

CA breast morbidity and mortality associated with level 2 and level 3 lymph node dissections

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Abstract

Introduction: In India, the prevalence of breast cancer is growing increasingly becoming the number one cancer in women who are moving cervical cancer to second place. The aim of the study was evaluation of associated factors and prognosis of Ca breast morbidity and mortality associated with level 2 and level 3 lymph node dissections. **Material and methods:** This prospective study was conducted at Jubilee Mission Medical College and Research Institute Thrissur, by the department of general surgery. All the breast carcinoma patients were included in this study who were diagnosed between 2007 June to 2009 January After dissection of lymph nodes at stage I-II, the shoulder was then flexed so that the pectoral muscles could relax. Pectoralis minor was raised forward or drawn with a retractor on the lateral foot. Lymph node level III was identified as the nodes between the medial boundaries of the lymph. The minor muscle pectoralis and the subclavius tendon were cleared. Lymph nodes of Category III have been independently labelled with pathological examination. **Results:** Total two hundred women to the age group between 20-80 years were included in this study. Among them 86 (43%) were belonged to age group between 40-60 years with median age of 54.6 years. The carcinoma of breast in patients 106 (53%) had right side 91 (45.5%) had left side whereas 3 (1.5%) had bilateral involvement. Evaluation of post-operative sequelae was conducted on all patients at one, three and six months. By clinical review, wound inflammation and seroma were observed and limited arm mobility was clinically graded as mild moderate and severe. **Conclusion:** This study concludes that carcinoma of breast morbidity and mortality is associated with level II and level III lymph nodes dissection. Level III clearance with minimum morbidity was observed. It seems like a partial (level I and II) dissection in order to be the most suitable method for both staging and local regulation because it reduces the axillary bulk tissue of the node. The occurrence of morbidities increase with higher levels of axillary clearance is seen in this study.

Keywords: carcinoma, breast cancer, lymph nodes, morbidity

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Introduction

In India, the prevalence of breast cancer is growing and increasingly becoming the number one cancer in women who are moving cervical cancer to second place. 15 % of women in India are likely to suffer from breast cancer throughout their lives. Although the increase is just visible, it can safely be said, in metropolitan cities, that many

in rural India, patients go untreated and because of a lack of Awareness and ignorance posed by certain patients in the late stages of the sickness [1,2].

Treatment of the axilla with surgery remains an Integral part of invasive care cancer. In addition, the minimum standard treatment is the minimum standard treatment for axilla requires the surgical clearing of Stage I and II axillary nodes.

There is still no evidence that longevity is improved by axillary therapy, but the topic remains contentious [3] with 39 % of total new breast cancer cases diagnosed, Asia has 44 % of the world's breast cancer deaths [4]. About 25 % of India's female cancer cases are BC [5, 6]. The prevalence rate was

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found to be 25.8 in 100,000 people and the mortality rate is 12.7 in 100,000 women (2017) [5].

The highest incident rate was observed in Delhi (41 per 100,000 women), followed by Chennai (37.9 per 100,000 women), Bangalore (34.4 per 100,000 women), and the district of Thiruvananthapuram (33.7 per 100,000 women) [5].

The mortality incidence ratio was found to be 0.66 in rural registries and 0.08 in urban registries when analysed [5].

Nowadays, for the purposes of pathologic determination, a simplified nomenclature usually followed + for anatomy and metastatic development, based on the relationship of the lymph nodes to the minor muscles pectoralis [7]:

Level I nodes (low nodes) lie lateral and below to the lateral border of the pectoralis minor muscle.

Level II nodes (middle group) lie behind the pectoralis minor muscle.

Level III nodes (upper nodes) are located medial to the medial border of the pectoralis minor muscle and below the lower border of the clavicle.

In the surgical treatment of breast cancer, axillary lymph node dissection (ALND) plays an important role. The details gained from the pathological analysis of the lymph nodes removed helps to assess the disease's pathological staging and is an ALND is helpful for breast cancer patients because it controls geographic nodal disease and can enhance clinical survival [8].

ALND is an important aspect of breast cancer care. Complications after ALND are well understood which involve wound inflammation, arm lymphedema, lymphangitis, numbness of the arm, and limitation of arm movement [9,10]. The aim of the study was evaluation of associated factors and prognosis of Ca breast morbidity and mortality associated with level 2 and level 3 lymph node dissection.

Material and methods

This prospective study was conducted at Jubilee Mission Medical College and Research Institute Thrissur, by the department of general surgery. All the breast carcinoma patients were included in this study who were diagnosed between 2007 June to 2009

January. Ethical clearance was obtained from ethics committee and informed written consent were taken from each patients. This prospective study was carried out on 200 women who fulfilled the criteria. Patients for which the main tumor has been surgically treated according to the standard requirements, it was completed. Patients with biopsy proven invasive breast carcinoma, the two main branches of the tree reflect the surgical choices of Sentinel lymph node (SLN) biopsy or ALND for axillary staging. Possible clinical effects of SLN biopsy or ALND were defined by sub branches. Taking into account the possible risk of each operation, chance events were modelled as dichotomous branch points. Individuals decisions trees were developed and subsequent decision analyses for the seven breakdown in tumor size were conducted: T1a (<0.5 cm), T1b (0.5–1.0 cm), T1c (1.0–2.0 cm), T2 (2.0–3.0 cm), T2 (3.0–4.0 cm), T2 (4.0–5.0 cm), and T3 (5.0 cm). After dissection of lymph nodes at stage I-II, the shoulder was flexed so that the pectoral muscles could relax. Pectoralis minor was raised forward or drawn with a retractor on the lateral foot. Lymph nodes level III was defined as the nodes between the medial boundaries of the lymph. The minor muscle pectoralis and the subclavius tendon were cleared. Lymph nodes of level III have been independently labelled with pathological examination.

Patients suffering from other malignancies, fractures or injuries previous ipsilateral and ipsilateral upper limb surgery ALND was excluded from this study.

Statistical analysis was conducted with the Statistical Package for the Social science System version (SPSS) 22 and Microsoft Excel. Paired t-test and chi-square test were used to evaluate statistically significant association between groups as appropriate.

Results

Total two hundred women to the age group between 20-80 years were included in this study. Among them 86 (43%) were belonged to age group between 40-60 years with median age of 54.6 years. The carcinoma of breast in patients 106 (53%) had right side 91 (45.5%) had left side whereas 3 (1.5%) had bilateral involvement.

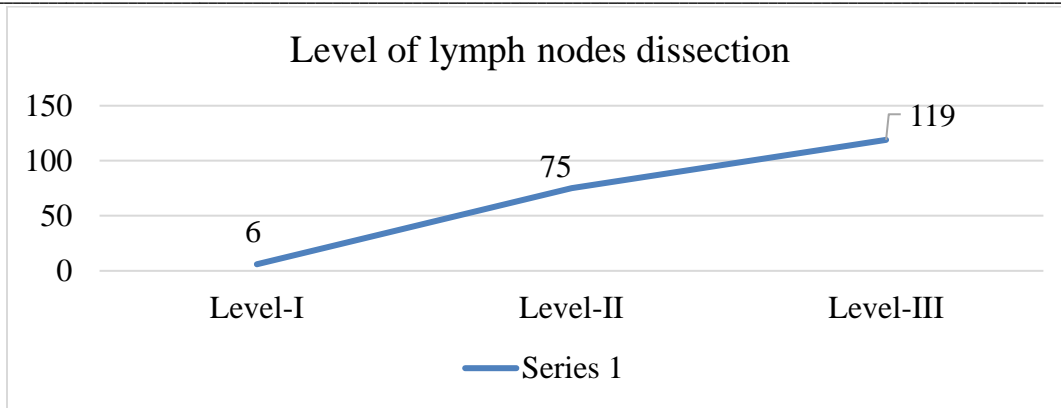


Fig 1: level of lymph nodes dissection

Table 1: Correlation of tumor size with number of positive lymph nodes.

T classification	No of positive lymph nodes			Total no. of patients (%)	P value
	0	<3	>3		
T1a	0	01	03	04 (2%)	0.001
T1b	3	2	4	09 (4.5%)	
T1c	4	1	7	12 (6%)	
T2	61	12	46	119(59.5%)	
T3	15	9	32	56 (28%)	

The tumor size (T classification) was correlated positively with grade and number of positive lymph nodes (P=0.001)

Table 2: Sequelae of lymph nodes dissection.

Level of axillary node dissection (II) (n=75)									
Morbidity	1 month			3 month			6 month		
	No. of patients	%	Mean±SD	No. of patients	%	Mean±SD	No. of patients	%	Mean±SD
Post-operative pain	57	76%	1.35±0.521	28	37.24%	1.72±0.486	5	6.65%	1.76±0.346
Lymphedema	5	6.65%	1.76±0.346	7	9.31%	1.83±0.375	7	9.31%	1.87±0.373
Seroma formation	31	41.23%	1.54±0.572	13	17.29%	1.82±0.378	0	0%	-
wound infection	18	23.94%	1.87±0.521	6	7.98%	1.83±0.492	1	1.33%	1.670±0.221
Restriction of arm movement	17	22.61%	1.91±0.348	19	25.27%	1.85±0.381	17	22.61%	1.91±0.348
Level of axillary node dissection (III) (n=119)									
Post-operative pain	91	76.44%	1.34±0.381	38	31.92%	1.73±0.362	11	9.24%	1.84±0.401
Lymphedema	9	7.56%	1.89±0.332	23	19.32%	1.93±0.274	31	26.04%	1.84±0.385
Seroma formation	67	56.28%	1.76±0.571	31	26.04%	1.79±0.478	6	5.04%	1.89±0.275
wound infection	22	18.48%	1.91±0.447	7	5.88%	1.88±0.253	4	3.36%	1.87±0.379
Restriction of arm movement	22	18.48%	1.91±0.447	19	15.96%	1.77±0.483	39	32.76%	1.83±0.384

Evaluation of post-operative sequelae was conducted on all patients at one, three and six months. This study shows wound inflammation and seroma were observed and limited arm mobility was clinically graded as mild moderate and severe.

Discussion

The median age of 54.6 years was recorded in this analysis, which was similar with the Indian council of medical research survey between 1982 and 2005, ICMR revealed that women with breast cancer were present in India.

In node positive patients, lymph node dissection also provides the most effective local control. There is no question that surgical surgery already leads to the cure of early breast cancer patients and seems to be curative in some patients with stage one carcinoma[11]. It provided that breast cancer is a substantial cause of morbidity and mortality of particular significance is the early identification of primary tumors. Therefore, it is important to provide a range of preventive measures and early detection targets and priorities are set for screening and treatment[12]. The size of tumor and the number of positive lymph nodes reported in this study was statistically significant ($p=0.001$). Similar observation was reported by Danforth et al, One of the reasons to perform ALND is to accurately stage the tumour Danforth has emphasized[13]. It is because the axillary clearance is in node positive disorder, the prevention of the difficulties of axillary recurrence care and compliance follow up intensive[14,15]. No recurrent authors discovered in every patients during the follow up period. Although the existing recommendations indicate a lymph node dissection of level II, to be carried out in a node positive axilla, dissection level III is still performed in multiple hubs[16]. Similar practice was done in this study. Lymphedema is one of the most severe and complicated complication to handle because it has a large impact on the quality of the patient's life. The prevalence of this differs considerably in the numerous techniques in literature, measurement as well as the various periods between surgery and arm diameter calculation. 37% risk of arm edema was at level III compared to 8% in level II was reported by Larson et al[17]. Another study done by DiSipio et al, observed a 21.4% lymphedema incidence after analysing thirty prospective cohort studies[18]. Similar incidences of lymphedema was reported in this study, patients who underwent level III was 26.04% and 9.31% seen in level II dissection ($p=0.05$). Those things are believed to be recurrences like a sentence of death. Additionally, recurrences morbidity is also caused: major axilla arteries and nerves are often invaded, causing pain or

lymphedema. The axilla is difficult to handle in such cases, and the risk of complications associated with axillary care is increased significantly. Appropriate treatment of the axilla is also essential in the initial diagnosis of primary breast cancer[19,20]. Most believe those things to be recurrences like a sentence of death. Additionally, Recurrences morbidity is also caused: major axilla arteries and nerves are often invaded, causing pain or lymph edema.

The axilla is difficult to handle in such cases, and the risk of complications associated with axillary care is increased significantly. Appropriate treatment of the axilla is also essential in the initial diagnosis of primary breast cancer[19,20]

Conclusion

This study concludes that carcinoma of breast morbidity and mortality is associated with level II and level III lymph nodes dissection. Level III clearance with minimum morbidity was observed. It seems like a partial (level I and II) dissection in order to be the most suitable method for both staging and local regulation because it reduces the axillary bulk tissue of the node. The occurrence of morbidities increase with higher levels of axillary clearance is seen in this study.

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