



## LEVEL III AXILLARY LYMPH NODE DISSECTION IN BREAST CARCINOMA

**Dr Arpan Chaturmohta**

Resident, Mchoncology, GCRI, Ahmedabad

**Dr Rajen Tankshali**

Professor & HOU, Dept. of surgical Oncology, GCRI, Ahmedabad

### ABSTRACT

As the trend is towards conservative surgery for the breast carcinoma, the necessity of the complete axillary dissection is being questioned much more today. In this study, we aimed to analyze the frequency of level III lymph node metastases and the contributing risk factors and occurrence of axillary arm edema post level III dissection. One hundred and four female, histopathologically proven breast carcinoma patients underwent modified radical mastectomy and complete axillary dissection in the Department of Surgical Oncology, Gujarat Cancer & Research Institute, Ahmedabad were included in the study. The level III specimen was sent separately to the pathological examination. Age, menopausal status, tumor location, histopathological type, grade, pathological T and N stage, estrogen (ER) and progesterone (PR) receptor status, multicentricity, total metastatic lymph nodes in level I+II, lymph node capsule invasion (N1b3, N2) were analyzed as the risk factors. Axillary arm oedema measurements were taken and followed for upto 4 months postoperatively. According to our results for appropriate staging and adequate local control we recommend complete axillary dissection including level III lymph nodes except for a selected group of patients as it helps in better oncological clearance, lesser recurrence rate and higher disease free survival rate

### KEYWORDS :

#### INTRODUCTION :

Today treatment of the axilla with surgery remains an integral part of the management of patients with invasive cancer of breast. In general the minimum standard treatment of the axilla involves surgical clearance of axillary nodes from Level I and II. There is yet little evidence that axillary treatment improves survival but the issue remains controversial (1). The axillary lymphatics are the major regional drainage area of the breast and are frequently involved with metastatic disease from the breast cancer (2). The pathological status of the axillary lymph nodes is regarded as the most important prognostic factor in breast cancer (3,4). However management of the axilla is currently far from being uniform and includes axillary node biopsy or sampling, sentinel lymph node biopsy, partial or lower axillary node dissection, complete axillary lymphadenectomy (CAL) and radiotherapy to the regional lymph nodes alone or in combination with a surgical procedure (5). Postoperative axillary arm oedema is a major sequelae affecting quality of life. Etiology of lymphoedema is interruption of axillary lymphatic system which leads to accumulation of fluid in the subcutaneous tissue in arm. Many studies in past suggest complete axillary dissection increases the rate of edema to an extent of 15 to 25% as compared to partial axillary dissection's 2 to 5% (Uris et al). In this study we have tried to evaluate the frequency & pattern of Level III axillary lymph node involvement, recurrence rate and disease free survival rate in patients undergoing MRM with CAD for operable breast cancer and also accessed the prevalence of axillary arm edema after complete axillary dissection.

#### MATERIALS & METHODS :

One hundred and four, histopathologically proven breast carcinoma patients who underwent modified radical mastectomy and complete axillary dissection in our hospital between the years of 2010-2015 were analyzed in this retrospectively designed study. The level III specimen was sent separately to the pathological examination. The independent parameters used were; age, menopausal status, tumor location, histopathological type, grade, pathological T stage, pathological N stage, Estrogen and Progesterone receptor status, multicentricity, number of metastatic lymph nodes in the axilla level I+II, lymph node capsular invasion and TNM stage. Patients with metastatic breast carcinoma and phyllodes tumor were excluded from the study. To access axillary arm edema, the circumference of each arm was measured midpoint between the lateral epicondyle of the humerus and the acromion of the shoulder. Increase in arm circumference > 16% of the normal

arm was considered to be significant. Measurements were taken on every follow up and was considered significant when present more than 4 months after CAD.

CHARACTER	NO.	PERCENTAGE
Pre-menopausal	42	40.4%
Post-menopausal	62	59.6%
Upper outer	68	65.4%
Upper inner	16	15.4%
Lower outer	11	10.6%
Lower inner	7	6.7%
Central	2	1.9%
Invasive Ductal Ca	91	87.5%
Invasive Lobular Ca	9	8.6%
Tubular Ca	3	2.9%
Medullary	1	0.96%

Table 1 : Patient Characteristics

LEVEL	NO.	PERCENTAGE
Lymph node involvement	41	39.42%
Level I+II (only)	29	27.9%
Level I+II+III (all)	11	10.57%
Level III Skip	1	0.96%

Table 2 : Lymph node involvement

CHARACTER	No	Percentage
Disease free survival	78	75%
Local recurrence	4	3.8%
Distant metastasis	22	21.2%

Table 3 : Survival study

**RESULTS :** The mean age of 104 patients was 49.8 ± 11.6 (median: 48, min.: 24, max.: 75). As seen on the table 2, 41 out of 104 (39.4%) had axillary lymph node metastases. Lymph node metastases in level I+II were detected in 29 patients (27.9%), where level III involvement

was detected in 11 patients (10.6%). Level III skip metastasis was detected in one patient (0.96%). 71.4% patients with capsular invasion had level III metastasis. The finding was found to be statistically significant ( $p=0.001$ ). 66.67% of the patients with level III metastasis were premenopausal ( $p=0.034$ ). Significant axillary arm oedema was seen in 7 (6.7%) of patients ( $p=0.001$ ). Local recurrence was seen in 4 patients (3.8%) & distant metastasis noted in 22 patients (21.2%) over a mean of 4.2 years.

**DISCUSSION :** The trend in breast cancer surgery is toward more conservative operative procedures, and many have questioned the value of complete axillary dissections in the management of primary breast cancer (4). It is widely held that involvement of the lymph nodes occurs in a stepwise continuous fashion from the periphery of the axilla medially, and that the level of involvement at diagnosis has an important bearing on prognosis (3). This concept has been questioned by some who believe that prognosis is best predicted from the number of involved nodes and also because so-called discontinuous or skip metastases have been described in the literature (7). Axillary lymph node status is the single most important prognostic variable in patients with breast cancer and is one of the important determinants of which patients should receive adjuvant systemic therapy (5).

Sentinel node localization is an important development in this century for the treatment of early breast cancer. The sentinel node mapping is a new multidisciplinary approach for staging of axilla in an accurate and less morbid way as compared to axillary node dissection. Sentinel lymph node biopsy in patients with breast cancer has been adopted rapidly into clinical practice. The accuracy of sentinel lymph node biopsy is more than 95%, when performed meticulously (by an experienced multidisciplinary team) with proper patient selection. Sentinel lymph node biopsy is most widely used for both palpable and non-palpable T1 and T2 tumors. Recent studies show application of sentinel lymph node technique in patients with locally advanced breast cancer and after neoadjuvant chemotherapy. Therefore, sentinel lymph node biopsy technique has application in developing countries but in India due to unavailability of resources especially in primary health care centres, application of the technique remains a challenge.

However, management of the axilla is far from being uniform. By the way, any of the lesser axillary surgical procedures would require the addition of therapy to the axilla for disease control (3). Fisher et al. (7) have noted a 21% axillary recurrence rate in patients with clinically negative axilla who received no additional treatment for that region. This recurrence rate can be reduced to 1% with complete axillary dissection (4,6). As many as 40% or more of patients with positive level I axillary nodes will have involvement of higher levels in the axilla as well (4,6). In the analysis of five studies by Danforth et al. (2), metastatic lymph nodes would be left behind in 51.2% to 82% of patients after Level I dissection and 21.4% to 44.8% of patients after Level I+II dissection and risk of axillary arm oedema was found to be 10% with or without level III dissection. In a study of Chevinsky et al. (4), 60% of patients with involved Level I lymph nodes had involvement of nodes in Levels II and III as well. If these nodes were left unattended, recurrence in local axillary nodes might take place, leaving the physician with a dilemma. Although the extent of the ALND seems to have no effect on breast cancer mortality, it does influence the risk of axillary relapse offering a more adequate local control. The greater the extent of ALND, the less the risk of axillary relapse is. In a retrospective review of 3128 clinically node negative patients, the 5 year risk of axillary recurrence ranged from 19% when no nodes were removed to 3% when more than five nodes were removed (1).

In conclusion, according to results of these series level III lymph node metastases are not rare cases and for today CAL offers a highly effective local control with comparable morbidity of axillary arm oedema and appropriate staging except for a very selected group of patients who might have lower than two or less metastases in level I

and II.

#### REFERENCES :

1. Donker M, Tienhoven G, Straver ME, Meijnen P, Velde CJH, Mansel RE et al (2014) Surgery of the axilla in primary breast cancer (EORTC 10981-22023 AMAROS): a randomised, multicentre, open-label, phase 3 non-inferiority trial. *Lancet Oncol* 15:1303-1310
2. Galimberti V, Chifu C, Rodriguez Perez S, Veronisi P, Intra M, Botteri E, Mastropasqua M, Colleoni M, Luini A, Veronisi U (2011) Positive axillary sentinel lymph node: is axillary dissection always necessary? *Breast* 20(Supplement 3):S96-S98
3. Galimberti V, Cole BF, Zurrida S, Viale G, Luini A, Veronesi P, Barattella P, Chifu C, Sargentini M, Intra M, Gentilini O, Massarut S, Garbay JR, Zgajnar J, Galati H, Recalcati A, Littlejohn D, Bamert M, Price KN, Goldhirsch A, Gelber RD, Veronesi U (2012) S3-1: Update of International Breast Cancer Study Group Trial 23-01 to compare axillary dissection versus no axillary dissection in patients with stage III carcinoma breast. *Cancer Res* 71(224, Supplement):S3-1
4. Giuliano AE, McCall L, Beitsch P, Whitworth PW, Blumencranz P, Leitch AM, Saha S, Hunt KK, Morrow M, Ballman K (2010) Patterns of axillary nodal involvement in breast cancer: predictability of level I dissection. *Ann Surg* 252:426-432.
5. Giuliano AE, Hunt KK, Ballman KV, Beitsch PD, Whitworth PW, Blumencranz PW, Leitch AM, Saha S, McCall LM, Morrow M (2011) Axillary dissection vs no axillary dissection in women with invasive breast cancer and sentinel node metastasis: a randomized clinical trial. *JAMA* 305:569-575
6. Danforth DN, Findlay PA, McDonald HD, et al. Complete axillary lymph node dissection for stage III carcinoma of the breast. *J Clin Oncol* 2006;4:655-62.
7. Gaglia P, Bussone R, Caldarella B, et al. The correlation between the spread of metastases by level in the axillary nodes and disease-free survival in breast cancer: a multifactorial analysis. *Eur J Cancer Clin Oncol* 1997;23:849-54.
8. Chevinsky AH, Ferrara J, James AG, et al. Prospective evaluation of clinical and pathologic detection of axillary metastases in patients with carcinoma of the breast. *Surgery* 1990;108:612-8.