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THE LEVEL OF AXILLARY CLEARANCE IN BREAST CONSERVING SURGERY FOR BREAST CANCER TREATMENT

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ABSTRACT

Background*: Breast cancer is the most common cancer in women and is the leading cancer death in women aged 20 to 59 years. Mastectomy and breast conserving surgery (BCS) are the major elements for treating such conditions, beside lymph node dissection (lymphadenectomy) at different axillary levels with other treatment like chemotherapy, radio therapy and hormonal therapy.*

Objectives*: The feasibility of minimizing axillary dissection in the treatment of breast cancer with an optimal oenological outcome and low mortality*

Methods*: A prospective analytic study was adopted over a period of twelve months from March the 1st, 2021 till March the 1st, 2022.Then patients were observed after surgery till October the 1st ,2022. Data was collected from patients who were diagnosed to have breast cancer and treated at Imam Al-Hussein medical city, Safire Al-Imam Al-Hussein hospital and Al-Kafeel hospital in Karbala, Iraq. The prognostic factor was the number of positive lymph nodes that are removed at each level and their correlation to other study variables.*

Results*: The mean age of the study group was 53.2 years, and the numbers of cases collected were 70. Thirty nine patients had mastectomy and 31 had breast conserving surgery. Most of the patients were at stage II of the disease identified during surgery and the axillary lymph nodes dissection were performed at different levels. The number of positive lymph nodes after axillary dissection was not related to the level of axillary dissection.*

Conclusions*: level I axillary dissection (limited axillary lymph nodes dissection) isrecommended in the treatment of early breast cancer with synergistic effect of neoadjuvantchemoradiotherapy, since the number of positive lymph nodes are not increased with extensive axillary dissection, further dissection is recommended when there are multiple masses, higher stage or grade of the disease and or big mass larger than 5cm.*

KEYWORDS: *Breast cancer, axillary dissection, level of axillary dissection, early breast cancer, partial axillary clearance.*

INTRODUCTION

The breast is the prominent region of the human body, typically located over the second to sixth ribs and extending from the lateral edge of the sternum to the front axillary line. It receives its blood supply from the perforating branches of the mammary artery, as well as the lateral branches of the posterior intercostal arteries and branches from the axillary artery.

The venous drainage mirrors the path of the arteries [(1)].The lymphatics of the breast drain predominantly into the axillary lymph nodes about 85% and internal mammary lymph nodes approximately 15% which predominantly drain from the tumor located in the posterior one third of breast [(2)].

Anatomical Classification of Axillary Lymph Nodes

1. Lateral, along the axillary vein.
2. Anterior, along the lateral thoracic vessels.
3. Posterior, along the subscapular vessels.
4. Central, embedded in the center of axilla.
5. Interpectoral
6. Apical, receive the efferent of all other groups [(3)].

Surgical Classification of Axillary Lymph Nodes

The axillary lymph node groups are split as follows.

1. Level I comprises lymph nodes situated on the side of the pectoralis minor muscle.
2. Level II comprises lymph nodes situated beneath the pectoralis minor muscle.
3. Level III encompasses the lymph nodes situated on the inner side of the pectoralis minor muscle.

Among women, breast cancer is the most prevalent cancer that occurs in a specific location, and it is the primary cause of cancer-related mortality among women aged 20 to 59 years, second only to lung cancer. Based on surveillance, Epidemiology, and End Results registries (SEER) data, 266,120 new cases were estimated in 2018 with 40,920 estimated deaths attributed to breast cancers[(5)(6)]. It constitutes 30% of all recently detected cancers in women and is accountable for 14% of the fatalities caused by cancer. In England and Wales, the condition will develop in 1 out of every 12 women, while in the US, it will occur in 1 out of every 8 women during their lifetime. The incidence of the condition increases proportionally with age, particularly in individuals who are 59 years old or older [(7)]. The levels of sociodemographic index play a crucial role in determining the incidence and mortality rates of breast cancer[(8)].Nevertheless, the mortality rate of breast cancer remains elevated as a result of constraints in both early detection and available treatment alternatives [(9)]. Over the past few decades, there have been significant changes in the way early-stage breast cancer is managed in terms of axillary treatment. Sentinel lymph node dissection (SLND) has superseded axillary lymph node dissection (ALND) in the management of breast cancer with no clinical evidence of lymph node involvement [(10)]. The ACOSOG Z0011 study was a significant breakthrough in the surgical management of the axilla in patients diagnosed with early-stage breast cancer, leading to a notable reduction in the scope of breast surgery[(11) (12)]. Hence, the exclusion of Axillary Lymph Node Dissection (ALND) led to decreased illness and enhanced quality of life [(13)].

The Etiological Factors of Breast Cancer Include

(a) Geographical, as more common in western countries and race which is more common in black .(b) Age, rare below 20 years and increase to nearly 20% at 90 years old.(c) Gender, more common in female.(d) Positive family history of breast cancer has higher risk for getting breast cancer.(e) Dietary lifestyle mainly in developed countries, high intake of alcohol

and fatty meals. (f)Endocrine, breast cancer is more common in nulliparous women while breastfeeding in particular appears to be protective and in the left breast more than in right. (g) History of previous radiation [(14)]. In the past two decades, research on breast cancer has yielded remarkable advancements in our comprehension of the illness, leading to the development of more effective and less harmful treatments. Enhanced public consciousness and enhanced screening methods have resulted in the identification of diseases at earlier stages that can be completely removed by surgical procedures and treated effectively. As a result, the chances of surviving breast cancer have greatly increased, especially among younger women. [(15)]. Mastectomy and breast conserving surgery (lumpectomy) are used for treating breast cancer [(16)]. Additional surgeries for breast cancer may include lymph node dissection (lymphadenectomy) and breast reconstruction surgery [(17)].

The Indication for Mastectomy Are

1. Large tumor in relation to the breast size.
2. Central tumor beneath or invading the nipple.(controversy).
3. Multifocal disease.
4. Local recurrence.
5. Patient preference [(18)].

I. Types of Mastectomy

1. The Halsted radical mastectomy; Halsted and Meyer were the pioneers in achieving successful outcomes with the radical mastectomy. William Halsted's publication in 1894 detailed his experience performing radical mastectomies on 50 patients at Johns Hopkins between 1889 and 1894 [(19)]. The procedure involves the complete excision of breast tissue and skin, including the nipple-areola complex, as well as the removal of the pectoralis major and pectoralis minor muscles, along with the axillary lymph nodes at levels I, II, and III. However, it is worth noting that the removal of axillary lymph nodes is no longer commonly performed in modern practice. Systemic chemotherapy, hormone therapy, and adjuvant radiation therapy significantly reduce the necessity of performing a radical mastectomy for breast cancer. [(20)].
2. Modified radical ("Patey") mastectomy 1984, removes all breast tissue, the nipple –areola complex, skin and level I,II, and III axillary lymph nodes; the pectoralis minor maybe simply divided to giving improved access to level III nodes, and then left in situ, or without dividing the pectoralis minor [(21)].
3. Extended simple mastectomy removes all breast tissue, the nipple areola complex, skin, and the level I axillary lymph nodes [(22)].
4. Simple mastectomies without skin sparing remove all breast tissue, the nipple areola complex, and the skin [(23)].
5. Skin- sparing mastectomy removes all breast tissue, the nipple-areola complex, and scars from any prior biopsy procedures. There is a recurrence rate of less than 6% to 8%, comparable to the long-term recurrence rate reported with standard mastectomy, when skin sparing mastectomy is used for patients with Tic to T3 cancers [(24)].

II. Breast Conserving Procedures

1. Which involves resection of the primary breast cancer with margin of normal-appearing breast tissue, adjuvant radiation therapy ,and assessment of regional lymph node status[(25)]. For many women with stage I or II breast cancer, breast conserving surgery (BCS) is preferable to radical mastectomy because BCS produce survival rates equivalent to those after simple mastectomy [(26)].Breast conserving surgery used as standard treatment for women with stage 0, I and II invasive breast cancer.
2. Consensus guidline on margin for breast conserving surgery document that The term “no tumor on ink" standard definition of negative margin for invasive stage I and II breast cancer undergo BCS with whole breast radiation (SSO and ASTRO statement) [(27)]. Axillary management for breast cancer has become increasingly complex and multidisciplinary such as BCS plus SLND and intraoperation radiotherapy . The medical oncologist has many choices for systemic therapy, adjuvant vsneoadjuvant. The radiation oncologist can offer no radiotherapy (RT) vs breast /chest wall RT, vs breast/chest wall/node field RT [(28)].
3. The role of axillary surgery is to stage the disease and to treat the axilla. The presence of metastatic disease within the axillary lymph nodes remains the best single marker for prognosis; however, treatment of the axilla does not affect the long-term survival, suggesting that the axillary nodes act not as a 'reservoir for disease but as a marker for metastatic potential [(29)].

Indications for no Surgical Axillary Lymph Node Staging

1. Axillary staging of little value in setting of advance ages, serious comorbidities, or when it will not affect decisions regarding adjuvant therapy [(30)].
2. Pure DCIS and no clinical or radiological suspicion of invasion the of nodal metastasis 1-2%.
3. Older than 70 years of age with cT1-2N0 hormone receptor positive breast cancer.(survival was unaffected and only 3% developed axillary recurrence).
4. Prophylactic mastectomy as the likelihood of incidentally finding invasive cancer is about 2% and 1% for nodal metastases [(31)].
5. Primary breast sarcoma or phyllode tumors, which metastases is negligible

Sequencing Treatment to Minimize the Odds of ALND

Tumor subtype is an important predictor of lymph node response to neoadjuvant chemotherapy, with rates of nodal pathologic complete response (PCR) ranging from 20% for ER+/PR+/HER2- to over 90% for ER-/PR-/HER2+, Most patients with palpable node positive axilla will be referred for neoadjuvant therapy –regardless of tumor subtype-to downstage breast/axilla [(32)]. For patients who are palpable node –negative, the rate of ALND for the unresponsive subtype ER+/PR+/HER2-(most of whom will remain node –positive post neoadjuvant) will be minimized by a strategy of upfront surgery, in that most will have 0-2 SLN+ can avoid ALND, For those with responsive subtype ER-/PR-/HER2- and ER-/PR-/HER2+, the rate of ALND will be minimized by a strategy of neoadjuvant chemotherapy [(33)].

Axillary Ultrasound

Axillary ultrasound combined with fine needle aspiration cytology (FNAC) or core biopsy (CB) has established its role as an accurate tool for identifying axillary nodal metastasis. This procedure identifies approximately 50% of nodal involvement pre-operatively. In UK, axillary ultrasound is customarily performed for all patients diagnosed with breast cancer, as recommended by the National Institute for Health and Care Excellence (NICE). If nodal involvement is detected by a combination of ultrasound and FNAC/CB, direct axillary lymph node dissection (ALND) is performed. If axillary ultrasound is unable to identify nodal metastatic disease, sentinel lymph node biopsy will be performed as the gold standard for staging of axillary disease. More importantly, the results of the American College of Surgeons Oncology Group (ACOSOG) Z0011 trial published earlier in 2011 and recently updated in 2017 suggest that a subgroup of patients can safely avoid ALND after one to two positive sentinel lymph node biopsy.Sonographically guided biopsy of the suspicious nodes somewhat increase the specificity, which reach 95%, but negative sonographic result do not exclude axillary lymph node metastases. The sensitivity reach 62% [(42)].

Long Term Complication of Axillary Dissections

Unfortunately, ALND is primarily responsible for functional surgical treatment sequelae, including lymphedema, paresthesia, range-of-motion restriction, and pain in the arm ipsilateral to the lymph node dissection. Although esthetic sequelae that are caused by partial or total surgical breast resection can be reversed or minimized by reconstructive surgery methods that include implants and tissue flaps.

Previous studies have shown that the incidence rates of complications and sequelae in the arm, including lymphedema, are directly related to the local and regional treatment radically, which involves surgery and radiation therapy,in the 1990s, studies showed that the incidence of lymphedema was decreasing due to more conservative approaches to the axilla.The only clear risk factors are BMI and extent of axillary dissection, but chemotherapy and especially RT are additive. Newer surgical techniques, such as axillary reverse mapping, lymphatic transfer, and lympho-venous anastomosis are promising both for prevention and treatment of established lymphedema [(43)].

Aim of study

- Determining the extent of axillary dissection with optimal oncological outcome in the treatment of breast cancer

Patients and Methods

A prospective analytic study that was conducted at Imam Al-Hussein medical city, Safeer Al-Imam Al-Hussein hospital and Al-Kafeel hospital in Karbala, Iraq, over a period of twelve months from March the 1st ,2021 to March the 1st ,2022. Then patients were observed after surgery till October the 1st ,2022.During this period a total of 70 female patients with breast cancer enrolled in this study, their age is ranging between 30 year and 75 year old with primary invasive and noninvasive breast cancer with negative and or positive axillary lymph nodes. Verbal informed consent was obtained from all patients included in this clinical study to collect their personal data and follow up.Some of patients undergo mastectomy with complete axillary dissection while other had breast conserving surgery with axillary dissection, the level of the axillary dissection was determined by the senior surgeon decision, during surgical intervention by different surgeons, the removed lymph nodes are then sent to the histopathology analysis gathered from multi-laboratories according to the World Health Organization Classification of Breast Cancer. According to the M.D.T decision surgery was done for most cases,

while in other cases the surgery is done depending on the surgeon's opinion, these factors have a collective effect on the impact result of this study.Related demographic date for each patient was recorded prior to surgery including the chief complaint that lead the patient to the initial seek of medical care and the associated other complaints and investigations that lead to the diagnosis of breast cancer.Age, number of pregnancies, family history of breast cancer, history of previous surgeries and history of other treatment for breast cancer including chemotherapy , radiotherapy and hormonal therapy.

The weight of each patient was measured prior to surgery with their heights to calculate the body mass index (BMI= Weight in Kg/square the Height in meters).The contained data involved include staging, histological subtype, grading, level of axillary dissection, number of lymph node excised from axilla and either positive or negative all the data were filled for each case according to a written questionnaire and the patients were followed till the hospital discharge and the appearance of the histopathological results and for nearly three to four months after surgery.The patient were prepared to surgery after admission to hospital including triple assessment, metastatic work up and base line investigations were done including (complete blood count, virology screen, ECG, renal functions test and liver functions tests) and fitness for general anesthesia and surgery was established after controlling any existing medical conditions like diabetes and hypertension, all patients agreed to surgery and signed a written consent.Under general anesthesia the patient is placed in supine position with the relative arm abducted to 90 degrees and a sandbag or a folded bed sheet is placed under the thorax and shoulder of the affected side in some patients, skin was sterilized, opened ,tumor and the required lymph nodes are removed, the wound is cleaned with normal saline after establishing hemostasis and a drain is inserted (redivac drain) in the site and exit from a separated small incision, wound is then closed in layers.

Inclusion criteria

Patients who were diagnosed clinically, radiologically and histologically to have primary invasive or non-invasive breast cancer and undergo mastectomy or breast conserving surgery with axillary dissection

Exclusion criteria

1. Patients with recurrent breast cancer.
2. Patients with distant metastasis.
3. Patients with secondary breast cancer that have breast metastasis from other sites.
4. Patients with bilateral breast cancer.
5. Patients unfit for surgery.
6. Incomplete follow up.

Statistical analysis

Analysis of data was carried out using the available statistical package of SPSS-27 for windows, data were presented in simple measures of frequency, percentage, mean and standard deviation.

The significance of difference of different means (quantitative data) were tested using Students-t-test for difference between two independent means or Paired-t-test for difference of paired observations (or two dependent means), Pearson correlation (two tailed) was calculated for the correlation between two quantitative variables, the correlation

coefficient value (r) was either positive (direct correlation) or negative (inverse correlation), Statistical significance was considered whenever the P value was equal or less than 0.05

RESULTS

The study sample comprised 70 patients, with a mean age of 53.2 years and a standard deviation of 10.7 years. As depicted in Table 1. The programme has its highest point of age distribution between 50 and 59 years at presentation. The presence of a mass was the primary reason why patients sought medical assistance. Out of the patients, 46 (65.7%) reported experiencing a lump in the breast, 23 (32.8%) experienced pain, 19 (27.1%) had a bloody discharge from the nipple, and 30 (42.8%) had nipple retraction, in addition to their main complaints. Out of the total number of patients, 15 individuals (21.4%) were diagnosed with a breast mass during screening at the breast clinic in Imam Al-Hussein medical city. Additionally, two people (2.8%) were incidentally found to have a breast mass while seeking medical care for a different issue. Most of the patients 60 (85.7%) have a BMI of less than 30 kg/m^2, 10 patients (14.3 %) have a BMI of 30-40 kg/m^2. Five patients (7%) are not married or never been pregnant, 42 patients (60%) have a gravida of 1-3, 21 patients (30%) have had 4-7 pregnancies and only 2 patients (3%) have 8-10 previous pregnancies. Forty two patients (60%) have a positive family history of breast cancer, 28 patients (40%) reported a negative family history.

Table: 1 The Demographic Variables of the Study Sample are Illustrated in (Table 1).

Variable		N (%)
Age (years)	<30	0
	30-39	11 (15.7)%
	40-49	11 (15.7)%
	50-59	24 (34.3)%
	60-69	21 (30)%
	> 70	3 (4.3)%
Chief complaint	Mass	46 (65.7%)
	Painful mass	23 (32.8 %)
	Nipple retraction	30 (42.8 %)
	Screening	15 (21.4 %)
	Incidental	2 (2.8 %)
	Bloody discharge	19(27.3%)
BMI (kg/m2)	<30	60 (85.7 %)
	31-40	10 (14.3 %)
	>40	0
Number of pregnancies	Null	5 (7%)
	1_3	42 (60%)
	4_7	21 (30%)
	8_10	2 (3%)
Family history of breast cancer	Positive	42 (60%)
	Negative	28 (40%)

Ultrasound was done for all the patients (100%), 63 patients (90%) had mammography, MRI was done for 25 patients (35%) ,CT scan for 67 patients (96%), FNA for only 10 patients (14%) and true cut biopsy was done for 65 patients (93%) and excisional biopsy done for 5 patients (7.1%). Most of the patients had a single mass (61 patients) (87%), 41(67.2%) of them had a single mass of less than 2cm in diameter, 17(27.8%) between 3-5 cm and 3 (8.1%) larger than 5 cm in diameter. Out of the total number of patients, six individuals (9%) exhibited the presence of two masses.

Among these cases, three patients had two masses, with the greatest one measuring less than 2 cm in diameter. Two patients had two masses, with the largest one measuring between 3 and 5 cm in diameter. Lastly, one patient had two masses, with the largest one measuring over 5 cm in diameter.

Three patients (4%) had three masses, the size of the largest mass was less than 2cm in one patient, between 3-5cm in one patient and larger than 5 in the last patient as in table 2. Staging according to Manchester staging system placed half of the patients (35 patients) in stage II of the disease, 30 patients (43%) were in stage I and 5patients (7%) in stage III, none of the patients was in advanced stage IV of the disease (within exclusion criteria). The results of histopathological examination types as follow the commonest type is IDC 38(54.2% patients) while only 6(8.5%) had DC insito, the other common type is ILC 19(27%) while the LC insito 7(10%).

Ten patients (14%) had grade 1 disease, the most common grade was the second with 44 patients (63 %), followed by the third 16 (23 %). Regarding the types of treatment for breast cancer, 45 patients (64.2%) were on neoadjuvant chemotherapy before surgery, 25 patients (35.7%) on adjuvant chemotherapy,53 patients (75.7%) had radiotherapy and 5 (7.1%) was on hormonal therapy postsurgery. Mastectomy done for 39 patients and BCS done for 31 patient with axillary dissection for all of them, 25 had negative-node axilla and 45 had positive-node axilla in different levels of dissection which showed 38 patient had positive axillary LN less than 5 in number and only 7 patient had positive LN more than 5 in each patient and those 7 patients all had either multiple masses or mass larger than 5 cm. Also we noted the number of lymph nodes dissected from each patient in each level as follow, level I ranging from 8 to 12 LN ,level II from 13 to 18 LN and level III more than 19 LN. In this study we noted that the number of malignant LN dissected from axilla of those patients didn't increase with aggressive axillary dissection (by increasing the level of axillary dissection), study variables regarding the type of surgery as demonstrated in figure 1.

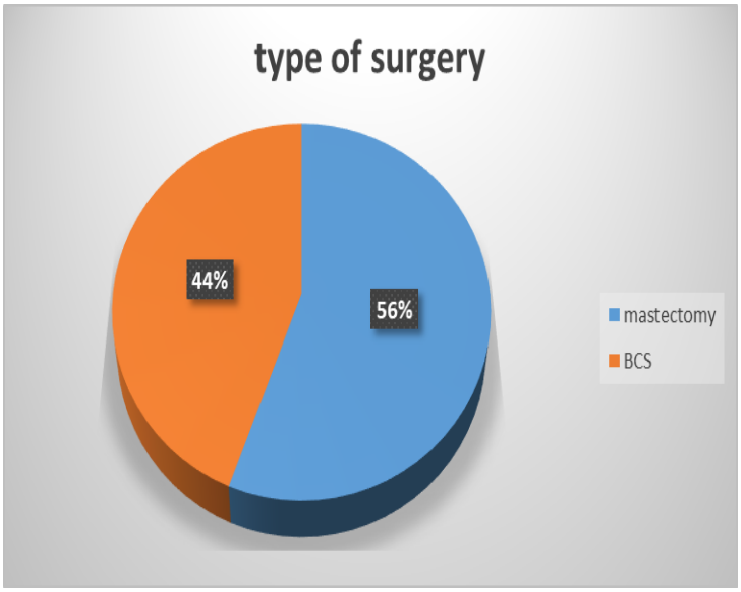

Figure 1: Type of Surgery that Was Done on the Study Sample.

Table 2: Variables for Investigations, no. of Masses, Staging, Grading, HPE, Types of Treatment and Types of Surgery

Variable	No	%

Performed investigations	ultrasound	70		100%	
	mammography	63		90%	
	CT scan	67		96%	
	MRI	25		35%	
	FNA	10		14%	
	True cut biopsy	65		93%	
	Excisional biopsy	5		7.1%	
Variable		no (%)	<2 cm	3_5 cm	>5 cm
Number of masses	1	61 (87%)	41	17	3
	2	6 (9%)	3	2	1
	3	3 (4%)	1	1	1
Staging of the disease	Stage I	30		43%	
	Stage II	35		50%	
	Stage III	5		7%	
	Stage IV	0		0%	
Grade	1	10		14%	
	2	44		63 %	
	3	16		23%	
Histopathological types	DC insito	6		8.5%	
	LC insito	7		10%	
	IDC	38		54.2%	
	ILC	19		27%	
Type of treatment	Neoadjuvant chemotherapy	45		64.2%	
	Adjuvant chemotherapy	25		35.7%	
	Radiotherapy	53		75.7%	
	Hormonal therapy	5		7.1%	
	Surgery	70		100%	
Types of surgery	Mastectomy	39		55.7%	
	BCS	31		44.3%	

The extracted lymph nodes that resulted in malignant cells growth were subdivided into two groups, those that resulted in less than 5 positive lymph nodes and those that resulted in 5 or more positive lymph nodes after histopathological examination of the removed nodes.In the first stage of axillary dissection, 10 out of 15 patients had malignant lymph nodes, whereas 5 patients had negative lymph nodes. Among the 10 positive patients, 8 had less than 5 malignant cells, while 2 had 5 or more. The P value, which indicates the statistical significance, was greater than 0.05 and hence not considered significant (P=0.075). 46 patients were involved in the level II axillary dissection. Out of the total number of cases, 27 of them (which accounts for 58.7%) were found to have malignant cells during the histological examination. Among the cases with positive malignant cells, 22 had less than 5 removed lymph nodes, while 5 had more than 5 removed lymph nodes. Additionally, 19 patients had negative lymph nodes removed. The statistical analysis showed that the P value was not significant at the alpha level of 0.05 (P=0.084). Out of the 9 patients who underwent level three axillary dissection, 8 of them (88.9%) had malignant lymph nodes. All of the patients with positive lymph nodes had less than 5 affected nodes, while only one patient had no affected nodes. The p value, which indicates the statistical significance, was greater than 0.05 and therefore not significant (P=0.189).

Table3: The Statistical Correlation Between the Number of the Removed Lymph Nodes and the Level of Axillary Surgery

level of axillary dissection	Patients	positive axilla	negative axilla	LN +ve<5	LN +ve ≥5	P value
level I	15	10	5	8	2	0.075
level II	46	27	19	22	5	0.084
level III	9	8	1	8	0	0.189
Total	70	45	25	38	7	_

Table 4: The Statistical Correlation between the Number of Positive Removed Lymph Nodes and Some Other Study Variables.

Correlation with Positive LNs		
Variable	**P value**	**R**
Age	0.0664	0.052
Nipple retraction	0.0066	0.322
No. Of masses	0.0002	0.426
Axillary surgery level	0.3709	0.108
Grade of the disease	0.0251	0.174
Stage of the disease	0.0372	0.139
Family history	0.0001	0.057
BMI	0.4564	0.249
Number of pregnancies	0.0571	0.838

Correlation is significant

DISCUSSIONS

The management of axillary involvement in breast cancer has grown progressively intricate and interdisciplinary. The available surgical options are no surgery, sentinel lymph node biopsy (SLNB), and axillary lymph node dissection (ALND) [(28)]. The average age of the study group, consisting of 70 individuals, was 53.2 years, breast cancer could occur at any age but it's more common as age advances, Mcpherson et al. concluded that breast cancer is the single most common cause of mortality in women at the age of 45-50 years and women who have menopause after age of 55 increase risk to develop breast cancer by two fold compared to women who experience the menopause before the age of 45.Kelsey et al. also concluded that Age related incidence rates increased rapidly with advanced age until about 45-50 years of age were continue to increase but at a slower rate, so as age increases the incidence also increases.

Obesity by itself is a risk factor for breast cancer, but the current study did not establish any significant correlation, which could be explained by the limited number of the study patients, larger scale studies like PIKE et al. study in japan had concluded that the incidence is lower in japan and after adjustment of any other risk factors the higher incidence of obesity is what makes the higher incidence in the western countries [(54)].Chan et al. study that analyzed the results of 82 follow up studies in meta-analysis have also concluded that higher BMI is associated with poorer general outcome and higher mortality for women with breast cancer [(44)].

Feeling of a mass (LUMP) ,nipple retraction and breast pain remains the most common symptom, the same results were explained during Renganathan et al. study in Oman.There was a significant correlation between the presence of malignant lymph nodes and the sign of nipple retraction, Smallwood et al. had established a study on 460 patients with mastalgia 44 of them had cancer, 8 of them reported pain and all the 44 patients have nipple retraction, they concluded that nipple retraction is markedly linked to malignant masses and that should always be thoroughly investigated.A majority of

the study sample (60%) patients exhibit a positive family history of breast cancer. Additionally, the number of positive malignant lymph nodes is significantly associated with family history. Furthermore, 60% of the patients have had 1-3 pregnancies. Colditz et al.'s study, which involved 2249 patients diagnosed with invasive breast cancer, discovered a consistent rise in risk for women with a mother or sister who has a history of breast cancer. The study findings revealed that the majority of the study participants had 1-3 children, while a small minority had no children. Furthermore, there was no statistically significant link observed between the number of positive lymph nodes and the number of pregnancies. Nevertheless, several studies conducted by Balekouzou et al., Laamiri et al., and Tamakoshi et al. have indicated that multiparity is correlated with a decreased likelihood of acquiring breast cancer(45). The study conducted by Mahouri et al. in Iran recruited 168 women who were diagnosed with primary breast cancer and were compared to 504 controls of the same age. The study followed these participants for a period of two years. The findings of the study indicated that having more than five full-term pregnancies is linked to a higher risk of developing breast cancer. A study conducted by Palmer et al. found that among African-American women, having a high number of children was linked to a higher risk of developing breast cancer in individuals under the age of 45 (incidence rate ratio [IRR] for four or more births, 2.4; 95% confidence interval [CI], 1.1–5.1). However, among individuals over the age of 45, having a high number of children was associated with a lower risk of breast cancer (IRR, 0.5; 95% CI, 0.3–0.9) (46).

Most of the patients in this study had a solitary mass (87%), few had two or three masses (multiple) but the presence of more than one mass was significantly associated to higher risk of finding positive malignant lymph nodes during the histopathological examination. Chung et al. study the imaging of breast cancer patients and also concluded that multiple masses are more associated with malignant forms, solitary masses carry more benign etiologies compared to multiple masses with irregular outline borders.Thirty nine patients had mastectomy and 31 patients had BCS during the current study, several studies including Veronesi et al. and Blicher-Toft both of them conducted a 20 year cohort study have demonstrated that the long term survival of women who undergo BCS is the same compared to women who have radical mastectomy, BCS is the surgery of choice for women with breast cancer who had a relatively small masses (47).IDC was the most common histopathological type followed by ILC, Weigelt et al. study that meta-analyzed 5 other studies have also concluded that IDC is the most common type of breast cancer with a prevalence of 65-78 %.The patients at this study were treated with level I , level II and level III axillary dissection, the number of total and negative removed lymph nodes was increasing at every higher level of dissection, yet the number of malignant positive lymph nodes was not significantly increasing, most of the study patients were at stage I and stage II of the disease, making level I or no more than 10 lymph node dissection optimal for the surgical treatment, some authors like Axelsson et al. who conducted a study on 13851 patients that were registered in the Danish Breast Cancer(DBCG) Cooperative Group recommend removing no more than 10 lymph nodes, or at least 10 lymph nodes to avoid any misclassification of any node positive patient as a node negative, they also concluded that there is a strong positive correlation between tumor size and the number of node negative patients , the number of positive lymph nodes is also related to the histopathological grade of the disease the same significant correlation is found during the current study (48).The current study included 70 patients who underwent axillary surgery at various levels, with different numbers of lymph nodes dissected from the axilla. These lymph nodes were sent for staging, which is a crucial factor for predicting outcomes. The level of dissection and the number of dissected lymph nodes from the axilla have been influenced by the introduction of new strategies for treating breast cancer, such as systemic adjuvant chemotherapy, radiotherapy, hormonal therapy, and the use of sentinel lymph node biopsy (SLNB).

However, SLNB is not an option for patients who are unable to undergo this procedure. Axillary lymph node dissection, also known as axillary dissection, continues to be the accepted and widely practiced method of treatment (49).The question that remains is whether alternative oncological treatments can serve as a substitute for axillary surgery in node-positive patients who do not meet the Z0011 criteria. Additionally, there is a question of how to achieve effective control of the axilla with reduced lymphadenectomy and associated complications. Several studies have demonstrated that there is no significant difference in overall survival (OS) and disease-free survival (DFS) between axillary dissection and axillary radiation in both short-term and long-term outcomes. The Early Breast Cancer Trialists' Collaborative Group (EBCTCG) conducted a meta-analysis by Noël et al. that revealed a 1.2% increase in overall survival rate for early breast cancer patients who underwent postoperative radiation. A trial by Yao K et. al. was conducted as part of the National Surgical Adjuvant Breast Project B-o4 and found that axillary node dissection does not affect the survival rates. Surgeons started to reduce the number of removed lymph nodes, even in patients not fulfilling the inclusion criteria used by the Z0011-study, Some of studies results may indicate that even with an advanced axillary finding the ALND might be less beneficial for the patient.On the other hand, effective systemic therapy reduce breast cancer mortality by around one-third (50).Hence partial axillary dissection (level I) carry less morbidity with keeping in mind the nice compensatory action of these new local and systemic treatment with minimal axillary dissection to avoid or lessen axillary morbidity, Veronesi et al. examined 539 cases of node-positive individuals who underwent thorough axillary dissection. Among these patients, 98.5% showed metastases in level I nodes. A randomised study from the Scottish Cancer Trials found that only level I dissection was accurate for qualitative analysis. In the current study, patients were treated with level I, level II, and level III axillary dissection. The number of total and negative removed lymph nodes increased with each higher level of dissection. However, the number of malignant positive lymph nodes did not significantly increase. There was no significant difference in survival between LN positive breast cancer patients with 10 or fewer removed lymph nodes compared to those with more than 10 removed lymph nodes. The study conducted by Ebner et al. examined 9625 individuals from 17 breast centres. Their findings indicated that removing more than 10 lymph nodes did not lead to a substantial improvement in survival, even among breast cancer patients at high risk.

Roses et al. determined that it is advisable to discontinue level I and II axillary dissection due to the considerably elevated morbidity rate. A recent study conducted by Akater et al. suggests that substituting level I and level II operations with Sentinel lymphadenectomy is advisable due to its lower incidence of complications. The most recent revision of the NCCN guidelines (National Comprehensive Cancer Network) for breast cancer endorses the exclusion of an axillary lymph node dissection (ALND) in patients with a T1/2 tumour, a maximum of 2 positive sentinel lymph nodes, who undergo breast-conserving surgery, planned whole breast radiotherapy, and no preoperative chemotherapy.

CONCLUSIONS

1. The number of positive lymph nodes after axillary dissection as a treatment for breast cancer is not related to the level of axillary dissection.
2. Level I axillary dissection is recommended in patient with early breast cancer, clinically node negative axilla, small single mass , low grade and stage tumors
3. The number of positive lymph nodes was related to the number of masses, the presence of nipple retraction, histopathological grade, stage of the disease and the presence of positive family history of breast cancer.

4. In a node-positive breast cancer, a higher yield of excised LNs resulted in no increase in positive nodal count.

RECOMMENDATION

1. Starting SLNB in our clinical practice is mandatory.
2. Level I axillary dissection is recommended over level II and III since the number of positive lymph node is not related to the level of dissection.
3. The extend of axillary dissection can be reduced with the use of new strategies in treating axilla such as neoadjuvant, adjuvant chemotherapy, radiotherapy and hormonal therapy.
4. Establishing further studies with larger sample size for more accurate statistical power and longer follow up period for better assessment of prognosis is recommended.

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