

ORIGINAL RESEARCH

A STUDY ON THE EXPRESSION PATTERNS OF ER, PGR, HER2/NEU AND ITS HISTOMORPHOLOGY IN BREAST CARCINOMA

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ABSTRACT

Background: To study breast carcinoma based on the expression patterns of ER, PgR, HER2/neu and its Histomorphology.

Materials and Methods: The present study is a 4 years study, 1 year retrospective and 3 year prospective study from 1st November 2017 to 31st October 2021, done in the Department of Pathology Kamineni Institute of Medical Sciences, Narketpally. Specimens received with a clinical diagnosis of carcinoma of breast were processed according to standard protocol. The specimen received following neoadjuvant chemotherapy was excluded from the study. Histomorphology of tumor, Nottingham's modification of Scarff Bloom Richardson grading was studied by H&E stained section and the ER, PgR and HER2/neu expression studied by IHC stains.

Results: A total of 86 cases of breast carcinomas were analysed. Most of the cases occurred in perimenopausal age group. Lump in the breast was the most common presenting symptom. Majority of tumor were within the size of >2-5cm, frequently in upper outer quadrant. Invasive breast carcinoma no special type was most common type, accounting to 81.40%, followed by invasive lobular carcinoma of breast in 5.81%. Majority of tumor were of Grade II. ER, PgR and HER2/neu were expressed in 53.48%, 43.03% and 39.54% of cases. The most common molecular subtype was ER/PgR+/HER2neu. Hormonal receptor expression was less in women with age above 40 years, with increase in size and grade of tumor and with increase in number of metastatic lymphnode. Expression of HER2/neu increased with increase in grade of tumor. HER2/neu expression decrease in women more than 40 years. No relation was observed between HER2/neu expression and number of metastatic lymph nodes.

Conclusion: As the scenario of breast carcinoma in India is changing, the knowledge regarding histological parameters like type, grading and staging along with hormone receptor expression and HER2/neu amplification are important as it will guide the clinician to choose the most appropriate modality of treatment for the best possible outcome in a patient with breast carcinoma.

Keywords: Breast carcinoma, Estrogen receptor, Progesterone receptor, HER2/neu.

INTRODUCTION

Carcinoma of breast is the most common carcinoma in women, accounting for 23% of all cancers in women globally,^[1] and it is the leading cause of death in women.^[2] In India, data from various population-based cancer registries suggest that there is gradual increase in the incidence of carcinoma of breast. In urban areas it is the most common carcinoma, where as in rural areas it is the second most common cancer in women.^[3] Prognosis and management of breast cancer are influenced by histologic type and grade, tumor size, lymphnode status, status of ER, PgR and HER2/neu.

A crucial development in the treatment of breast carcinoma has been the realization that the presence of hormone receptors and HER2/neu expression in the tumor tissue which correlates well with response to hormone therapy, chemotherapy and trastuzumab. Expression of ER and or PgR generally is associated with a better outcome. Survival and response to hormonal therapy are most favorable among women with tumors expressing for both estrogen and progesterone receptor.^[4]

Tumors that are positive for the estrogen receptor and negative for the progesterone receptor have a response rate of ~30%. Tumors that have both receptors have a response rate approaching 70%. If neither receptor is present, the objective response rates are <5% for hormonal therapy. The use of a humanized antibody (Trastuzumab) combined with chemotherapy in metastatic disease can improve response rate and survival for women whose tumor overexpress HER2/neu. The magnitude of the survival extension is modest in patients with metastatic disease having HER2/neu positive.^[5]

Hence we intend to study breast carcinoma based on the expression patterns of ER, PgR, HER2/neu and its histomorphology, thereby the data obtained would help to prognosticate and treat breast carcinoma patients.

MATERIALS & METHODS

The present study was conducted at Kamineni Institute of Medical Sciences hospital Narketpally with cases taken of four years duration. All the mastectomy, lumpectomy and trucut biopsy specimen from breast of female patient of all ages, sent to the department of Pathology for Histopathological examination and Immunohistochemistry, with clinically diagnosed breast carcinoma were included in the study. The cases in which there were no tumor cells to make the diagnosis of breast carcinoma or non-availability of tumor cells for antigen retrieval due to tumor necrosis and specimen of post neoadjuvant chemotherapy were excluded.

The detailed clinical history and results of relevant investigations done has been collected from the patient's case files. For retrospective cases, slides made for routine histological study and for immunohistochemistry, obtained from achieve.

For prospective cases, the surgical specimen or trucut biopsy specimen received at the department of pathology in 10% neutral buffered formalin, grossed using standard surgical grossing procedure. Tissues from specimen is fixed in 10% neutral buffered formalin overnight and then subjected to tissue processing. The processed tissue is embedded in paraffin blocks. Multiple tissue sections of 4 micron thickness are obtained from the paraffin block, stain with haematoxylin and eosin. Three more tissue sections of 3 micron thickness were taken on 3 different charged slides and incubated overnight for immunohistochemistry. The technique of immunohistochemistry is antigen retrieval from the sections taken on charged slide in citrate buffer inside decloaking chamber. Endogenous enzymes are blocked by 3% hydrogen peroxide. Incubating with primary mouse monoclonal antibody (Biogenex – Clone ER88 for estrogen receptor, Clone PR88 for Progesterone receptor and EP3 for HER2/neu), linking with rabbit anti mouse secondary antibody (Biogenex), enzyme labelling with streptavidin- horseradish peroxidase, developing chromogen with deaminobenzidine (DAB) and counterstaining is done with hematoxylin. Both positive and negative controls were done along with each batch of slides. The histomorphology of the tumor is studied in hematoxylin and eosin stained slides. Nuclear staining of ER, PgR stained slides are studied and scored according to Allred score. Membrane staining was studied in HER2/neu stained slides. The immunohistochemistry data obtained has been analyzed according to ASCO / CAP guidelines.

The data compiled was analyzed for various parameters like clinical data, gross findings, histological diagnosis, Nottingham's histological grade and immunohistochemical profile.

RESULTS

A total of 86 specimen qualified the inclusion criteria. The youngest patient is of age 25 years and the eldest patient was 80 years of age. The majority of patients were in the age group of more than 40 years of age constituting 81.%. The most frequent presenting symptom was breast lump, seen in 84 (97.67%) cases, followed by ulcer in 5(5.80%) cases, pain in breast in 3 (3.48%) and nipple discharge in 2(2.32%) cases. Left breast was involved in 46 cases (53.48%) and right side was involved in 40 (46.52%) cases. Most 62(72.1%) of patients were postmenopausal. The parity among the patients ranged from 1 to 9 with most of the women having parity of 2. Only 1 patient had 1st degree relative with breast carcinoma i.e in sister.

Majority of specimen 46 (53.51%) received were modified radical mastectomy specimen, followed by trucut biopsy 34 (39.53%) samples, lumpectomy specimen 4(4.64%) and edge biopsy 2 (2.32%). In the present study, the most common quadrant involved was upper outer quadrant of the breast with 47(54.66%) cases, followed by 12(13.95%) cases showing involvement of upper inner quadrant, central quadrant in 11(12.79%) cases, 6 (6.97%) cases in lower inner quadrant, 5(5.81%) cases each in lower outer quadrant and whole breast. The size of the tumor is been evaluated by macroscopy and microscopy, where ever available and help of imaging studies (sonomammogram) is taken to evaluate the size of tumor where trucut or edge biopsy specimen is been received. The size of the smallest tumor seen in present study is 1.5x1x1cm and the size of largest tumor seen is 22x18x16cm. Tumor size of less than or equal to 2cm seen in 9 (10.47%) cases, 46 (53.49%) had tumor size of more than 2 to 5cm and 31 (36.04%) cases have tumor size of more than 5cm.

Histopathological examination of 86 cases of breast carcinoma were done and they were classified according to 2012 WHO classification of tumors of breast. Among the 86 cases, majority 70 (81.40%) cases were invasive breast carcinoma no special type, 5 (5.81%) cases invasive lobular carcinoma, 4(4.65%) cases of mucinous carcinoma, 3(3.45%) cases of carcinoma with apocrine differentiation, 1(1.16%) cases each of medullary carcinoma, invasive papillary carcinoma and carcinoma with signet ring cell differentiation.

Table 1: ER,PgR and HER2/neu positivity in various breast carcinoma

Final diagnosis	No. of cases	ER		PgR		HER2/neu	
		Positive	Negative	Positive	Negative	Positive	Negative
Invasive breast carcinoma no special type	70 (81.4%)	35 (50%)	35 (50%)	28 (32.55%)	42 (67.45%)	27 (31.39%)	43 (68.61%)
Invasive lobular carcinoma	5 (5.81%)	5 (100%)	0 (0%)	5 (100%)	0 (0%)	2 (40%)	3 (60%)
Mucinous carcinoma	4 (4.66%)	4 (100%)	0 (0%)	3 (75%)	1 (25%)	1 (25%)	3 (75%)
Carcinoma with apocrine differentiation	3 (3.48%)	0 (0%)	3 (100%)	0 (0%)	3 (100%)	1 (33.33%)	2 (66.67%)
Medullary carcinoma	1 (1.16%)	1 (100%)	0 (0%)	0 (0%)	1 (100%)	1 (100%)	0 (0%)
Squamous cell carcinoma	1 (1.16%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)
Invasive papillary carcinoma of breast	1 (1.16%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)
Carcinoma with signet ring cell differentiation	1 (1.16%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)	0 (0%)
Total	86 (100 %)	47	39	38	48	34	52

All the cases were graded according to Nottingham's histological grade. Majority 36(41.87%) cases were of grade II having total score of 6-7, followed by 33(38.37%) of grade I tumor having total score of 3-6 and 17(19.76%) cases of grade III having total score of 8-9.

Table 2: Nottingham's Histological Grade Score

Histopathological Feature	Number of cases		
	Score 1	Score 2	Score 3
Tubule formation	6 (6.97%)	37 (43.03%)	43(50.00%)
Nuclear pleomorphism	18(20.93%)	59(68.60%)	9(10.47%)
Mitoses (0.68mm field diameter)	45(52.32%)	23(26.75%)	18(20.93%)

We received lymphnodes in 46 cases out of total 86 cases. These 46 cases are modified radical mastectomy having axillary dissection specimen. The maximum number of lymphnodes isolated is 43 and the least number of lymphnodes isolated is 6. The average

number of lymphnodes isolated is 24. Out of 46 cases with lymphnodes, 27 cases show metastatic deposits.

Table 3: Distribution of ER, PgR and HER2/neu by age, tumor size, Nottingham histological grade and lymphnode metastasis

	ER			PgR			HER2/neu		
	Positive	Negative	Total	Positive	Negative	Total	Positive	Negative	Total
Age									
≤40 years	5 (31.25%)	11(68.75%)	16	4(25%)	12 (75%)	16	10 (62.5%)	6(37.5%)	16
≥41 years	42(60%)	28(40%)	70	34(48.57%)	36 (51.43%)	70	24 (34.28%)	46(65.72%)	70
Tumor size									
≤2cm	7(77.77%)	2(22.23%)	9	6(66.67%)	3(33.33%)	9	3(33.33%)	6(66.67%)	9
>2-5cm	26(56.52%)	20(43.48%)	46	20(43.48%)	26(56.52%)	46	19(41.30%)	27(58.70%)	46
>5cm	14(45.16%)	17(54.84%)	31	12(38.7%)	19(61.3%)	31	12(38.7%)	19(61.3%)	31
Histological grade									
Grade I	23 (69.70%)	10 (30.30%)	33	21 (63.63%)	12 (36.37%)	33	9 (27.28%)	24 (72.72%)	33
Grade II	19 (52.78%)	17 (47.22%)	36	16 (44.44%)	20 (55.56%)	36	16 (44.44%)	20 (55.56%)	36
Grade III	5 (29.41%)	12 (70.59%)	17	1 (5.89%)	16 (94.11%)	17	9 (52.94%)	8 (47.06%)	17
Lymphnode metastasis									
N0	5 (26.31%)	14 (73.69%)	19	4 (21.06%)	15 (78.94%)	19	12 (63.16%)	7 (36.84%)	19
N1	7 (50%)	7 (50%)	14	6 (42.85%)	8 (57.15%)	14	5 (35.71%)	9 (64.29%)	14
N2	6 (60%)	4 (40%)	10	6(60%)	4 (40%)	10	2(20%)	8(80%)	10
N3	2 (66.67%)	1 (33.33%)	3	2 (66.67%)	1 (33.33%)	3	2 (66.67%)	1 (33.33%)	3

In the present study, all the 86 cases were examined for hormonal receptor (estrogen and progesterone receptor) and HER2neu expression by immunohistochemistry and scoring was done according to the Allred score for hormone receptor and membrane intensity was studied for HER2neu. Allred score includes the proportion score and intensity score. Proportion score of 0 is given to tumor, in which no tumor cell stain with ER or PR. Score of 1 is given for <1% of tumor cells showing positive stain, score 2 is given for 1-10% of tumor cells showing positive stain, score 3 is given for 11-33% of tumor cells showing positive stain, score 4 is given for 34-66% of tumor cells showing positive stain and score 5 is given for 67% and more tumor cells showing positive stain. Intensity score is given based on intensity of tumor cell nucleus staining. Intensity score of 0 is given if the tumor does not stain for immunostain. Score 1,2 and 3 is given for tumor which show mildly intense staining, moderately intense staining and intense staining respectively. Allred score is calculated by addition of proportion score with intensity score. The total score of 0,1 and 2 is considered as negative and total score of 3-8 is considered as positive.

Table 4: showing causes of vocal cord palsy

Proportion score	Number of cases (ER)	Number of cases (PgR)
0	39 (45.3%)	48(55.81%)
1	0 (0%)	0(0%)
2	3(3.49%)	2(2.32%)
3	3(3.49%)	6(6.98%)

4	7(8.14%)	7(8.14%)
5	34(39.3%)	23 (26.75%)
Total	86 (100%)	86(100%)

Table 5: Intensity Score of Estrogen Receptor

Intensity score	Number of ER cases	Number of PgR cases
0	39 (45.35%)	48 (55.81%)
1	1(1.17%)	0(0%)
2	21(24.41%)	16(18.60%)
3	25(29.07%)	22(25.29%)
Total	86(100%)	86(100%)

In the present study, 47 (54.65%) cases were positive for estrogen receptor and 38 (44.18%) were positive for progesterone receptor with allred score of 3-8. ER negative cases were 39 (45.35%) and PgR negative were 48 (55.82%) with allred score of <2.

Table 6: Total Allred score of Estrogen and Progesterone receptor

Total score	Estrogen receptor	Progesterone receptor
0	39 (45.34%)	48 (55.81%)
1	0 (0%)	0 (0%)
2	0 (0%)	0 (0%)
3	1 (1.17%)	0 (0%)
4	2 (2.32%)	2 (2.32%)
5	3 (3.49%)	6 (6.98%)
6	4 (4.65%)	8 (9.30%)
7	15 (17.44%)	3 (3.49%)
8	22 (25.59%)	19 (22.10%)
Total	86 (100%)	86 (100%)

All the 86 cases were studied for HER2/neu staining according to ASCO/CAP guidelines. No membrane staining with HER2/neu was observed in 27 cases. Complete, circumferential membrane staining in more than 10% of tumor cells with HER2/neu is seen in 34 cases and has score of 3+. Incomplete, faint or barely perceptible membrane staining in more than 10% of tumor cells seen in 10 cases, and it has score of 1+. Incomplete and or weak to moderate circumferential membrane staining in > 10% of invasive tumor cells or complete intense circumferential membrane staining in <10% of tumor cells were seen in 15 cases and equivocal result with 2+ score is noted.

Table 7: HER2/neu expression in various cases

Score	Number of cases	Percentage
0	27	31.40
1+	10	11.62
2+	15	17.45

3+	34	39.53
Total	86	100

Table 8: ER, PgR AND HER2/neu expression status

	ER	PgR	HER2/neu
Positive	47(54.65%)	38(44.18%)	34(39.54%)
Negative	39(45.35%)	48(55.82%)	52(60.46%)
Total	86(100.00%)	86(100.00%)	86(100.00%)

All cases were further sub classified into 4 groups of breast carcinoma based on based on hormonal receptor expression and HER2/neu positivity using immunohistochemistry.

Table 9: Molecular subtype of breast carcinoma

ER/PgR/HER2/neu	Number of patients	Percentage
ER/PgR+/HER2neu-	31	36.04
ER /PgR+/HER2neu+	16	18.61
ER/PgR-/HER2neu -	21	24.41
ER/PgR-/HER2neu +	18	20.94
Total	83	100

Majority of the cases 31 (36.04%) cases were ER and PgR positive and HER2/neu negative (ER/PgR+/HER2neu-) followed by the triple negative group where ER,PgR and HER2/neu are negative (ER/PgR-/HER2neu-) group with 24.41% (21 cases). ER, PgR negative and HER2/neu positive (ER/PgR-/HER2neu+) was seen in 18(20.94%) cases while 16 (18.61%) showed ER,PgR positive and HER2/neu positive(ER/PgR+/HER2neu+).

ER, PgR and HER2neu expression was studied, 70 (81.40%) cases were invasive breast carcinoma no special type. ER was expressed in 35(50%) of cases, PgR was expressed in 28(32.55%) cases and HER2/neu was expressed in 27(31.39%) cases.

In the present study, 5(5.81) cases were invasive lobular carcinoma. ER and PgR was expressed in all the cases. HER2/neu was expressed in 40% of cases.

In the present study, 4(4.66%) cases were mucinous carcinoma. ER was expressed in all the cases, PgR was expressed in 3(75%) cases and HER2/neu was expressed in 3(75%) cases.

In the present study, 3(3.48%) cases were carcinoma with apocrine change. None of the tumor expressed ER and PgR. Only 1(33.33%) case expressed HER2/neu.

In the present study, 1(1.16%) case was squamous cell carcinoma. It was ER, PgR and HER2/neu negative (triple negative) .In the present study, 1(1.16%) case was invasive papillary carcinoma of breast. It expressed ER, PgR and HER2/neu.



Figure 1: Gross photograph of invasive breast carcinoma no special type, showing tumor with infiltrating margins

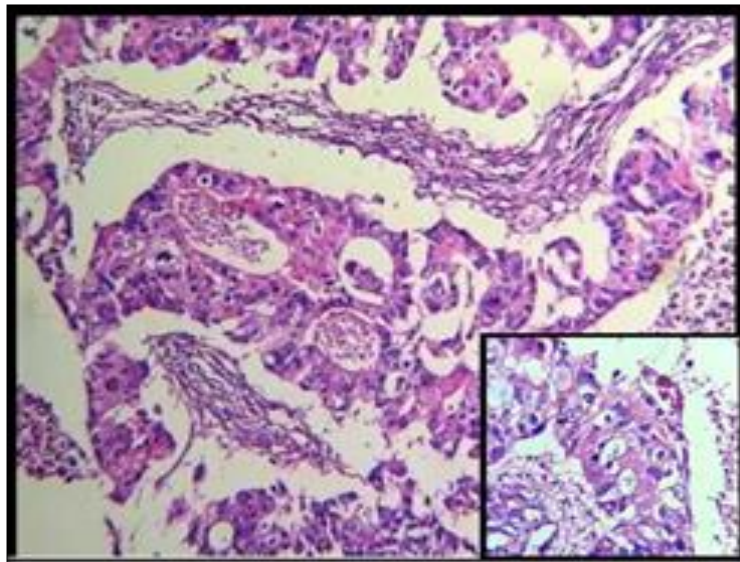


Figure 2: Microphotograph of invasive breast carcinoma no special type. (H&E, 10X and inset 40X)

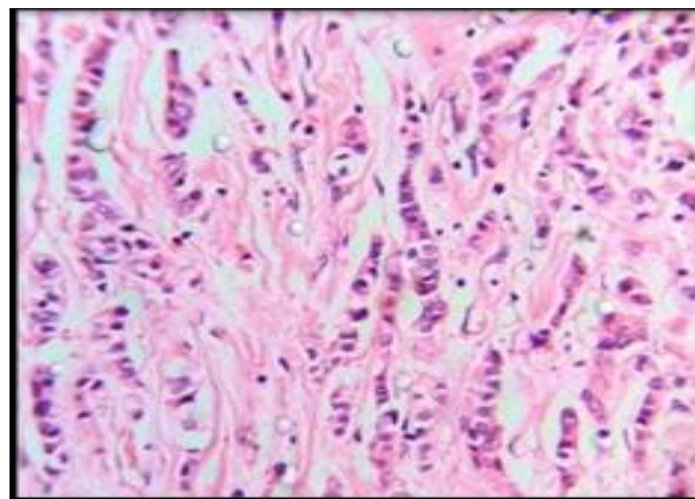


Figure 3 Microphotograph of invasive Lobular carcinoma showing Indian file appearance (H&E, 40X)

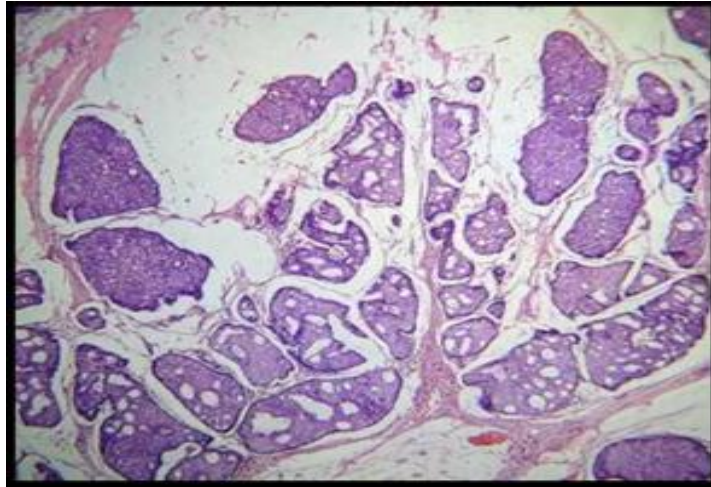


Figure 4: Microphotograph of mucinous carcinoma showing tumor within mucin lakes (H&E, 4X)

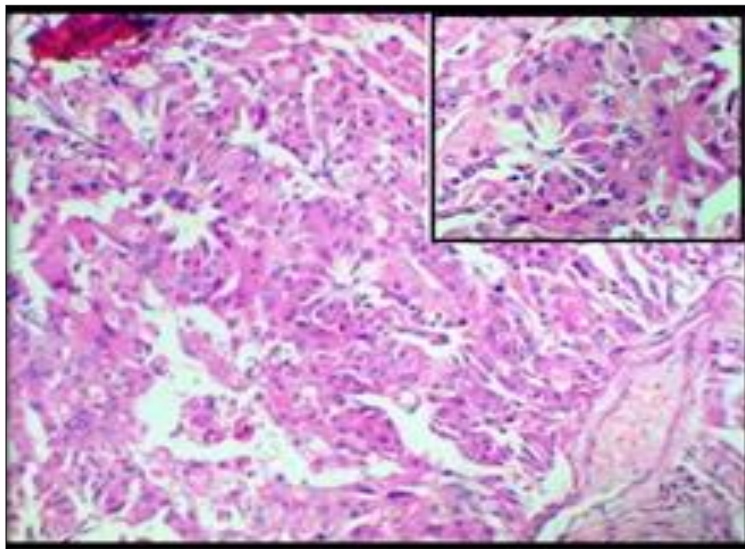


Figure 5: Microphotograph of carcinoma with apocrine change showing tumor cells with abundant eosinophilic cytoplasm (H&E, 10X, inset 40X)

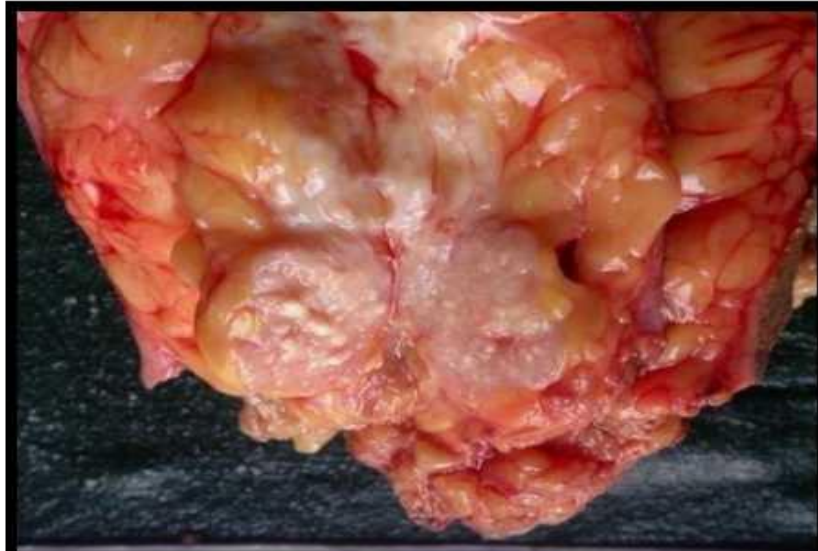


Figure 6: Gross photograph of medullary carcinoma showing well circumscribed tumor

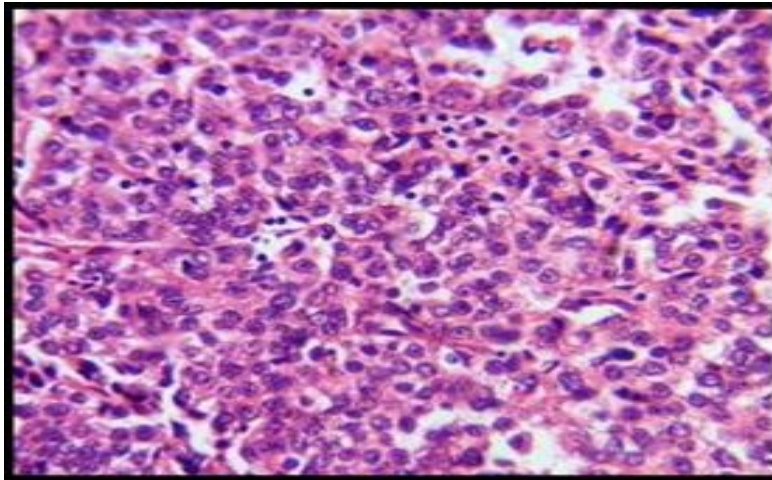


Figure 7: Microphotograph of medullary carcinoma showing tumor cells in syncytium with inflammatory infiltrate (H&E, 40X)

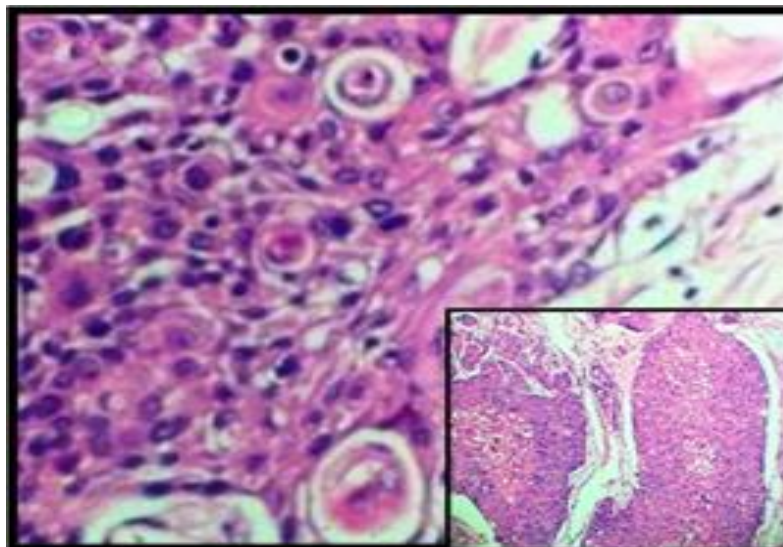


Figure 8: Microphotograph showing individual cell keratinization in squamous cell carcinoma (H&E, 40X, inset 10X)

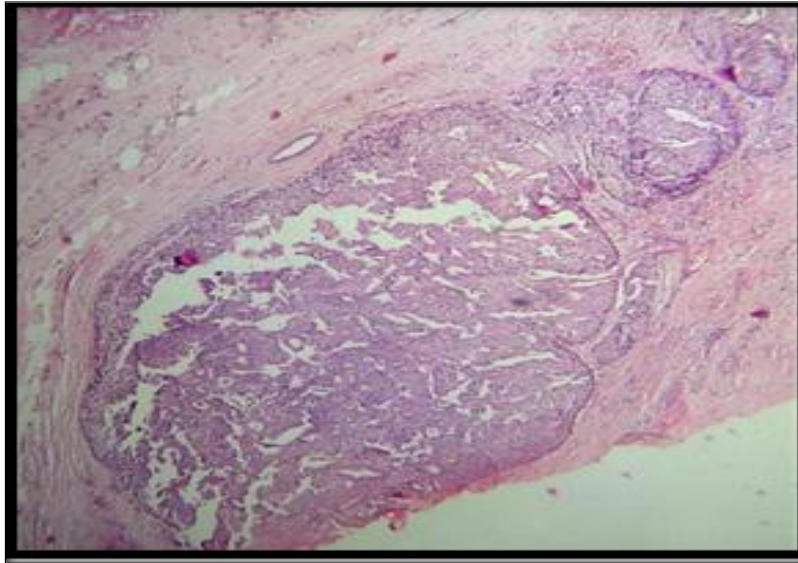


Figure 9: Microphotograph showing tumor cells in papillae pattern (H&E, 4X)

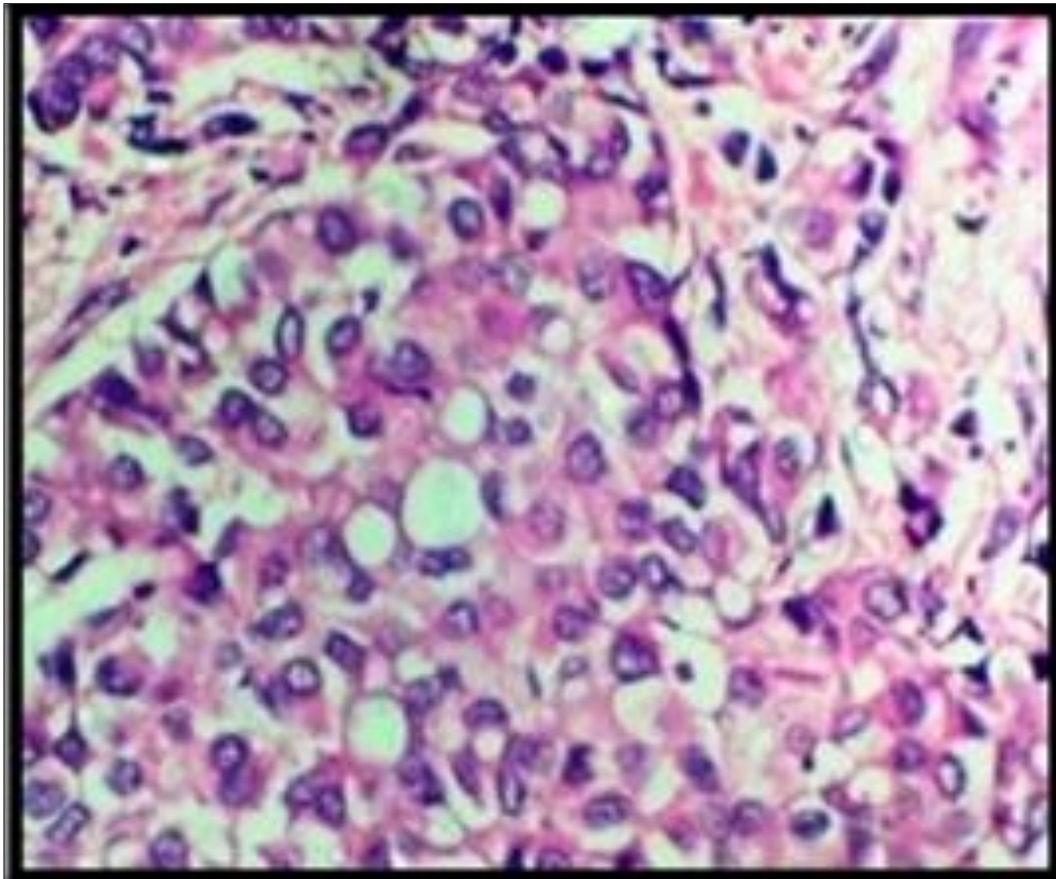


Figure 10: Microphotograph showing signet ring cells (H&E, 40X)

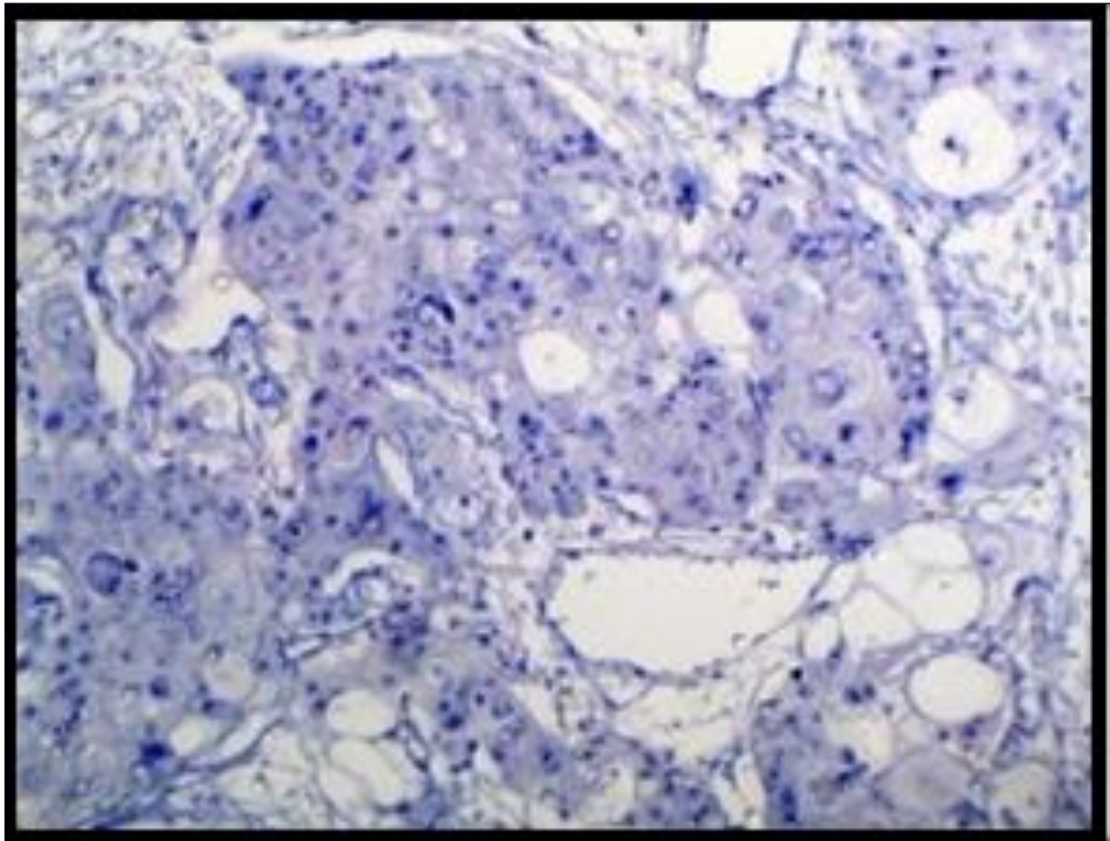


Figure 11: Microphotograph showing no staining, (IHC, 10X)

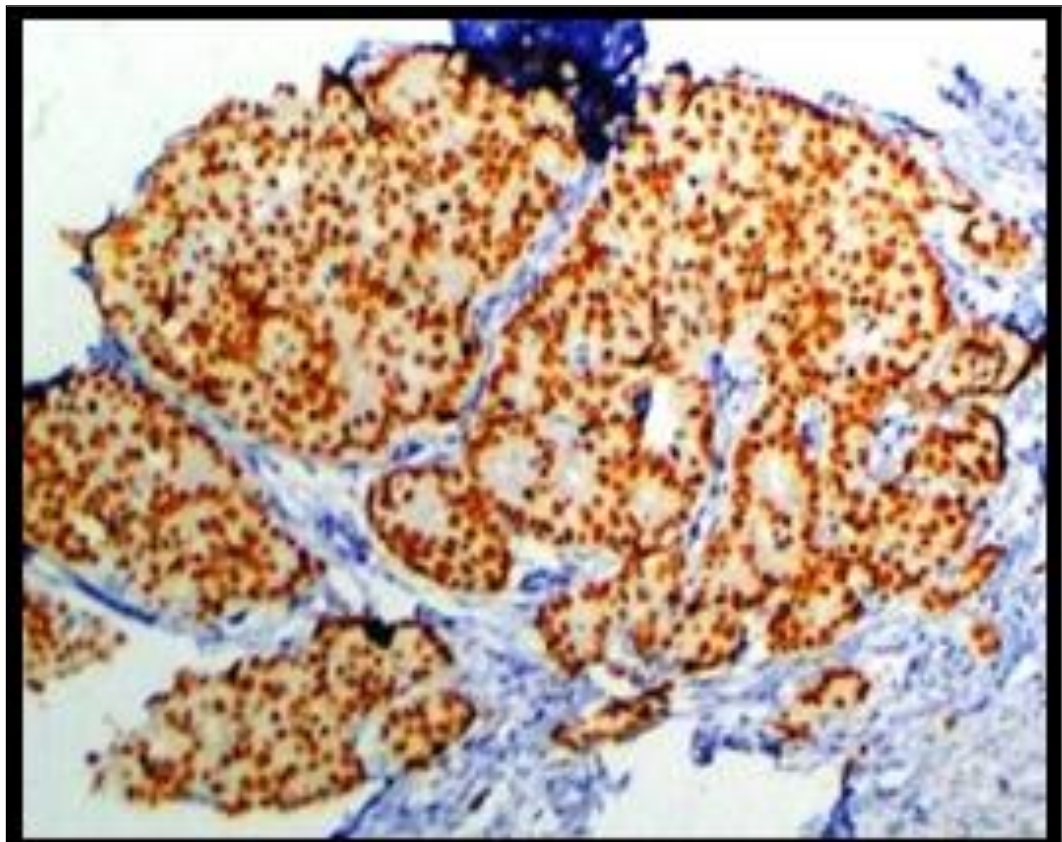


Figure 12: Microphotograph showing tumour cells nucleus positive for ER (IHC, 4X)

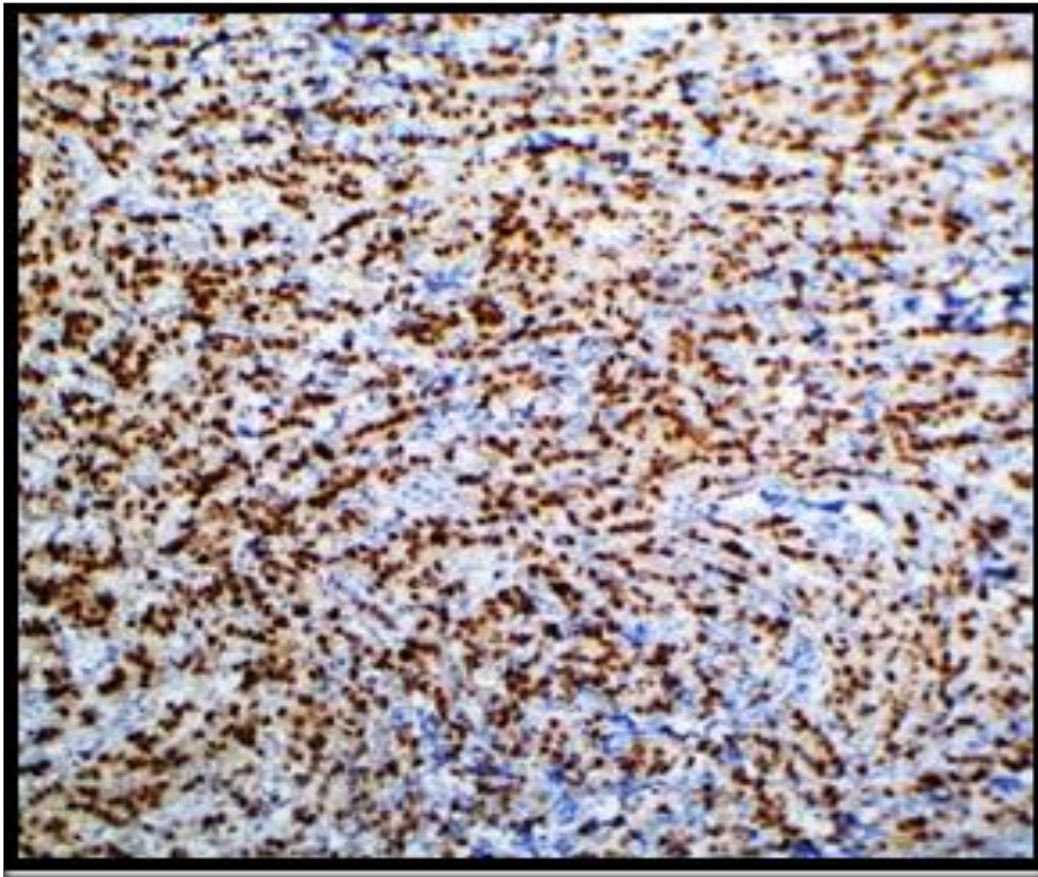


Figure 13: Microphotograph showing tumor cells nucleus positive for PR (IHC, 4X)

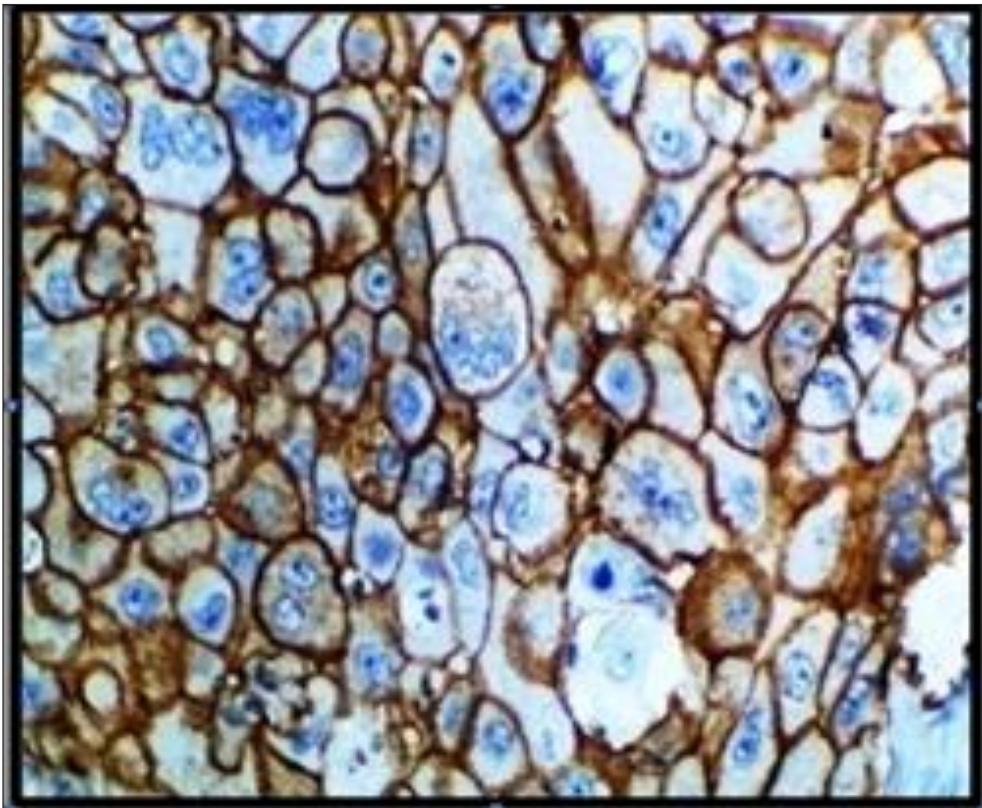


Figure 14: Microphotograph showing tumor cells are membrane stained for HER2neu (IHC, 40X)

DISCUSSION

Breast carcinoma is the most common malignancy in women among non-skin tumors. It is the second leading cause of death due cancer.⁶ Biological features of carcinoma (Histological subtype of the tumor, grading of tumor and biomarkers expression) and spread of the disease at the time of diagnosis play an important role to predict the outcome of the carcinoma.

Breast carcinoma is very rare before menarche. The most common age at which breast carcinoma occurs is at perimenopausal and post-menopausal age.

In our study of 86 cases, majority 32(37.2%) women were in 41-50 years. Similar observation was observed in study conducted by Bhagat VM et al,^[7] and Suvarchala SB et al,^[8] The most common site of tumor location was upper outer quadrant of the breast, constituting 47 (54.66%) cases which was similar to findings done by Meena et al,^[9] Costa M et al,^[10] and Joshi K et al,^[11] Majority of cases showed tumor with the size of 2-5cm, Similar findings were observed by Suvarchala SB et al,^[8] and Badwe RA et al,^[12]

The most common type of breast carcinoma is invasive breast carcinoma no special type constituting 70(81.40%) of all breast carcinoma. This observation was seen even in studies conducted by Rao C et al,^[13] and Suvarchala SB et al,^[8] with invasive breast carcinoma no special type constituting 75 (59%) cases and 60 (93.76%) cases respectively.

In the present study, majority of breast carcinoma were of grade II constituting 36(41.8%) cases, followed by 33(38.37%) cases of grade I and 17(19.76%) of grade III. . Similar results were observed by the studies conducted by Suvarchala SB et al,^[8] and Ahmed HG et al.^[14]

Breast carcinoma with estrogen receptor expression is associated with reduced relative risk for mortality compared to carcinomas without estrogen receptor expression. In the present study, majority of the tumors have expressed estrogen receptor, constituting to 47 (53.48%) cases. ER was not expressed in 39(46.52%) cases. Study conducted by Lal P et al,^[15] and Nadji M et al,^[16] have also shown that majority of tumors have expressed ER

Expression of progesterone receptor is associated with better response to hormonal therapy. Thus progesterone receptor is more of predictive marker than a prognostic marker. In the present study, expression of progesterone receptor was seen in 38 (43.03%) cases and 48 (56.97%) cases didn't express PgR. Similar results were observed by Suvarchala SB et al⁸ Pathak TB et al,^[17] and Lal P et al,^[15]

Breast carcinoma expressing HER2/neu are eligible for targeted therapy (trastuzumab), which improves response rate, time of progression and survival rate in metastatic breast carcinoma. We observed that majority 52 (60.46%) cases didn't express HER2/neu, while 34 (39.54%) expressed HER2/neu. Similar observation was seen in study conducted by Huang JH et al,^[18]

The tumor with subtype of ER/PgR+ HER2/neu -, constituting 31 (36.04%) cases were forming the majority group. Study conducted by Huang JH et al,^[18] and Onitilo AA et al,^[19] have observed that in their study, majority 905 ER/PgR+/HER2/neu-, Study conducted by Urmila Devi P et al,^[20] has shown that majority 17 (51.51%) cases were of ER/PgR-/HER2/neu-. Invasive breast carcinoma no special type constituted 70 (59%) cases, 35(50%) cases express ER, 28(40%) cases express PgR and 27(38.57%) cases express HER2/neu. In studies conducted by Rao C et al,^[13] and Lal P et al,^[15] 21(28%) cases and 2322(71.5%) cases of invasive breast carcinoma no special type express ER, 54(30.6%) cases and 1537(47.3%) cases of invasive breast carcinoma no special type express PgR and 3(4%) cases and

569(17.54%) cases of invasive breast carcinoma no special type express HER2/neu respectively. In the present study, 5 (5.81%) cases out of 86 were invasive lobular carcinoma, among these 5 cases, all the 5(100%) cases express ER and PgR. 2(40%) cases express HER2/neu. 4 (4.66%) cases out of 86 were mucinous carcinoma, among these 4 cases, 4(100%) cases express ER, 3(75%) cases express PgR and 1(25%) cases express HER2/neu. In studies conducted by Rao C et al,^[13] and Lal P et al,^[15] 4(100%) cases and 37(100%) cases of mucinous carcinoma express ER, 1(25%) cases and 26(70%) cases of mucinous carcinoma express PgR and none of the cases of mucinous carcinoma express HER2/neu respectively. In the present study, 1(1.16%) case was medullary carcinoma of breast, it express ER and HER2/neu. 1(1.16%) case was invasive papillary carcinoma of breast, which express ER, PgR and HER2/neu.

CONCLUSION

Over the last decade, there has been increase in the incidence of breast cancer in India and it is the most common malignancy in the urban women by outnumbering the carcinoma cervix which still remains the most common malignancy in rural women.

Breast carcinoma occurred in age group ranging from 25-80 years, majority of these were seen in the perimenopausal age group between 40-60 years. Most of the patients presented with lump in the breast, frequently involving upper outer quadrant within the size of >2-5cm. Invasive breast carcinoma no special type was the most common carcinoma, Majority of tumors were of Nottingham's grade II. Lymphnode metastasis was observed in 58.7% cases. ER, PgR and HER2/neu were expressed in 53.48%, 43.03% and 39.54% of cases. The most common molecular subtype was ER /PgR+/HER2neu-. Hormonal receptor expression was seen to be gradually decreasing as the age increases above 40 years, increase in size, grade of the tumor and the number of positive lymphnode, whereas expression of HER2/neu showed an inverse relationship where we found HER2/neu positivity was more in high grade tumors No relation was observed between HER2/neu expression and number of metastatic lymph nodes.

As the scenario of breast carcinoma in India is changing, the knowledge regarding histological parameters like type, grading and staging along with hormone receptor expression and HER2/neu amplification are important as it will guide the clinician to choose the most appropriate modality of treatment for the best possible outcome in a patient with breast carcinoma.

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