

Significance of Rotter's Node Group Dissection in Modified Radical Mastectomy – A Study of 88 Cases

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Abstract

Aim: To identify lymph node yield in Rotter's group (Interpectoral) tissue dissected during modified radical mastectomy for Carcinoma breast.

Material and Method: The records of eighty eight patients were retrospectively reviewed from November 2019 to February 2022 who underwent modified radical mastectomy for breast cancer and had interpectoral tissue separately sent for histopathologic examination.

Results: All the lymphnodes identified during histopathological examination were from levels one to three and Rotter's tissue failed to yield any lymphnodes.

Conclusion: In our study population the interpectoral tissue dissection failed to yield any nodes and hence may be omitted from standard modified radical mastectomy.

Keywords: breast cancer, axillary node metastasis, Rotter's node, axillary dissection

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Introduction

Carcinoma of Breast is one of the most common cancers in India. [1] The prognosis of this cancer depends on size of tumour and axillary lymph node involvement as well as distant metastasis. [2-4] Axillary dissection has been an important part of surgical treatment of breast cancer. Classically the nodal stations have been classified as levels one, two and three on the basis of relation of

the lymph nodes to pectoralis minor muscle, level one being lateral to pectoralis minor muscles's lateral boundary, level two being in between medial and lateral border of pectoralis minor muscle and level three being medial to medial boundary of pectoralis minor muscle. [5-6] Rotter's lymph nodes refers to inter pectoral tissue located between pectoralis major and minor muscles and

are supposed to receive lymph fluid from muscles and mammary gland and deliver lymphatic fluid to axillary lymphatic plexus. The Rotter's lymph nodes are named after Joseph Rotter who described them. [7-8] In this study we identify lymph node yield in Rotter's group (Interpectoral) tissue dissected during modified radical mastectomy for Carcinoma breast.

Material and Methods

The clinical records of 88 patients of Carcinoma breast were reviewed who underwent modified radical mastectomy from November 2019 to February 2022. All those patient's records who were diagnosed cases of non-metastatic infiltrating carcinoma of breast and were treated by modified radical mastectomy with dissection of levels one, two and three along with interpectoral (Rotter's) tissue were considered for inclusion in the analysis. All these cases were operated by a single surgeon and Rotter's nodes were dissected by including all the tissues between pectoralis minor and major muscles between medial and lateral border of pectoralis minor muscle. The interpectoral tissue so obtained was

separately grossed on table, packed and sent for histopathologic examination. Other data like age, sex, clinical stage, type of surgery done, pathological stage, average nodal yield and lymph nodes found in rotter's group were recorded.

Results

Our retrospective observational study included eighty eight patients. The average age at surgery was 47.3 years. 4(4.5%) out of 88 patients were male and 84 (95.5%) patients were females. Average nodal yield was 20 and range being (09-31). Two patients had received neoadjuvant chemotherapy. Two patients had complete pathological response and were classified as yp T0 N0, another two patients after neoadjuvant chemotherapy were staged as ypT1 N0, eight patients were pT1, sixty-four patients PT2, eight patients T3, four patients T4. Six patients had invasive lobular carcinoma, one adenoid cystic carcinoma and eighty one had invasive duct carcinoma. Only one non metastatic lymph node was identified in a patient in Rotter's lymph node tissues (pathologic stage T3). (Table 2).

Table 1: General Demographic Data

VARIABLES	FREQUENCY (%)
No. of Cases	88
Mean age	47.3 Years
Gender	
Male	4(4.5%)
Female	84(95.5%)
Site of lesion	
Right breast	34 (38.6%)
Left breast	54 (61.4%)
Neoadjuvant Chemo:	
Received	4 (4.5%)
Not Received	84 (95.5%)

Table 2: Tumour and Node characteristics of patients

T Stage	n	Percentage
ypT0	2	2.27%
ypT1	2	2.27%
pT1	8	9.1%
pT2	64	72.7%
pT3	8	9.1%
pT4	4	4.5%
TOTAL	88	100 %
Node Status	n	Percentage
Node Negative	43	48.86%
Node Positive	45	51.14%
TOTAL	52	100 %
Interpectoral node (non-metastatic)	1	1.13%

Pathologically 2.27% of patients were ypT0, 2.27% patients were ypT1, 9.1% were pT1, 72.7% were pT2 and 9.1% were pT3, 4.5% were pT4 tumours. All 88 patients (100%) underwent modified radical mastectomy (breast with level I to III dissection along with interpectoral nodes). Average nodal yield was 20 for the cohort. Only one patient with pT3 disease was found to have a subcentimeter non metastatic node at interpectoral region (1.13%) (Table2).

Discussion

Eighty eight patients were included in this retrospective observational study. All 88 (100%) patients underwent modified radical mastectomy (breast with level I to III dissection along with interpectoral nodes). Average nodal yield was 20 for the cohort. Anatomically, IPNs are located between the pectoralis major and minor muscles in the interpectoral fascia and do not belong to axillary lymph nodes (ALNs) and may further drain into the central or subclavicular node groups representing a possible "skip pathway" for tumour cells to metastasize from the breast to level III nodes while bypassing levels I or II [9]. The information obtained from pathologic examination of the removed lymph nodes helps to determine the pathologic staging of the disease and is an

integral part of the treatment of breast cancer. [10]. In present study, pathologically 2.27% of patients were ypT0, 2.27% patients were ypT1, 9.1% were pT1, 72.7% were pT2 and 9.1% were pT3, 4.5% were pT4 tumours. Only one patient with pT3 disease was found to have a subcentimeter non metastatic node at interpectoral region (1.13%).

Interpectoral lymph nodes (IPNs) were first reported by Grossman in 1896. [11] In currently accepted guidelines, the removal of ≥ 10 axillary nodes represents the international gold standard for systematic axillary staging. [12].

In our study two patients had received neoadjuvant chemotherapy. Two patients had complete pathological response and were classified as yp T0 N0, another two patients after neoadjuvant chemotherapy were staged as ypT1 N0, eight patients were pT1, sixty-four patients PT2, eight patients T3, four patients T4. Six patients had invasive lobular carcinoma, one adenoid cystic carcinoma and eighty one had invasive duct carcinoma. Only one non metastatic lymph node was identified in a patient in Rotter's lymph node tissues (pathologic stage T3). The role of interpectoral lymphnode dissection is controversial as the region contains mostly fibrofatty tissue and lymphnode yield is unpredictable. Different studies have

reported different nodal yield from interpectoral dissection. Different surgeons hold different views for the same and there is no standard guideline for the same. Interpectoral nodes (IPNs) were anatomically present in 28 patients (48%) and were completely absent in 30 patients (52%). [13] Our study compared with another study from Korea has the same percentage of nodal involvement and average nodal yield, but our interpectoral node yield is low. The mean number of axillary lymph nodes and Rotter's nodes were 19.5 and 0.9. Axillary lymph nodes metastases were found in 47.2% of all patients. [14,15]

Conclusion

Our study showed that the nodal yield from interpectoral region (Rotter's group) is very low and this may partly be reflected by the fact that most of the patients in our study were pathologically T2 tumours and it may also partly reflect the lack of identification of very small lymph nodes if any present in interpectoral tissues. In the light of above study it may be suggested that routine interpectoral node dissection may be avoided at least in selected patients, however further studies may be required.

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