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Clinico-Pathological Study of Carcinoma Breast in Srikakulam District

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ABSTRACT

Breast cancer is the most common site specific cancer in women and is the leading cause of death from cancer for women .The aim is to study the incidence and stage of presentation of breast carcinoma in the population factors with the Stage of Breast Carcinoma. To correlate the clinical findings with FNAC (positive or negative) reports and post operative histopathology reports. To determine Positive Predictive Value of FNAC with respect to the Post operative Histopathology Reports. Early breast carcinomas are well treated with simple mastectomy and axillary clearance while Locally advanced breast carcinomas (LABC) are treated well with a multidisciplinary approach of mastectomy with axillary clearance with chemotherapy and radiotherapy and in selected cases hormonal therapy.

INTRODUCTION

Breast cancer is the most common site specific cancer in women and is the leading cause of death from cancer for women aged 20 – 59 years. It accounts for 26% of all newly diagnosed cancers in females and is responsible for 15% of the cancer-related deaths in women.(1) Breast cancer causes 5,19,000 deaths in a year worldwide, about 9,00,000 women are diagnosed each year. Incidence of breast cancer is 0.26/1,00,000 in males and 20.01/1,00,000 in females. While mortality associated with breast cancer is 1.20/1,00,000 in males and 4.32/1,00,000 in females. Mortality rates from breast cancer have increased during the past 60 years in every country. (2) The incidence of breast cancer in India is on the rise and is rapidly becoming the number one cancer in females pushing the cervical cancer to the second spot. It is reported that one in 22 women in India is likely to suffer from breast cancer during their lifetime. The rise is being documented mainly in the metros but it can be safely said that many cases in rural India go unnoticed.(3)

It is most often observed that due to lack of knowledge and ignorance, patients of carcinoma breast clinically present in a late stage of the disease. Breast cancer is a disease of the old age with the peak incidence in the fifth and sixth decades, but in India the disease is seen a decade earlier, probably because of shorter life expectancy in Indian women (about 65.3 years as per Indian data in 2005) as compared to counterparts in USA. (4)The management of breast cancer requires a complex multidisciplinary approach involving surgeons, radiotherapists, medical oncologists, and pathologists.

In this study the various risk factors, natural history of disease, stage of presentation, clinical features, correlation of Fine Needle Cytology with post operative Histopathology Report, mode of spread, pathological types, staging and management of breast cancer.

MATERIALS AND METHODS

Materials :

The data used in the study was obtained from 50 cases who were evaluated at Rajiv Gandhi institute of medical & general Hospital srikakulam from September 2016 to June 2017. The written Informed Consent was taken. The study includes Age between 20 – 90 years, Includes both males and females, All patients with breast lumps and FNAC positive reports, Patients who belong to clinical Stage I, Stage II and Stage III disease. Exclusion Criteria includes, Pregnant women, Patients with benign breast diseases, Excludes all inoperable advanced breast malignancies, Patients with inflammatory breast carcinomas, Recurrent breast lump in a previously operated case of carcinoma breast.

A detailed clinical history was elicited from all patients at the time of admission. All patients who had clinical and FNAC evidence of malignancy were worked up for treatment modalities. The history, findings and reports obtained were entered in the proforma of all patients. All patients who were willing for mastectomy were explained

about the surgery and chemo-radiotherapy to be given after the procedure, the option of breast conservation surgery and the need breast reconstruction to a few patients. Various investigations were obtained for the same. Investigations done Routine investigations: Hemoglobin percentage, Total WBC count, Differential WBC count, Erythrocyte sedimentation rate, Platelet count, Bleeding time, Clotting time, Urine for protein, sugar and microscopy, Random blood sugar, Blood urea, Serum creatinine. Specific investigations: Fine needle aspiration cytology, Ultrasound breast / Mammography – same or opposite breast Post Operative Histopathology Report, Chest X ray PA view, Ultrasound Abdomen and Pelvis, Liver function tests, Electrocardiogram, Alkaline Phosphatase levels.

INTERVENTION

Surgical intervention in the form of mastectomy depending on the stage of disease with adjuvant chemotherapy in all the selected cases. Neoadjuvent chemotherapy given preoperatively to selected patients while chemo-radiotherapy with hormonal therapy were given to a few cases.

OBSERVATION AND RESULTS

The data used in the study was obtained from 50 cases who were evaluated at Adichunchanagiri Institute of Medical Sciences, B.G. Nagara, from August 2010 to April 2012.

Table 1 : Age distribution in patients studied

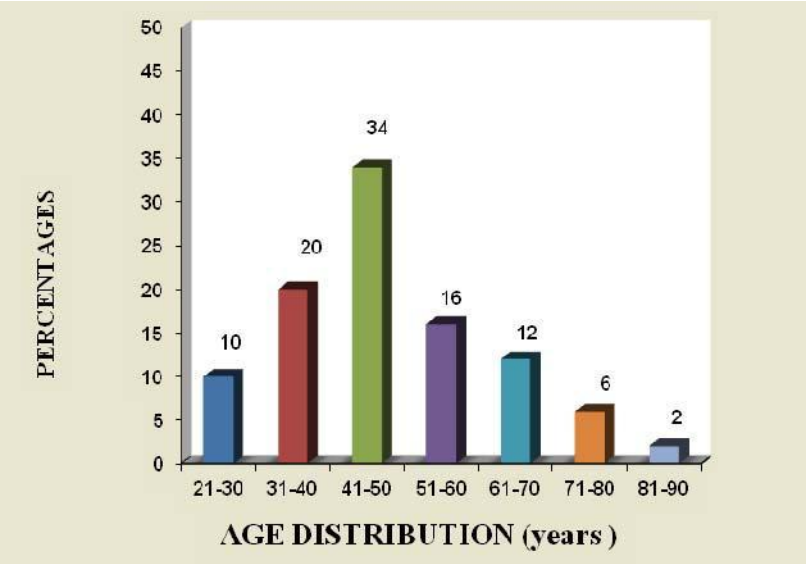


Table 2 : Parity of the patients in the study

In the study, none were nulliparous, 3 children were the most common value in about 40% of the patients with 2 children at 26%.

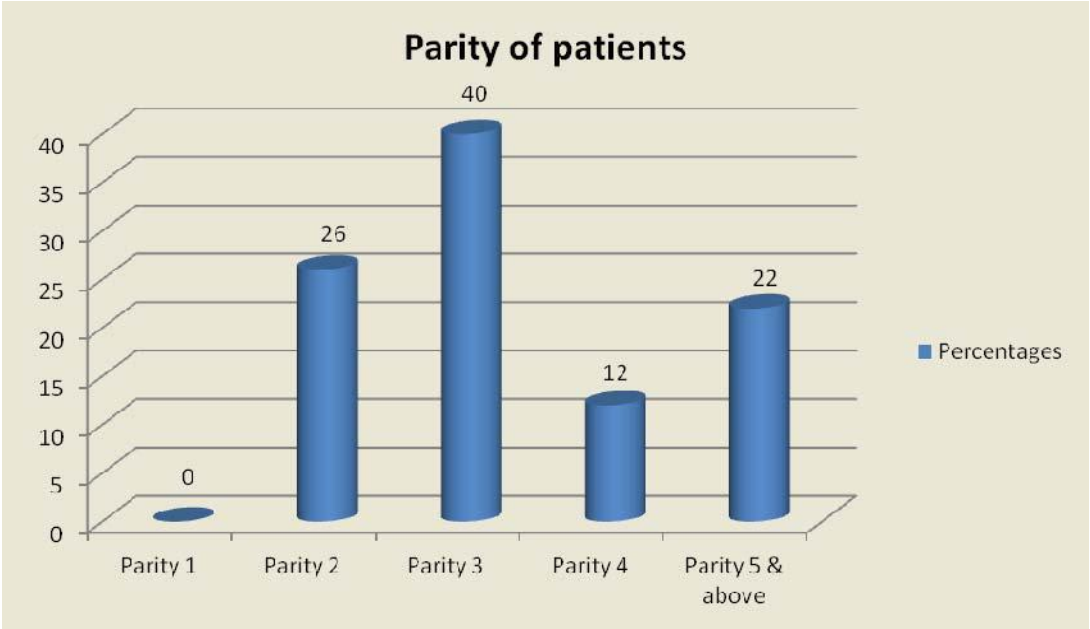


Table 3 : Duration of reproductive period in patients studied

Reproductive period	Number of patients	% in the study
<20	5	10.0
21-25	3	6.0
26-30	9	18.0
31-35	31	62.0
>35	2	4.0
Total	50	100.0

In the present study it was noted that 62% of the patients had a reproductive period ranging from 31-35 years.

Table 4: Family history of breast cancer in the patients studied

Family history	Number of patients	% in the study	Kelly et.al [82] %
Absent	35	70.0	60.0
Present	15	30.0	40.0
Total	50	100.0	100.0

In the present study, about 30% had positive Family history for breast cancer while 70% did not have any history.

Table 5: Distribution of Menopausal Status of patients studied

Menopausal Status	Number of patients	% in the study	Raina et.al series [83] %
Pre	23	46.0	49.7
Post	27	54.0	50.3
Total	50	100.0	100.0

In the present study it was noted that 46% were Pre-menopausal women while 54% were Post-menopausal women.

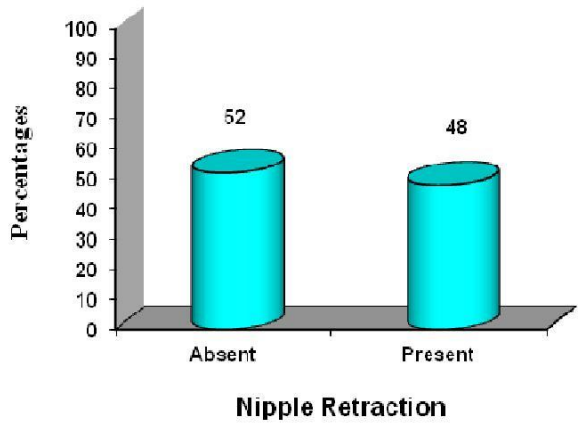
Table 6: Characteristics of the breast lump in the patients studied

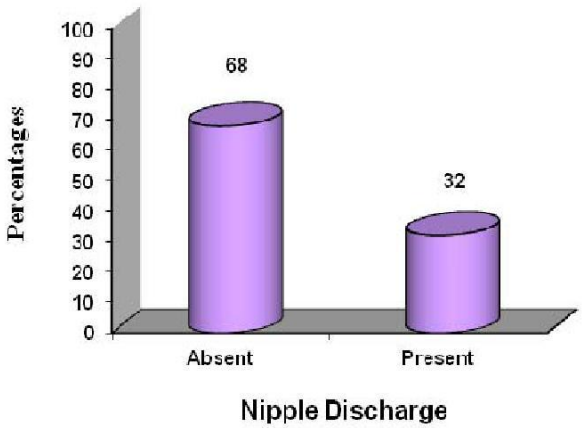
Breast Lump	Number of patients(n=50)	% in the study	Other series%	Other series%
			Tyagi et.al[84] %	Ackerman Del Regato[85] %
Absent	28	56.0	66.5	88.0
Present	22	44.0	33.5	12.0
Side				
Left	25	50.0	-	-
Right	25	50.0	-	-
Size cm^2				
<3 cm^2	19	38.0	-	-
3-5cm^2	15	30.0	-	-
>5 cm^2	16	32.0	-	-

Quadrant			Marshall et.al[86] %	Sen and Das gupta et.al[80] %
C	6	12.0	12.0	9.0
LI	5	10.0	6.0	7.0
LO	1	2.0	10.0	11.0
UI	6	12.0	12.0	13.0
UO	32	64.0	60.0	49.0
Fixity				
Nil	38	76.0	-	-
Present	12	24.0	-	-

In the study, Pain/ Discomfort was noted in 44% of the patients. Equal incidence of cancer was noted in both the right and left breasts. 38% of cases had lump size size of <3cm^2. 64% of the patients had the lump in the upper and outer quadrant. 76% of the cases did not have any fixity to the skin or underlying structures.

Table 7: Characteristics of nipple in the patients studied





In the present study, nipple retraction was noted in 48% of the cases while nipple discharge was noted in only 32% of the cases studied.

Table 8 : Distribution of Axillary Lymph nodes of the patients studied

Axillary LNs	Number of patients	% in the study
Absent	16	32.0
Present	34	68.0
Total	50	100.0

In the present study it was noted that 68% of the cases presented with positive axillary lymph nodes.

Table 9: Distribution of Peau-d-orange appearance in the patients studied

Peau-d-orange	Number of patients	% in the study
Absent	35	70.0
Present	15	30.0
Total	50	100.0

In the present study, only in 30% of the cases, Peau-d-orange appearance of the skin was noted.

Table 10: Distribution of Histopathology reports of the patients studied

Histopathology	Number of patients	% in the study	Fischer et.al series[87] %
IDC	43	86.0	76.6
ILC	2	4.0	4.9
MC	5	10.0	6.2
Others	0	0.0	4.7
Total	50	100.0	100.0

The present study revealed 86% of cases to be Infiltrating Ductal Carcinoma while only 4% with Infiltrating Lobular Carcinoma and 10% with Medullary Carcinoma.

Table 11: Correlation of Stage of disease and age in years of patients studied

Age of in years	Stage of Disease			P value
	Stage I (n=4)	Stage II (n=21)	Stage III (n=25)	
<40	1(25.0%)	8(38.1%)	6(24.0%)	0.002**
41-50	1(25.0%)	11(52.4%)	5(20.0%)	
51-60	2(50.0%)	2(9.5%)	4(20.0%)	
>60	0	0	10(40.0%)	

In the present study it was noted that 50% of Stage I disease was noted between 51-60 years of age, while 52.4% of Stage II disease noted between 41-50 years of age and 40% of Stage III noted beyond 60 years of age, thus showing that with increase in age, there is an increase in the Stage of the disease.

Table 12: Correlation of Stage of disease and age of menarche in years of patients studied

Age of menarche in years	Stage of Disease			P value
	Stage I (n=4)	Stage II (n=21)	Stage III (n=25)	
10-11	1(25%)	9(42.9%)	10(40%)	
12-13	1(25%)	9(42.9%)	14(56%)	0.179
14-15	2(50%)	3(14.3%)	1(4%)	

In the present study, 50% of Stage I disease, 85.8% of Stage II disease and 96% of Stage III disease had menarche between 10-13 years of age.

Table 13: Correlation of FNAC , ER/PR, Her 2 New status with Histopathology findings of patients studied

	Histopathology			P value
	IDC (n=43)	ILC (n=2)	MC (n=5)	
FNAC				
IDC	26(60.5%)	2(100%)	3(60%)	0.826
Suggestive	17(39.5%)	0(0%)	2(40%)	
ER / PR				
Negative	25(58.1%)	2(100%)	3(60%)	
Positive	18(41.9%)	0(0%)	2(40%)	0.821
Her 2 Neu				
Absent	42(97.7%)	2(100%)	3(60%)	0.048*
Present	1(2.3%)	0(0%)	2(40%)	

The present study shows that FNAC could pick up only 60.5% of Infiltrating Ductal Carcinomas and could not give results for Infiltrating Lobular Carcinoma or Medullary Carcinomas. ER / PR status had no correlation with the histopathology outcome. But Her 2 neu status, in Infiltrating ductal carcinomas was negative in 97.7% of cases, negative in all cases of Infiltrating lobular carcinomas but positive in 40% cases of detected Medullary Carcinomas.

DISCUSSION

A study has been attempted to focus on the basic anatomy, physiology and pathology of carcinoma breast with the various diagnostic and therapeutic modalities. Although many advanced investigations are not performed in our centre nor are many performed even in India, a note regarding the same has been mentioned in the text. Various therapeutic modalities have been discussed too with respect to the various stages of disease.

Fifty cases from the Adichunchanagiri institute of medical sciences, B.G. Nagara were taken from August 2010 to April 2012 in the study. Advanced malignancies were excluded from the study. Surgery was performed on all the cases in the study with other treatment options.

A detailed workup was made according to proforma made and based on the observations given in the previous tables the following conclusions were made from the study:

Age distribution of patients studied (Table 1) :

The incidence of breast cancer is seen to increase with age. Breast cancer is primarily a disease of the old age with the peak incidence in the fifth and sixth decades, but in India the disease is seen a decade earlier, probably because of shorter longevity of life in Indian women (about 65.3 years as per Indian data in 2005) as compared to counterparts in USA.

In the study, peak incidence of breast cancer was 34% between 41 – 50 years as suggested by the Indian Data. Sen et al [(5)] had also published similar findings and had 36.9% in the same age group, which is similar to our study.

Parity of the patients in the study (Table 2) :

Mukherjee BN et al. suggested that except for parity, no other reproductive factor plays any role in the incidence of breast cancer. [(6)]

In the study, none were nulliparous, 3 children were the most common value in about 40% of the patients and 26% had 2 children. Thus it was noted that as noneof the patients were nulliparous, no relationship between parity and incidence of breast cancer could be drawn.

Duration of reproductive period in patients studied (Table 3) :

Studies have shown that larger the duration of reproductive period, larger is the risk of breast cancer. In the present study it was noted that 66% of the patients had a reproductive period of more than 30 years thus suggesting higher incidence with larger duration of reproductive period.

Family history of breast cancer in the patients studied (Table 4) :

The family history of breast cancer in the first or second degree relatives is associated with an increased risk of the disease in the patient. The relative risk with associated

family history is 1.7 to 2.5 in women with first-degree relatives compared to 1.5 with second-degree relatives.

In our study, 30% of the patients had relevant family history for breast cancer who were diagnosed of breast cancer in our hospital. Kelly et.al [(7)] showed family history positivity in 40% of cases. Although it was noted that such patients had usually an earlier stage of presentation as they were aware of the disease.

Menstrual Status of the patients studied (Table 5) :

In our study, it was noted that 46% were in the pre-menopausal age group and 54% in the post-menopausal age group. In other studies Raina V et al[(8)] (2005) had 49.7% of patients in the pre menopausal age group while the rest was post-menopausal.

In this study, an apparent higher incidence is noted of cases in the post-menopausal age group.

Characteristics of the breast lump in the patients studied (Table 6) :

1. Pain/Discomfort : Pain and discomfort are usually not seen in early breast malignancies as they are usually painless lumps. They are usually seen with involvement of skin or chest wall or due to infiltration of nerves. Pain and discomfort was noted in about 44% of the population while breast lump was
2. seen in 100% of the cases. Tyagi et al[(9)] suggested 33.5% of cases presented with pain/discomfort while 12% was suggested by Ackerman Del Regato[85].
3. Side : Cancer in both left and right breasts showed equal incidence. In our study 50% of the patients had cancer of the right breast while the other 50% had it on the left side.
4. Size : Greater the size of the tumour, greater are the chances of the disease to be generalized and greater are the difficulties to treat. Almost equal incidence was noted in the size of the breast with breast lumps all groups showing equal incidence. Hence no inference could be obtained. It was noted in the rural population, negligence towards self and late presentation lead to bigger size of lumps in the disease.
5. Quadrant : Marshall et.al[(10)] suggested that 60% of their cases had the tumour in the upper outer quadrant while Sen and Dasgupta[80] had 49% of the cases in the same quadrant. About 64% of the cases in our study had the tumour in the upper outer quadrant, showing preponderance of breast cancer for the upper outer quadrant of the breast.
6. Fixity : Only 24% of the cases had fixity to skin or the chest wall while 76% had no fixity.

Characteristics of nipple in the patients studied (Table 7):

Nipple Retraction : Tyagi et al[(11)] suggested only 10.8% of their cases had nipple retraction. In our study 48% of the patients had nipple retraction while 52% of the patients had no evidence of retraction.

Nipple Discharge : Tyagi et al[(12)] suggested 10.8% of their cases had nipple discharge. Studies suggest that nipple discharge is present in 3-11% of the cases. 32% of the patients had nipple discharge while 68% did not show any discharge. Thus a larger population was encountered with nipple discharge in the study.

Distribution of Axillary Lymph nodes of the patients studied (Table 81):

Earlier studies have shown that 78% of the patients present with palpable axillary lymph nodes. But it was seen in our study that 68% of the patients had positive axillary lymph nodes and 32% did not have any palpable nodes.

Distribution of Peau-d-orange appearance in the patients studied (Table 9) :

Only 30% of the patients showed Peau-d-orange appearance in the study group while many studies have shown skin involvement to be in only 10-15% of the cases thus showing a later stage of presentation in the study.

Distribution of Histopathology reports of the patients studied (Table 10) :

Fischer et.al[(13)] study of breast cancer revealed 76.6% of cases to be Infiltrating Ductal Carcinoma while 6.2% of the cases were medullary and 4.9% were infiltrating lobular carcinoma. The present study revealed 86% of cases to be Infiltrating Ductal Carcinoma on Histopathology while only 4% were Infiltrating Lobular Carcinoma and 10% were Medullary Carcinoma of the breast.

Correlation of Stage of disease and age in years of patients studied (Table 11) :

In the present study it was noted that 50% of Stage I disease was noted between 51-60 years of age, while 52.4% of Stage II disease noted between 41-50 years of age and 40% of Stage III noted beyond 60 years of age, thus showing that with increase in age, there is an increase in the Stage of the disease.

Correlation of Stage of disease and age of menarche in years of patients studied (Table 12) :

In the present study, 50% of Stage I disease, 85.8% of Stage II disease and 96% of Stage III disease had menarche between 10-13 years of age thus indicating that an earlier age of menarche predisposes to higher chances of breast cancer in the patients.

Correlation of FNAC , ER/PR, Her 2 Neu status with Histopathology findings of patients studied (Table 13) :

This present study shows that FNAC could confirm only 60.5% of Infiltrating Ductal Carcinomas and could not give positive results for Infiltrating Lobular Carcinoma or Medullary Carcinomas. ER / PR status had no correlation with the histopathology outcome. But Her 2 neu status, in Infiltrating ductal carcinomas was negative in 97.7% of cases, negative in all cases of Infiltrating lobular carcinomas but positive in 40% cases of detected Medullary Carcinomas.

CONCLUSION

50 cases of carcinoma breast were evaluated in the present study and the following conclusions were drawn from the same. Highest incidence of carcinoma breast is seen mostly between the fourth and fifth decade in the study. Early age of menarche has predisposition towards breast cancer. There was no correlation in this study between the early age of first birth and the incidence of breast cancer. A conclusion could not be drawn between parity and breast cancer as similar incidence was seen in all groups. Larger the duration of reproductive period, higher is the chance of breast cancer. As all patients had breast fed their babies, hence no correlation could be drawn from the same. Increased risk is noted with patients with family history with earlier stage of presentation in such patients. As the ratio of patients is almost equal, a relationship could not be established between menstrual status and incidence of breast cancer. Lump in the breast is the commonest complaint on presentation. Upper outer quadrant is the most common site for breast cancer. Mobility of the lumps with the breast was noted and fixity to the pectoral fascia were features in different stages of the disease. Most of the patients who present have palpable axillary lymph nodes. Higher cases were noted with Stage II and Stage III disease reflecting the poor education and negligence on the part of the patients. FNAC was highly effective in diagnosing malignancy and was highly sensitive. Histopathology revealed highest incidence of infiltrating ductal carcinoma in the study.ER/PR and Her-2neu positivity was low compared to other trials. Increase in age resulted in increase in the stage of disease on presentation. Early breast carcinomas are well treated with simple mastectomy and axillary clearance while Locally advanced breast carcinomas (LABC) are treated well with a multidisciplinary approach of mastectomy with axillary clearance with chemotherapy and radiotherapy and in selected cases hormonal therapy.

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Fig 1 : Elliptical incision taken around the breast lesion including the nipple areola complex

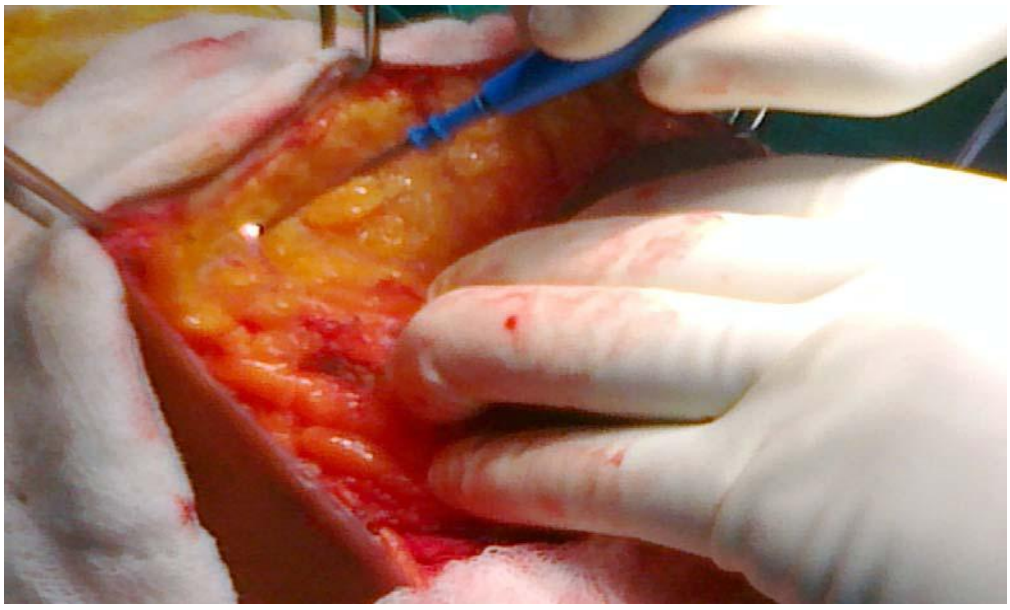

Fig 2 : Elevation of skin flaps performed between the subcutaneous fat and the mammary fat

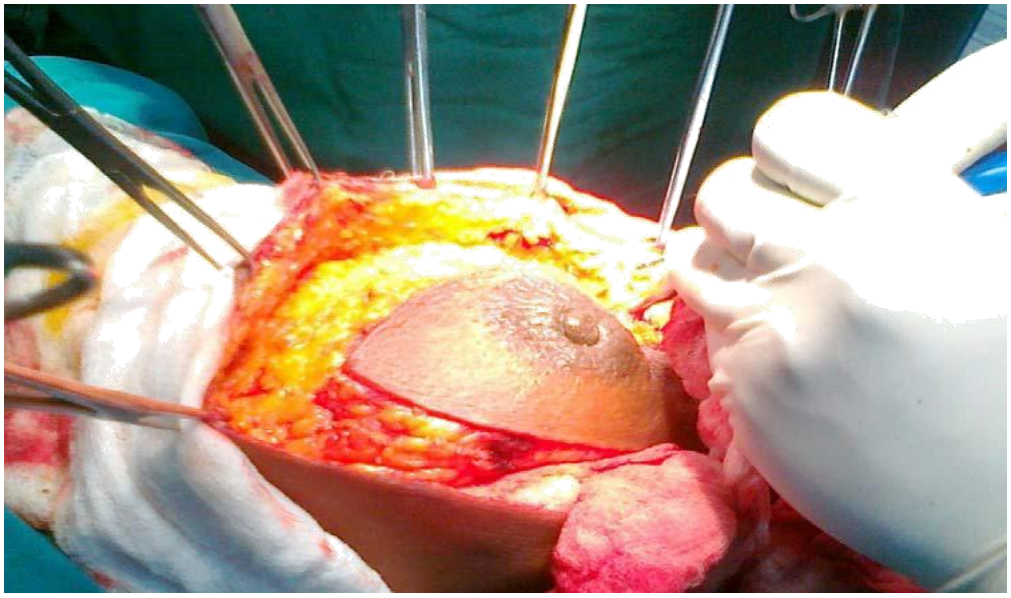

Fig 3: Skin Flaps held up while continuing the dissection to note the surrounding extent

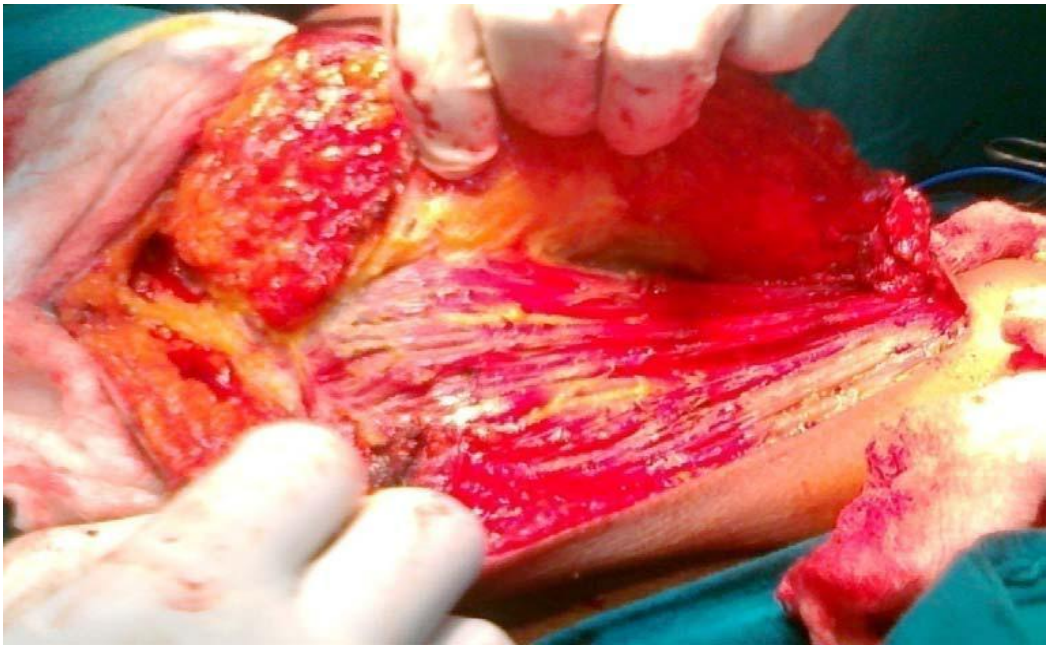

Fig 4 : Identification of the pectoral muscles and the axillary contents for axillary dissection

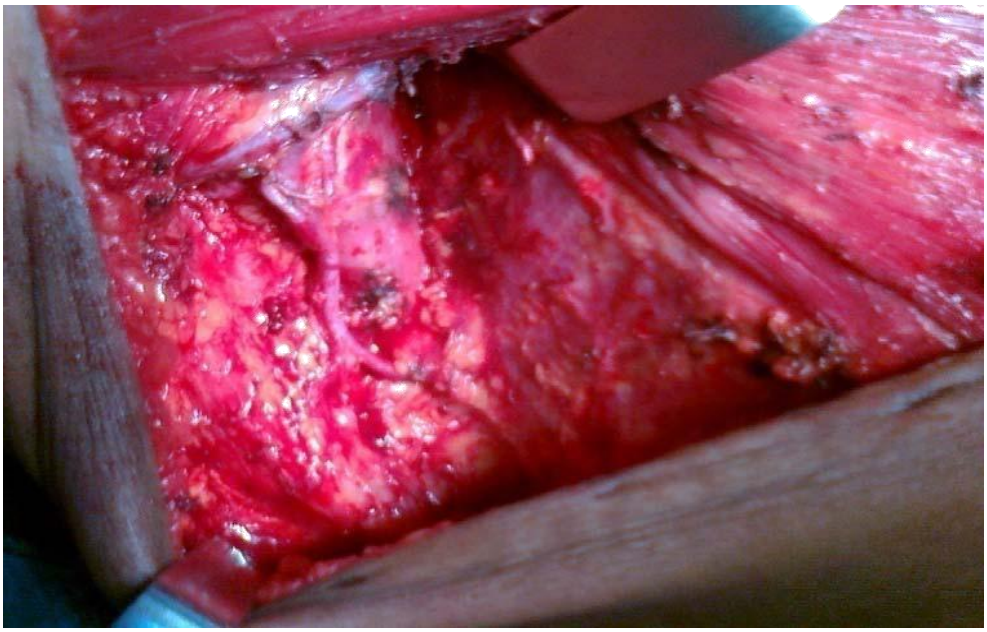

Fig 5 : Axillary clearance continued laterally till Level II upto the thoracodorsal vessels

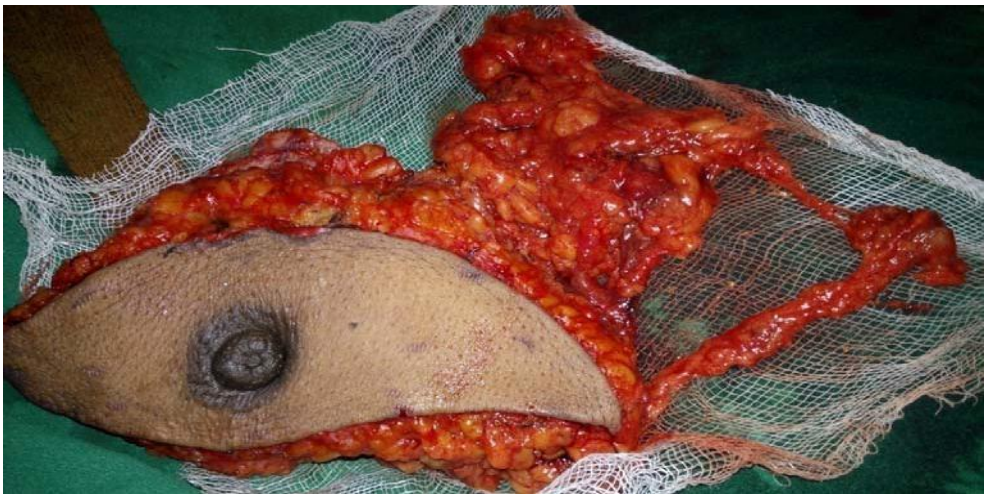

Fig 6: Excised specimen of the breast with the axillary lymph nodes