


Original Research Article

Scrutiny of extent of axillary node dissection for patients with primary breast cancer

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Abstract

Background: Carcinoma of the breast is the most common of non-skin malignancies in women and is second to lung cancer is a cause of cancer deaths. A woman who lives to age 90 has a one in eight chance of developing breast cancer. It is as ironic and tragic that a neoplasm arising in an exposed organ, readily accessible to self-examination and clinical surveillance, continues to exact such a heavy toll.

The aim of the study: To determine, if differences in the extent of axillary node dissection would alter the number of reported positive nodes, to emphasize the presence and importance of dissecting the inter pectoral node (Rotter's Node) in Modified Radical Mastectomy.

Materials and methods: This study was conducted in the Department of General Surgery, Government Stanley Medical College, Chennai in 2018. Patients were evaluated according to NCCN guidelines and were subjected to Modified Radical Mastectomy for whomsoever it was needed. 32 cases underwent Modified Radical Mastectomy with complete axillary dissection (level I/II/III and inter pectoral node) according to the identical procedure. The dissection was carried out in all patients, irrespective of whether they had palpable nodes or not clinically.

Results: An average of 13 lymph nodes was examined per case (range: 8–20). Axillary lymph node involvement was found in 56% of the cases (18/32). Of the 18 cases, 83% (n = 15) had involvement of level I/II nodes only, and 16% (n = 3) had positive ALN in levels III and, or, inter pectoral nodes, in addition to the level I/II. Involvement of lymph nodes in level III and inter pectoral nodes without a level I metastasis was not found. By the inclusion of level III to a level I/II dissection, two cases (11%) was converted from one to three positive nodes (pN1) to ≥ 4 positive nodes (pN2). Involvement

of lymph nodes in level III was found in 3 cases (16%) 10/32 cases (31%) had ≥ 4 positive nodes who required adjuvant therapy.

Conclusion: Variations in the level of axillary node dissection for breast cancer which includes the inter pectoral and level III nodes can result in significant changes in the number of positive axillary nodes stepping up the pathologic nodal status from pN1 to pN2. This can potentially bias adjuvant therapy recommendations if treatment decisions are based on this prognostic factor.

Key words

Primary Breast Cancer, NCCN Guidelines, Modified Radical Mastectomy, Axillary Node.

Introduction

Carcinoma of the breast is the most common of non-skin malignancies in women and is second to lung cancer being a cause of cancer deaths. A woman who lives to age 90 has a one in eight chance of developing breast cancer [1]. It is as ironic and tragic that a neoplasm arising in an exposed organ, readily accessible to self-examination and clinical surveillance, continues to exact such a heavy toll. The treatment of primary breast cancer relies primarily on surgery [2]. The surgery for breast cancer dates back to first century from when various modification has occurred in its treatment and now being evolved into Modified Radical Mastectomy (MRM) and Breast conservation surgery which is being performed increasingly over the last 2 decades, and for many surgeons either of these has become the "standard operation" for primary operable breast carcinomas [3]. The number of positive axillary lymph nodes foresee prognosis and is important in determining adjuvant therapy in breast cancer patients [4]. This study was undertaken to determine if differences in the extent of axillary node dissection would alter the number of reported positive nodes. And there is no authentic evidence that, to which subset of axillary level the inter pectoral nodes belong and whether its dissection is essential in routine MRM or not, as this node dissection is a standard procedure in radical mastectomy [5].

Materials and methods

This study was conducted in the Department of General Surgery, Government Stanley Medical College, Chennai in 2018. Patients were evaluated according to NCCN guidelines and

were subjected to Modified Radical Mastectomy for whomsoever it was needed. 32 cases underwent Modified Radical Mastectomy with complete axillary dissection (level I/II/III and inter pectoral node) according to the identical procedure. The dissection was carried out in all patients, irrespective of whether they had palpable nodes or not clinically.

Inclusion criteria: Patients with primary breast cancer whose clinical stage of Stage I, II-A, II B and IIIA (staged as per NCCN guidelines) were included.

Exclusion criteria: Patients undergoing Breast conservation surgery, Patients who received Neoadjuvant chemotherapy for Stage III A, Stage III B, and IV, Metastatic Carcinoma breast, Recurrent Carcinoma Breast.

Statistical analysis: The data were analyzed and interpreted according to the type of variables. The continuous variables were analyzed in terms of mean and interpreted by student's t-test. The discontinuous variables were described in terms of percentages and interpreted by χ^2 (Chi-square) test.

Results

The total number of patients enrolled in the study was 32. For all the patient's Total Mastectomy with Axillary lymph, node dissection was done by giving clearance including Level I, II, III and inter pectoral nodes which were sent for analysis. The histopathology reports were obtained according to CAP protocol and the results were

analyzed. All the patients enrolled in the study were females.

There was a predominance of left side involvement for carcinoma which constitutes 19 patients of 32 (**Table – 1**).

Table – 1: Side involvement.

| Side | No of patients | % |
|-------|----------------|-----|
| Right | 13 | 41% |
| Left | 19 | 59% |

Table – 2: Quadrant involved.

| Quadrant involved | Number | % |
|-------------------|--------|-----|
| RA | 4 | 12% |
| LOQ | 4 | 13% |
| UIQ | 5 | 16% |
| UOQ | 19 | 59% |
| LIQ | 0 | 0% |

Table – 3: Clinical stage.

| Clinical stage | Number | % |
|----------------|--------|-----|
| II a | 8 | 25% |
| II b | 15 | 47% |
| III a | 9 | 28% |

Of the affected breast the upper outer quadrant involvement is the most prevalent owing to 59%, followed by upper inner quadrant 16%, followed by retroareolar and lower outer quadrant of 12% each and with no involvement of lower inner quadrant (**Table – 2**).

By clinical staging most of the patients belongs to stage II B (47%), followed by stage III A (28%) and stage II A (25%) but the pathological staging of the disease varies after HPE report. Of the 8 patients in the clinical stage II A disease all were T2N0 disease, postoperatively 6 belonged to stage II A itself and 2 were only of stage I with average size of the tumor being 1.82, average number of nodes that could be dissected from the specimen was 12 nodes and all level f nodes including inter pectoral nodes were negative for malignancy. This signifies that the clinical size of mass is a little larger than pathological size and breast conservation surgery

can be a good option for this kind of people with T2N0 disease. Of 15 patients in clinical stage II B, 13 being T2N1 disease and two being T3N0 disease, postoperatively 5 belonged to II A, 5 belonged to II B while 5 belonged to III A disease. Of the 5 patients with pathologic staging II A, all were node negative (pT2N0) except for one (pT1N1), whose single level I/II node positive for malignancy out of 11 nodes dissected. The other 4 patients all the level of lymph nodes were negative with an average number of node dissected being. The average size of the tumor was 2.3. Of 5 patients belonging to pathologic stage II B, one was negative for all levels of lymph nodes while 4 were positive for level I/II lymph nodes with negative inter pectoral and level III nodes. The average number of node-positive being 2 out of 10 nodes dissected. The average size of the tumor being 3.4 cm of 5 patients of pathologic stage III A with clinical stage II B, all were positive for level I/II nodes with an average of 4 nodes positive out of 13 dissected nodes with negative inter pectoral nodes and level III nodes. The average size of the tumor was 3.5 (**Table – 3**).

Discussion

Fifty-eight consecutive patients undergoing a modified radical mastectomy were subjected to complete dissection and pathological assessment of the inter pectoral fascia and the group of lymph nodes it contains. The dissection was carried out in all patients, irrespective of whether they were palpable or not [6]. Inter pectoral nodes (IPNs) were anatomically present in 28 patients (48%) and were completely absent in 30 patients (52%). Ten patients were Stage I, 18 were Stage II, and 30 were Stage III. Of the 25% (15/58) of patients with microscopic metastasis, only 12/15 had palpable nodes; 66% (10/15) of patients had axillary and apical nodes positive [7]. Significantly, two patients with negative nodes in the axillary and apical group had metastatic Rotter's nodes. Of the 15 patients with positive IPNs, nine had primary tumors located within the upper quadrants of the breast, whereas

only five had tumors in lower quadrants and one had a centrally located tumor [8]. The neurovascular bundle to the pectoralis major could be safely preserved in 93% (54/58) of patients. The incidence of impalpable nodes with microscopic metastasis and the evidence of exclusively metastatic inter pectoral nodes with uninvolved axillary and apical nodes prompt the following conclusions: (1) inter pectoral fascia and nodes should be mandatorily dissected in all patients irrespective of the nodes being palpable or not; (2) the dissection is anatomic and is associated with almost no additional morbidity; (3) the group of patients with IPNs positive and the axillary group negative, would benefit maximally from the IPN dissection [9]. Similarly, this dissection in all other groups of patients would enable a more accurate staging and selection of therapeutic strategies [10]. The study population consisted of 302 patients with invasive breast cancer who underwent complete (level I/II/III) axillary lymph node dissection [11]. Assuming that all patients had undergone a level I/II dissection, it was determined how frequently a patient's nodal category (0, 1–3, 4–9, >10 positive nodes) would have been altered if a level I or level I/II/III dissection were performed. 302 patients had undergone a level I/II dissection, performing only level I dissection would have resulted in a change in the nodal category in 15.9% of all patients and 36.1% of patients with positive nodes. The corresponding changes for a level I/II/III dissection would have been 4.3% and 9.5%, respectively [12]. Positive IPN were found in 6 (16%) of n1 alpha group, 1 (10%) of the n1 beta group, and in 3 (50%) of the n2 group. All these 3 cases of n2 died of distant metastasis and local recurrence [13]. Two (1.7%) of the axillary node (1a, 1b) negative patients had micro involvement of cancer only in IPN, and are currently disease-free. These data suggest that IPN metastasis may occur even in the early breast cancer patients, and that may be controllable by lymph node excision [14]. Therefore, routine and careful dissection of IPN through wide opening of sulcus interpectoralis is necessary for modified radical mastectomy and even for breast preserving operation [15].

Conclusion

Involvement of lymph nodes in level III and inter pectoral nodes without a level I/II metastasis was not found. Level III axillary dissection is appropriate for patients with palpable ALN, to reduce the risk of axillary recurrence and provide essential adjuvant therapy. Inter pectoral nodes were positive in patients with stage III A that upstages the nodal status of disease for adjuvant therapy, that emphasizes the importance of inter pectoral node dissection to be included in Modified radical mastectomy procedure as a routine. Other observations were the patient presents to the doctor with carcinoma breast only when it attains stage II, this shows the lack of awareness of screening procedures in patients which can pick up stage I disease. On observation, there was no interconnection between the grade of differentiation and the level of nodal metastasis.

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