms of the Creative Commons Attribution 4.0 International License, which permits unrestricted use and redistribution provided that the original author and source are credited.

Jameel Ali-MD, MMedEd, FRCSC, FACS^{1*} and Kristy Samaroo²

¹Professor of Surgery University of Toronto, Canada

²MPhil Candidate, Biomedical Engineering, University of Trinidad and Tobago

Abstract

Introduction and Objectives: Born in 1957, our female patient presents with a history of bilateral invasive breast cancer, first in 2008 in the Right breast and 10 years later in the left breast, treated by Mastectomy and axillary dissection of both breasts with axillary node positive disease and clear margins of the initial Right Breast and negative axillary nodes and clear margins in the Left breast. In 2022, 4yrs after her second (Left) Mastectomy she presented with seven palpable axillary nodes and was treated by Axillary surgery demonstrating Invasive ductal breast carcinoma in all 7 axillary nodes. Were appropriate treatment protocols applied based on established guidelines to prevent progression to nodal metastasis from the Left Breast Cancer?

Methodology: We reviewed the literature on recommended protocols to determine if appropriate treatment guidelines were applied in our case. Further critique of the management is pursued in light of this literature review.

Conclusion: Published treatment guidelines appear to have been applied in this case. Yet the ultimate outcome was unexpected. We discuss possible reasons for this as well as whether consideration should be given to changing our therapeutic approach in such cases.

Keywords: Invasive breast cancer; Axillary surgery in breast cancer; Adjuvant breast cancer treatment; Treatment of axillary nodes

Introduction

Traditionally, axillary surgery has always been a major part of the diagnostic, staging and therapeutic approach to the patient with invasive breast cancer. Mainly to minimize postoperative morbidity, particularly lymphedema, axillary surgery for invasive breast cancer has undergone significant modifications over the years trending to less invasive surgical techniques [1]. We will first present the Case history of the patient, then discuss the rationale for and application of the various therapeutic approaches described in the literature and how these currently affect outcome. Finally, we discuss how these approaches were applied in our case and what other approaches could be considered.

The Case History

Our female patient born in 1957, presented in 2008 with a large (15x7x7cm) right breast mass with skin thickening and palpable right axillary nodes. Neoadjuvant therapy which would currently be offered in such cases was not pursued at the time and the patient had a right Mastectomy and axillary dissection performed. The pathology showed the large mass completely removed and 19 out of 21 axillary nodes positive for breast cancer which was ER positive, PR positive and Her2 negative. She had postoperative adjuvant chemotherapy, anti-estrogen therapy followed by radiation to the axilla and chest wall with a disease free response and no evidence of distant metastases from the Right breast cancer after 15 years.

In 2018, 10 years after her right breast cancer treatment, she presented with a 2 x 2 x 1 cm left breast mass and no palpable masses in the axilla. Because of her past history of advanced Right Breast cancer she requested Left Mastectomy and Axillary Dissection which we considered reasonable and proceeded with this treatment. The pathology report demonstrated complete excision of the grade 2 invasive ductal carcinoma, with 10 normal axillary lymph nodes and immunohistochemistry showing ER positive, PR negative, Her 2 negative disease.

According to established protocol she was not offered radiotherapy or chemotherapy and appeared to be clinically well until 2022, 4 years after the left Mastectomy when she presented with 7 palpable nodules in the axilla. This was followed by excision of the axillary nodules, all seven of which demonstrated invasive ductal carcinoma, ER positive, PR negative and Her2 negative (Same IMHC as the left Breast Cancer but different from the Right Breast cancer which was PR positive). CT scan of Chest, Abdomen and pelvis showed no evidence of distant metastasis, but PET scan suggested a possible abnormal internal mammary lymph node. She has completed 6 cycles of Chemotherapy and is awaiting Radiotherapy to the Axilla and internal mammary nodal area together with antiestrogen therapy. Incidentally, the patient has remained clinically well and is quite active with a stable chronic large mediastinal mass which on repeated biopsy showed benign thyroid tissue with normal thyroid function for which the thoracic surgeon recommended continued monitoring of the mediastinal mass as opposed to surgery because of proximity to the cardiac chambers.

Discussion

This patient presented with what appeared to be advanced breast carcinoma on the Right side which responded to traditional aggressive surgery and adjuvant therapy with no evidence of right breast related progression of disease after 15 years (hormone receptor studies of the left axillary tissue suggested the same pattern as the left breast cancer). Yet, what appeared to be relatively early left breast cancer resulted in left axillary disease within 4 years. Could this progression of disease on the left side have been prevented by a more aggressive axillary dissection i.e. seeking a larger yield of left axillary nodes? Although this may be so, as suggested by Rosenberger et al. [2] in node positive disease, general consensus and recommendations by the National Cancer Coordinating Committee [3] suggest that 10 lymph nodes from the axillary sampling as was performed in our case is adequate treatment.

What remains unanswered is that whereas 10 axillary nodes may be adequate for diagnostic purposes, removing a larger number of nodes could be of therapeutic benefit in preventing later axillary node metastases. Intuitively 10 negative lower level nodes should be associated with negative higher level nodes as well unless we theorize that tumor could bypass lower level nodes and lodge in higher level nodes. This would require us rethinking the large body of work on the role of sentinel node biopsy in assessing the

axilla and guiding therapy such as the need for radiation therapy and other adjuvant therapies based on staging which is heavily dependent on the presence of nodal involvement [4,5].

Could more aggressive radiation to the chest wall and axilla in spite of a small size breast tumor and negative axillary nodes, such as in our patient's left breast cancer, affect the disease and outcome because of unrecognized or occult disease in the chest wall with the potential of metastasizing to the axilla following the mastectomy? This concept of post mastectomy radiation therapy, albeit in larger size tumors (>5cm), possible close margins and at least 3 positive nodes, has been proposed in treating such breast cancer [6]. In our case which does not meet any of these criteria and in keeping with present guidelines, chest wall radiation was not administered in treating the left breast cancer.

It is well established that earlier diagnosis and treatment of breast cancer results in better outcome. It is not clear how long the left axillary nodules were present before our patient sought medical attention. Possibly they were present for a considerable length of time before treatment and most likely all seven lymph nodes did not simultaneously appear. Accordingly, the outcome could have been better if they were identified and treated earlier. Fortunately, these left axillary nodes were all removed before the development of, or identification of distant metastases as indicated by CT and PET scan studies.

Summary and Conclusion

Our case report demonstrates that grossly advanced breast cancer as in the patient's right side can be associated with a relatively good outcome when treated aggressively, while early-stage disease can progress in spite of the recommended less aggressive treatment i.e. no radiation or chemotherapy. One may wonder, in retrospect, whether radiation and/or chemotherapy in this, initially node negative, small left breast cancer would have prevented the progression to significant nodal disease. This would require a major change in our management strategy of treating early disease less aggressively than more advanced disease.

Our therapeutic approach to breast cancer continues to evolve and is largely guided by relatively gross parameters such as tumor size, grade and stage. Although much research is being done, what appears to be needed is a greater focus on the tumor biology and the patient innate defense mechanisms such as micro environmental factors including immunologic status of the patient. This would allow us to understand the disease process more scientifically and apply therapy that is grounded in good knowledge. For instance, availability of another biologic marker in addition to our present parameters could signal potential for more aggressive disease that would warrant more aggressive treatment in spite of what now appears to be less aggressive early disease.

This type of information will allow us to understand why a patient such as in our case report would follow a course different from our expectations and why our assessment of disease status does not always match survival. One good outcome from all of

this is the need for humility in all that we do as physicians and to continue to strive for knowledge towards excellence. In our environment, it has long been recognized that certain cancers such as breast in the black community follows a more aggressive course with higher mortality rates for the same stage of disease than that in the nonblack community.

With the support of a multicentre grant from Pfizer Pharmaceutical Company we are pursuing studies to identify biologic markers unique to the black community that could be targeted and modified so that the outcome from these cancers in this community could be improved [7]. These are the type of studies required to improve care in our cancer patients by increasing our knowledge in cancer biology that could be applied to patients such as the one in this Case Report. Guidelines, though very important are based on our knowledge and experience at one specific time and we must be open to other consideration, monitor for early changes to detect onset of recurrent disease and be prepared to individualize our approach based on patient specific parameters.

In our case we applied appropriate recommended treatment guidelines yet we were surprised by the outcome especially on the left side. Although axillary disease burden appears large, overall determination of ultimate outcome may be reflected in the absence of distant disease in spite of this apparently large axillary burden of disease in our patient.

References

1. Rosenberger LH, Thomas SM, Plickta JK, Fayanju OM, Hyslop T, et al. (2019) Decreasing rates of axillary lymph node dissection over time: Implications for surgical residents exposure and operative skills development. *Am J Surg* 218(4): 786-791.
2. Rosenberger LH, Ren Yi, Thomas SM, Greenup RA, Fayanju OM, et al. (2020) Axillary lymph node dissection in node positive breast cancer-are ten nodes adequate and when is enough, enough?. *Breast Cancer Res Treat* 179(3): 661-670.
3. (2017) National Comprehensive Cancer Network. NCCN, Invasive cancer. *Surgical Axillary Staging* (3.201).
4. Boniface JD, Frisell J, Bergkvist L, Anderson Y (2017) Ten-year report on axillary recurrence after negative sentinel node biopsy for breast cancer from the Swedish multicentre cohort study. *Br J Surg* 104(3): 238-247.
5. Charalampoulis P, Markopoulos C, Kovacs T (2018) Controversies and recommendations regarding sentinel lymph node biopsy in primary breast cancer: A comprehensive review of current data. *Eur J Surg Oncol* 44(1): 5-14.
6. McGale P, Taylor C, Correa C, Cutter D, Duane F, et al. (2014) Effect of radiotherapy after mastectomy and axillary surgery on 10-year recurrence and 20-year breast cancer mortality: Meta analysis of individual patient data for 8135 women in 22 randomized trials. *Lancet* 383(9935): 2127-2135.
7. Yedjou CG, Sims JN, Miele L, Noubisi F, Lowe L, et al. (2019) Health and racial disparity in breast cancer. *Adv Exp Med Biol* 1153: 31-49.