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Research Article

Clinical and Morphological Profile in Breast Carcinoma Patients in a Tertiary Care Hospital, SMS Medical College, Jaipur, Rajasthan

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Abstract

Objectives: *Breast cancer is the most common malignancy in females. Data on breast cancer profile of patients in Rajasthan is scant. Patients have different clinical and morphological presentation and each case require appropriate strategy for screening, diagnosis and treatment purpose.*

This study is conducted to find out clinical stage at which the patients presented, to assess the clinicomorphological spectrum of breast cancer patients and to correlate histological grade (Richardson bloom score) with clinical stage of disease.

Method: *This prospective study was carried out on 100 newly diagnosed cases of breast carcinoma. Every eligible surgical specimens of breast carcinoma received in department of pathology.*

Results: *Mean age of patients was found to be lower compared to western countries. Many of the patients were from rural background and patients often presented with longer duration of symptoms and advanced clinical stage. Left side was more frequently involved. The tumour was commonly of higher grade . The more advanced stages were associated with higher grade at time of diagnosis.*

Conclusion: *Breast cancer occurs in younger age females in India including Rajasthan. Considering the younger age of presentation and decreased affordability of patients, mammography might be a less effective screening test due to higher density of breast in young age, which decreases the sensitivity of mammography. Patients are mostly from rural background and present more frequently with advanced stage breast cancer. Most Patients presented with advanced stage of breast carcinoma. A statistically significant positive correlation was seen between Histological grade and clinical stage of breast cancer. Awareness campaigns, breast self-examination, improved access to diagnostic resources and health care are important measures that should be undertaken for early diagnosis particularly in rural areas.*

Keywords: *Breast Cancer-Clinical Profile-Stage-Grade-India.*

Introduction

The World Cancer Report issued by the International Agency for Research on Cancer (IARC) tells that cancer rates are set to increase at an alarming rate globally. Cancer rates could increase by 50% to 15 million new cases in the year 2020.[1] Worldwide breast cancer is the most frequent cancer in women and represents the second leading cause of cancer death among women (after lung cancer).[2] Management of breast cancer is immunologically and histologically heterogeneous in character and requires multidisciplinary treatment. Mortality rates from breast cancer have increased during the past 60 years in every country. International variation in both incidence and mortality is one of

the most striking features of breast cancer.[3] The traditional pathological factors of lymph node status, tumor size, histological type, and histological grade are the most useful prognostic factors in breast cancer patients.[4] We will conduct the study to assess the clinical profile of the patients of breast carcinoma as well as relevant macroscopic and microscopic features of the mastectomy specimens.

Aims and objectives

This study is conducted to find out clinical stage at which the patients presented, assess the clinicomorphological spectrum of breast cancer patients in a tertiary care centre, correlate histological grade (Richardson bloom score) with clinical stage of disease and correlate radiological and histological finding.

Material and Method

This prospective study was carried out on 100 newly diagnosed cases of breast carcinoma. Every eligible surgical mastectomy specimens of breast carcinoma received in department of pathology, SMS Medical College and Hospital, Jaipur were taken April 2016 to March 2017 .The clinical data obtained from requisition form include Name of the patient, Age, Sex, Chief complaints, Relevant clinical details, Radiological finding. Clinical staging and Histopathological Examination include detailed gross description and microscopic examination was done.

Result & Observation

The study was carried out in the department of Pathology, SMS medical college and associated group of hospitals, jaipur. This study was hospital based descriptive type of observational study including all mastectomy specimens received in the department of pathology in the duration of study. A total of 100 new cases of breast cancer from April 2016 to March 2017 were studied.

Table-1: Distribution of Cases according to age group

Age Interval (year)	No. of Patients	Percentage (%)
20-30	10	10%
31-40	16	16%
41-50	32	32%
51-60	20	20%
61-70	14	14%
71-80	8	8%
Total	100	100%

A majority of the patients were in the age group 40-50 years. The youngest patient was 25 years and the oldest patient was 75 years old and the mean age of patients was 48.4 years. The patients in the study were 98 females and 2 male.

A total of 66 (66%) patients were from rural background and 34 (34%) were from urban background with the ratio of 1.9:1, 62% patients belonged to lower economic class and shown illiteracy among 13% cases.

Table-2: Distribution of Cases according to symptoms of patients

Symptoms	Present	Percentage (%)
Breast Lump	100	100%
Lump+Pain	16	16 %
Lump+Discharge from Nipple	2	2%
Lump+Skin Ulcer	2	2%
Lump+Retracted Nipple	2	2%

The most common symptom was breast lump, present in all the cases. None of the patients had bilateral breast lumps. Two patients had history of nipple discharge, 16 patients (16%) also had history of associated pain in the lump, 2 patients had skin ulcer and 2 patients had nipple retraction. In radiological findings mammography was not a principle modality for diagnosis and was done only in 16 (16%) patients; it was positive for malignancy in 10(62.5%) and either negative or inconclusive in 6 patients , these patients later on underwent FNAC or trucut or excision biopsy for confirmation of diagnosis.

Table-3: Clinical TNM staging at the time of presenting patients

Stage	No. of Patients	Percentage (%)
I	4	4%
II	32	32%
III	48	48%
IV	16	16%
Total	100	100%

Clinical TNM staging done of the patients. Maximum 64 (64%) patients present in late stage (stage III & IV), 36(36%) patients present in early stage (stage I & II).

Table-4: Histological typing in breast carcinoma patients

Type	No. of Patients	Percentage (%)
IDC-NOS	96	96%
Lobular carcinoma	2	2%
Medullary carcinoma	2	2%
Total	100	100%

Histological typing of the tumour was done on biopsies (Incision biopsies) subsequently. All 96(96%) cases were Invasive Ductal Carcinoma, NOS, two (2%) case of medullary carcinoma and two (2%) case of lobular carcinoma.

Table-5: Histological grading done by Nottingham modification of the Bloom and Richardson method

Grade	No. of Patients	Percentage (%)
1	24	25%
2	32	33.33%
3	40	41.66%
Total	96	100%

Histological grading done by Nottingham modification of the Bloom and Richardson method in 96 patients, showed maximum tumours of grade 3 (41.66%), 33.33% of the tumours were grade 2 and 24% were grade 1.

Table-6: Positive lymphnodes for carcinoma metastasis in affected patients

Number of Lymph nodes	No. of Patients	Percentage (%)
0	30	31.2%
1-3	36	37.5%
4-6	16	16.6%
7-10	10	10.4%
>10	4	4.3%
Total	96	100%

Out of these 96 patients, 30 (31.2%) had no lymph nodes positive for carcinoma metastasis in the histopathology specimen. In 36 (37.5%) patients, 1 – 3 lymph nodes were positive. In 26 (27%) patients, the number of lymph nodes positive was in the range of 4 – 9. Only 4 (4.3%) patients had more than 10 lymph nodes positive in the final specimen.

Table-7: Correlation of Histological grade with clinical stage of breast cancer

Clinical stage	Histological stage			Total
	1	2	3	
I	3	0	1	4
II	8	9	15	32
III	13	17	18	48
IV	0	7	9	16
Grand Total	24	33	43	100

Spearman Rank order correlation - r= 0.253; p=0.011 (S)

Interpretation: Histological grade showed weak positive correlation with clinical stage and this correlation was found to be statistically significant (P<0.05).

Stage reflects the extent of disease whereas grade is a measure of intrinsic malignancy based on the extent of tumor dedifferentiation. According to our results, the more advanced stages were associated with higher grade at time of diagnosis; or to view the same observation from another perspective, the more advanced grades, i.e.,Grades 3 and 4, were associated with higher stage disease.
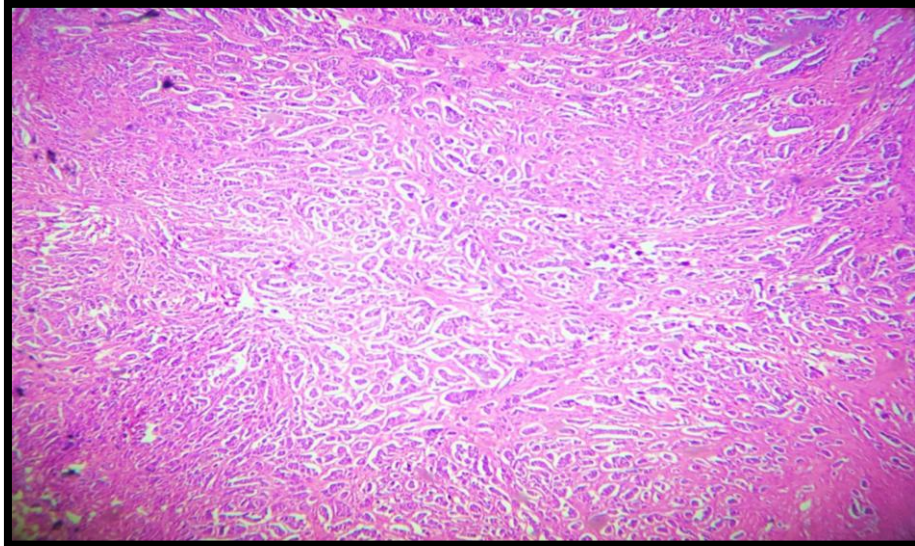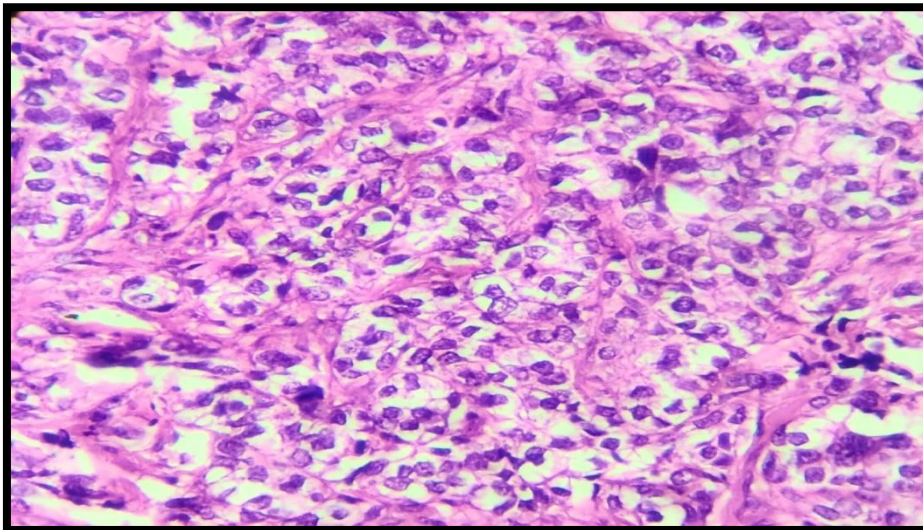
Figure-1 IDC-NOS Well differentiated (Grade-1) (H&E,10x)

Figure-2 IDC-NOS Moderately differentiated (Grade-2) (H&E,40x)
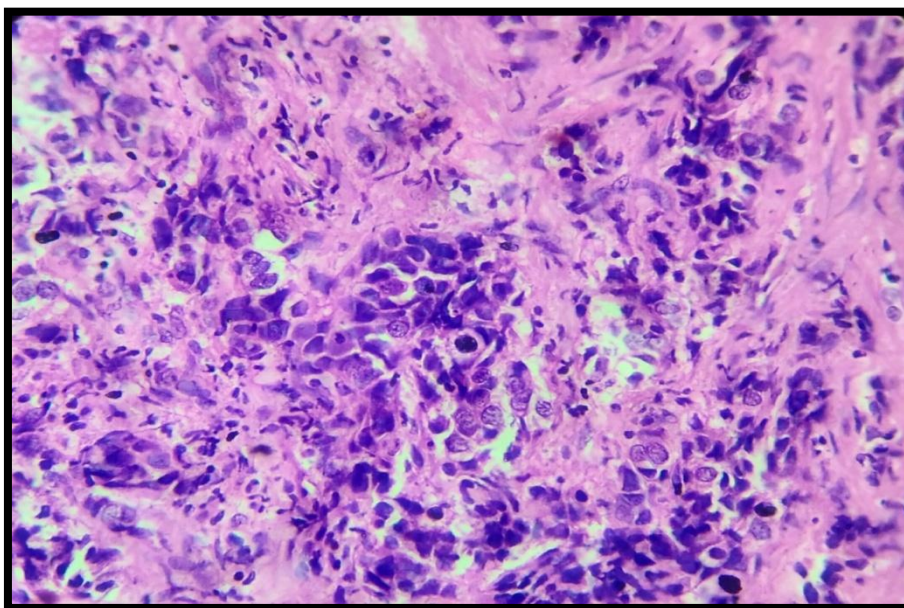

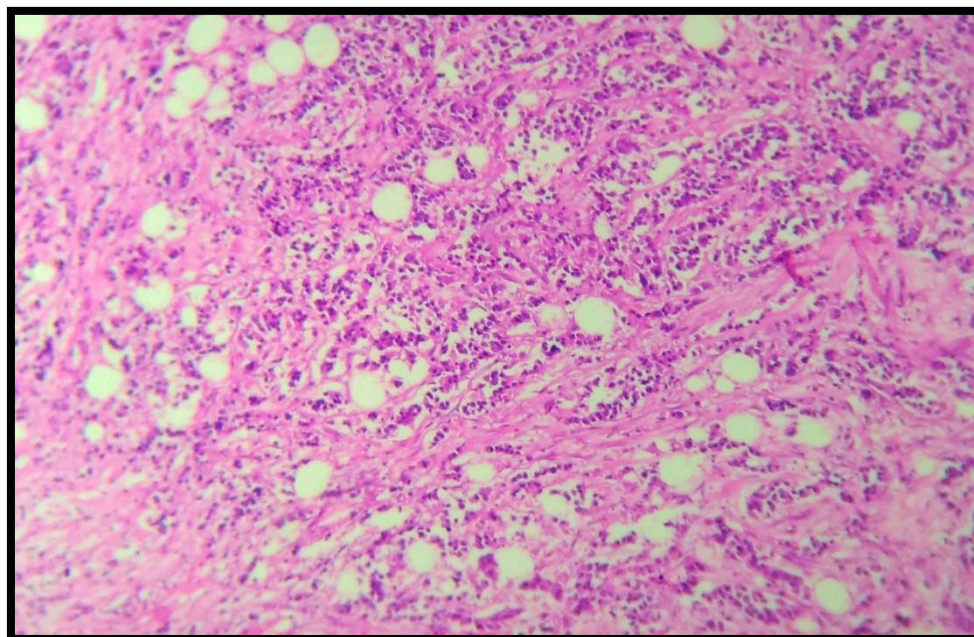**Figure-3** IDC-NOS Poorly differentiated (Grade-3) (H&E, 40x)

Figure-4 Lobular carcinoma with Indian file pattern (H&E,10x)
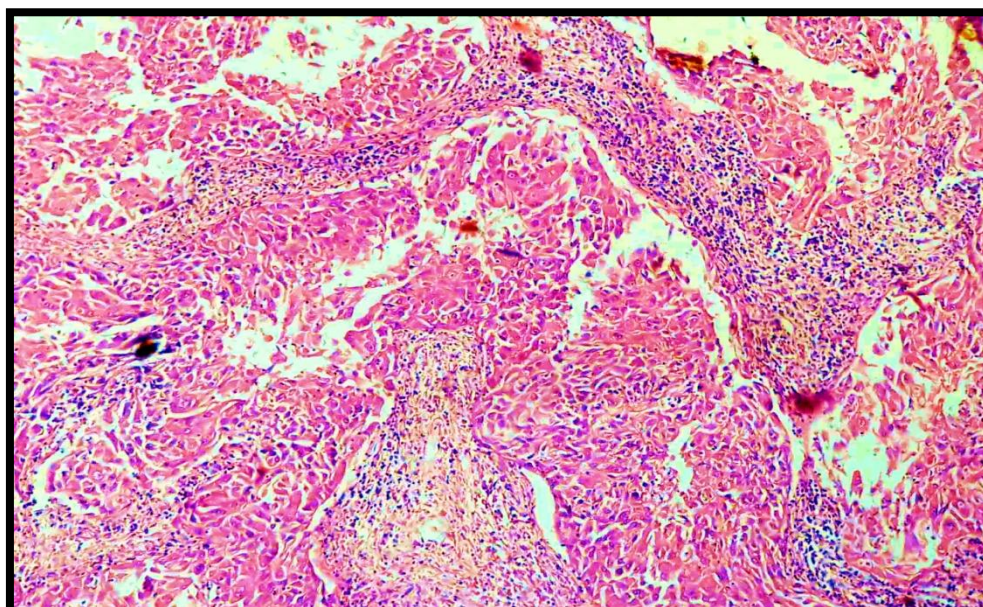

Figure-5 Medullary carcinoma-Tumor cells arranged in synctial pattern with pushing border, lymphocytiv infiltrate (H&E, 40x)

Discussion

Breast cancer is the most common non-skin malignancy in women. The aim of this descriptive study was to examine the clinico-pathological profile of breast cancer patients in Rajasthan as such studies are sparse. The majority of patients were seen in the fourth to fifth decade of life in the present study. The mean age was 48.4 years . Similar figures have been reported from India and other Asian countries.[5,6,7] as well as Rajasthan.[8] However, female breast carcinoma is predomin-antly seen in the fifth decade onward in Western countries.[9,10] In the present study incidence of breast carcinoma in males was found to be 2%, similar to other reports published in the literature.[11,12]

In the present study incidence of breast carcinoma was more in postmenopausal patients (57.14%) and age of menopause was in the range of 41 to 50 years in most of the patients. A similar finding of early age of menopause in Indian females in comparison to their western counterparts has been

observed in the past. The earlier published reports also show that the risk of breast carcinoma increases with increasing age of menopause, possibly because the women are exposed to hormones for a longer duration.[13,14]

In the present study of all the patients, 66% of the patients were from rural background, 62% belonged to lower economic class and shown illiteracy among 13% cases. Similar finding was seen in other Indian study.[15,16] This difference could be due to the fact that our hospital has a large rural periphery and therefore caters to mostly rural population. Also, women from rural areas often have difficulty in accessing health care services and a large proportion of India's population is from rural areas. Most of the young women presenting as breast carcinoma were from urban background in our study, similar result are found in Shreshtha Malvia et al.[17] There are trends in urban population like late marriage leading to late childbirth, very little or no breast feeding owing to increased demand of jobs, sedentary life style and high fat containing diet are main cuiprit behind the changing trends. In the present study all the patients presented with lump in the breast. Few of the patients had associated pain as well two patients also had nipple discharge .Two patients with skin ulcer and two patients presented with nipple retraction. The lump in breast was more common on the left side and that too in the upper outer quadrant. This is possibly due to bulkier left breast and more breast tissue in the upper outer quadrant. Similar findings have been seen in other studies.[18,19,20]

Mammography was not a principle modality for diagnosis in this study and it was done only in 16 (16%) patients; it was positive for malignancy in 10(62.5%) patients and either negative or inconclusive in 6 patients, these patients later on underwent FNAC or trucut or excision biopsy for confirmation of diagnosis. Mammography is an important tool for breast carcinoma screening between 50 and 70 years, when the breast tissue content decreases and fat content increases. Moreover, mammography is neither cost-effective

nor easily available in developing countries. Thus, we suggest reconsidering the importance of mammography as a screening modality in our country.[21] The use of core needle biopsy (CNB) and vacuum assisted biopsy with mammographic or ultrasonographic guidance is being increasingly used for nonpalpable tumors.[22] Unfortunately these techniques have not picked up in this part of the world, probably due to their inherent cost. In the present study clinical TNM staging is an important clinical parameter of breast carcinoma. Maximum number of patients had tumor size in range of 2 to 5cms [T2]. Only four patient (4%) presented in stage I. Majority of the patients presented at stage III or more. This could again be delayed access to health care services in rural areas.

On histological typing, 96% of the cases were Invasive Ductal Carcinoma, NOS, 2% Invasive Lobular Carcinoma and 2% Medullary Carcinoma (Colloid carcinoma) in our study. Other Indian studies have also shown Invasive Ductal Carcinoma, NOS to be the commonest tumour.[15,19,23]

On histopathological grading, maximum number of patients had grade 3 tumour (42%), 34% had grade 2 tumour and 24% had grade 1 tumour in our study. Other studies have also shown similar results.[15,19,]

Literature also supports that the major factor predicting was the number of positive lymph nodes isolated and indirectly indicates a more complete axillary dissection, which is an important prognostic indicator in cases with breast carcinoma.[15]

In present study we observed a weak positive but statistically significant ($P<0.05$) correlation between the histological grade and clinical stage of breast carcinoma. This implies that higher grade tumors were more likely to have metastasized by the time the diagnosis was made. Other studies have done also shown similar results.[24,25]

Summary and Conclusion

In present study, most Patients presented frequently with advanced stage of breast carcinoma (III & IV). Awareness campaigns, literacy, breast self-examination, improved access to diagnostic resources and health care are important measures that should be undertaken to aid in the early diagnosis. The mean age of presentation for breast carcinoma is a decade earlier in our patients as compared to the west. Most of the patients in the younger age group were from the urban background. Late age childbirth, little or no breast feeding and high fatty diet may be attributed as the possible cause for this trend. Majority of the patients were postmenopausal, from rural background and presented with a history of more than three month duration in our study. Delayed presentation was possibly related to rural background, illiteracy, lack of awareness and lack of breast cancer screening programs. The breast lump was most common presenting symptom present in all the cases, slightly more common on left side and in upper outer quadrant, possibly due to bulkier left breast and more breast tissue in this region. The infiltrating duct carcinoma was most common histological type followed by invasive lobular carcinoma and medullary carcinoma. The cancer is frequently high grade and increased involvement of lymph nodes is also seen. A statistically significant positive correlation was seen between Histological grade and clinical stage of breast cancer in our study. Despite of its high sensitivity, Mammography was not found to be an screening tool in our study, because of unaffordability of the patients due to its inherent cost.

References

1. Pal SK, Mittal B. Improving cancer care in India: Prospects and challenges. Asian Pac J Cancer Prev 2004;5:226-8.
2. Dumitrescu RG, Cotarla I. Understanding breast cancer risk-where do we stand in 2005? J Cell Mol Med 2005;9:208-21.
3. Gupta P, Sharma RG, Verma M. Review of breast cancer cases in Jaipur region. J Indian Med Assoc 2002;100:282-3, 286-7.
4. Dixon JM, Anderson TJ, Lamb J, Nixon SJ, Forrest AP. Fine needle aspiration cytology, in relationships to clinical examination and mammography in the diagnosis of a solid breast mass. Br J Surg 1984;71:593-6.
5. . Chopra R. The Indian scene. Journal of Clinical Oncology 2001;19:S106-11.
6. Chow LW, Ting AC, Cheung KL, et al. Current status of breast cancer in Hong Kong. Chin Med J (Engl) 1997;110:474-8.
7. Malik IA. Clinico-pathological features of breast cancer in Pakistan. J Pak Med Assoc 2002;52:100-4.
8. Gupta P, Sharma RG, Verma M. Review of breast cancer cases in Jaipur region. J Indian Med Assoc 2002;100:282-3, 286-7.
9. El-Tamer MB, Wait RB. Age of presentation of African-American and Caucasian breast cancer patients. J Am Coll Surg 1999;188:237-40.
10. Hospital Episode Statistics Vol. 2 1991/92. Department of Health. London: HMSO, 1995.
11. Joseph A, Mokbel K. Male breast cancer. Int J Fertil Womens Med 2004;49:198-9.
12. Weiss JR, Moysich KB, Swede H. Epidemiology of male breast cancer. Cancer Epidemiol Biomarkers Prev 2005;14:20-6.
13. Kelsey JL, Gammon MD, John EM. Reproductive factors and breast cancer. Epidemiol Review 1993;15:36.
14. Rosner B, Colditz GA, Willett WC. Reproductive risk factors in a prospective study of breast cancer: the nurses' health study. Am J Epidemiol 1994;139:819
15. RK Karwasra1, S Marwah1, DS Sandhu1, S Sandhu2. Profile of breast cancer patients at a tertiary care hospital in north

India. Indian Journal of Cancer, Vol. 47, No. 1, January-March, 2010, pp. 16-22

16. Chopra R. The Indian scene. Journal of Clinical Oncology 2001;19:S106-11.

17. Malvia S., Bagadi S.A., Dubey U.S. and Saxena S., Epidemiology of breast cancer in Indian women, Asia-Pacific Journal of Clinical Oncology 2017; 13: 289–295.

18. Abdul Muqtadir A.M., Shaikh J.M., Varudkar Anagha S, Dawle AV outcome of breast cancer at tertiary care hospital in rural maharashtra: An observational study April 2015; 2(4): 238-240.

19. Rao M, Joshee R, Deval M, et al. Clinico-morphological profile in breast cancer patients in a tertiary care hospital in Western Rajasthan. J Evolution Med Dent Sci 2016;5(4):262-265.

20. Gupta P, Sharma RG, Verma M. Review of breast cancer cases in Jaipur region. J Indian Med Assoc 2002;100:282-3, 286-7.

21. Puglisi F, Follador A, Minisini AM, Cardellino GG, Russo S, Andreetta C, et al. Baseline staging tests after a new diagnosis of breast cancer: further evidence of their limited indications. Ann Oncol 2005;16:263-6.

22. Oyama T, Koibuchi Y, McKee G. Core needle biopsy (CNB) as a diagnostic method for breast lesions: comparison with fi ne needle aspiration cytology (FNA). Breast Cancer 2004;11:339-42.

23. Ghosh S, Sarkar S, Simhareddy S, et al. Clinico-morphological profile and receptor status in breast cancer patients in a South Indian Institution. Asian Pac J Cancer Prev 2014;15(18):7839-7842.

24. Bloom HJG. Richardson WW. Histological grading and prognosis in breast cancer. Br J Cancer 1957: 11:359--377.

25. Scat RW, Handley RS. Prognosis in carcinoma of the breast. Lancet 1938: 2582-583.