A Histopathological Study of Malignant Lesions of the Female Breast in a Tertiary Care Centre

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ABSTRACT

BACKGROUND

Incidence of breast malignancy is increasing in India which can be attributed mostly to changing lifestyle and increased hormone usage, and partly to increasing awareness. We wanted to determine the prevalence of malignant breast lesions in females, evaluate the histological spectrum of malignant breast lesions and study their association with common findings like age, side, histological grade and their biological behaviour.

METHODS

Present study is a two-year (August 2016 to July 2018) cross sectional study of malignant lesions of female breast, conducted in the Department of Pathology of Jawaharlal Lal Nehru Medical College, Ajmer, Rajasthan.

RESULTS

In this study, 159 malignant lesions of the female breast were diagnosed during study period that comprised of 26.02% of total breast lesions and 1.22 % of the total histopathological samples received. Age of the females having malignant breast lesions ranged from 28 years to 92 years with a mean age of 52.87 ± 12.944 years. The incidence of malignant breast lesions was maximum in 5th and 4th decades of life. The most common clinical symptom for presentation was the palpable lump (79.25%) in the breast. Lesions were more common in the right breast (53.5%), than left. The commonest quadrant involved in malignant lesions of breast was upper outer (30.19%). Infiltrating ductal cell carcinoma was the most common malignant lesion (85.33%) followed by invasive lobular carcinoma (5.66%). Out of 99 specimens having lymph node with it, 65 (65.66%) cases show metastatic deposits of malignancy. Grade II (MBR score) lesions (51.35%) were found most commonly.

CONCLUSIONS

Histopathology of the malignant lesion is useful in understanding the morphological and biological behaviour of the malignancy as some types of malignancy have aggressive behaviour. Grading and staging have an important role in treatment plan (surgery, radiotherapy, chemotherapy and hormonal therapy) and also in assessing the prognosis.

KEY WORDS

Malignant Lesions of Breast, Histopathology, Infiltrating Ductal Carcinoma, Fibroadenoma

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DOI: 10.14260/jemds/2020/392

Financial or Other Competing Interests: None.

How to Cite This Article:
Jangid P, Jangid MK, Pachori G. A histopathological study of malignant lesions of the female breast in a tertiary care centre. J. Evolution Med. Dent. Sci. 2020;9(24):1795-1799, DOI: 10.14260/jemds/2020/392

Submission 19-08-2019,
Peer Review 16-05-2020,
Acceptance 22-05-2020,
Published 15-06-2020.

BACKGROUND

Breasts are an important feature of female anatomy and an integral part of reproductive system. It is a glandular organ influenced by hormones in females and composed of various structures giving rise to different types of lesions and lumps. These lesions of breast can be of various types ranging from inflammatory to benign to malignant with some lesions being common in young females while other being common in elderly to older age group.[1,2]

In the world, breast cancer is one of the commonest malignant tumours (after lung cancer) and it is the leading causes of death due to cancer in females.[1,3] According to the American cancer society, about 1.3 million females are diagnosed with breast cancer per year and about 465,000 will die due to this cancer. In western breast cancer accounts for 27% of all female cancer. This incidence of breast cancer is particularly low in most of developing countries and Japan. This variation may be due to social, dietary, early marriage, parity and related other factors.[2,3]

In India, the most common malignancy in females is breast carcinoma next to uterine cervical carcinoma.[4,5] Breast cancer accounts for near one-quarter of all cancers in Indian females and about half of all cancer related mortality.[4] With rising incidence and awareness, breast cancer is the most common cancer diagnosed in urban Indian females and the second most common in rural Indian females.[1,4]

As per ICMR – PBCR data, breast malignancy is the commonest malignancy among females in urban registries of Delhi, Mumbai, Ahmadabad, Kolkata and Trivandrum where breast cancer accounts for more than 30% of all cancers in females.[1,6] It found that peak-age frequency of occurrence of breast cancer in developing Asian countries like India are younger than the developed Asian and western countries.[4,7]

It is estimated that over one million new cases of breast cancer are diagnosed per year in India.[1,7] It is also estimated that of all the reported cases of breast cancer, 50-70% of cases are in advanced stage of presentation in India.[1.4,6] If breast cancer left untreated, the mean survival of patient is about 3 years after clinical presentation and more than 5-year survival rate is only one in twenty.[8]

The most common presentation of breast lesion is a palpable lump. Every female having a lump or pain in breast and or abnormal nipple discharge fears that she has breast-cancer.[2,5] So, early and accurate histopathological diagnosis is more important in relieving the anxiety from non-malignant lesions and for prognosis particularly in malignant lesions. However social, religious factors, unawareness of fatality of the disease, false vanity and fear of infertility hinder early presentation for diagnosis and treatment.[2] Early diagnosis by awareness or screening is the key factor to increase survival.

This study done with aim to identified the burden of malignant lesions of breast in Ajmer region and evaluate the spectrum of malignant breast lesion and evaluate their association with common findings and also compare the present study with other studies done in India and abroad.

METHODS

Present study is a cross section study of two year (August 2016 to July 2018) of malignant lesions of female breast in Pathology department of Jawaharlal Nehru (JLN) Medical College, Ajmer, Rajasthan. Study materials were specimens from breast as TruCut biopsy, lumpectomy and mastectomy (simple and modified radical) specimens received during the study period. Lesions which were diagnosed as malignant lesions and from female breast included in study. Specimens other than breast, male breast specimens, non-malignant lesions of breast and malignant lesions of breast before and after the study period were excluded from study. Got approval from institutional ethical committee (IEC) and informed consent was obtained.

When receiving the specimen, detailed clinical history, clinical diagnosis and type of surgery with findings were recorded. The tissues were routinely processed for histopathological examination and were stained by Haematoxylin and Eosin (H&E). Special stains like PAS and Reticulin were used wherever needed.[9]

Statistical Analysis has been carried using computer software statistical package for social science {SPSS} version 20. The qualitative data were expressed in proportion and percentages, and the quantitative data expressed as mean and standard deviations.

RESULTS

During the two years of study period, total 13023 specimens were received in the Pathology department of JLN Medical College, Ajmer for histopathological examination (HPE). Out of these 13023 specimens, 611 (4.69%) specimen were from breasts of females that includes 61 biopsies, 450 lumpectomy specimens and 100 mastectomy (MRM) specimens. Out of 611 cases of breast lesions, benign lesions (including congenital and inflammatory lesions) were more common with contribution of 452 (73.98%). Remaining 159 lesions of the female breast that were diagnosed as malignant lesions have included in this study.

159 cases were of malignant breast lesions, made 26.02% of total breast lesions and 1.22% (159 out of 13023) of total HPE specimen received in the study period. Age of the females having malignant breast lesions were ranged as youngest 28 years to oldest age 92 years with the mean age of 52.87 ± 12.944 years. The incidence of malignant breast lesions was maximum in 5th and 4th decades of life. (Table 1).

Painless palpable lump or mass was the most common clinical feature found in maximum number of patients i.e. 126 (79.25%) of cases. Lump or mass with ulceration was present in 14 (8.81%) patients. Some patients presented with more than one symptom, the percentage of which were as given in table (Table 2). Lesions were more common in right breast (53.5%), than left and upper outer quadrant of the breast was the commonest site (30.19%) followed by upper inner quadrant (20.75%) (Table 3).

After thorough microscopic examination, tumours were histologically categorized. Infiltrating ductal cell carcinoma

(85.53%) was most common malignant lesion and invasive lobular carcinoma (5.66%) is second common malignant lesion. The age of infiltrating ductal carcinoma patients were 28 to 92 years with the mean age of females were 52.38 ± 12.721 years and invasive lobular carcinoma patient age ranged from 35 to 75 years with the mean age of females were 59.22 ± 14.754 years. (Table 4)

From the 159 malignant lesions, only 99 sample have lymph nodes with their specimens and out of which 65 (65.66%) cases show metastatic deposits of breast carcinoma that means more than half patient presented with advance stage. Histological grade (MBR score) is done in 111 cases of malignant lesions. Grade II lesions (51.35%) were found most commonly (Table 5).

Age of Females (Years)	Number of Cases	Percentage (%)
<20	0	0 %
21 to 30	2	1.26 %
31 to 40	35	22.01 %
41 to 50	47	29.56 %
51 to 60	27	16.98 %
61 to 70	34	21.38 %
>70	14	8.75 %
Grand Total	**159**	**100**

Table 1. Age Wise Incidence in Females of Malignant Breast Lesions

Presenting Complaint	Number of Cases	Percentage (%)
Breast lump	126	79.25%
Breast lump +Ulcer	14	8.81%
Breast lump +Dimpling	5	3.14%
Breast lump+ Nipple Retraction	5	3.14%
Ulcer	3	1.89%
Breast lump +Pain	3	1.89%
Blood Discharge	1	0.63%
Breast lump + Discharge+ Retraction	1	0.63%
Breast lump + Blood Discharge +Pain	1	0.63%
Total	**159**	**100.00%**

Table 2. Presenting Complaints of Malignant Breast Lesions

Quadrant of Lesion	Number of Cases	Percentage (%)
Upper Outer Quadrant	48	30.19%
Upper Inner Quadrant	33	20.75%
Lower Inner Quadrant	28	17.61%
Lower Outer Quadrant	23	14.47%
Two Quadrant	10	6.29%
Central + One Quadrant	8	5.03%
Central Quadrant	5	3.14%
All Quadrant	4	2.52%
Total	**159**	**100.00%**

Table 3. Pattern of Quadrant Affected in Breast

Breast Lesions	No. of Cases (with Percentage)	Mean Age ± S.D.	Min. Age (Yrs.)	Max. Age (Yrs.)
Infiltrating Ductal Carcinoma	136 (22.26%)	52.38 ± 12.721	28	92
IDC with Paget Disease	6 (0.98%)	52.5 ± 8.803	45	70
Invasive Lobular Carcinoma	9 (1.47%)	59.22 ± 14.754	35	75
Ductal Ca In Situ	4 (0.65%)	48.5 ± 17.991	31	65
Medullary Carcinoma	2 (0.33%)	60 ± 28.284	40	80
Metaplastic Carcinoma	1 (0.16%)	55 ± 0	55	55
Mucinous Carcinoma	1 (0.16%)	65 ± 0	65	65
Total	159 (26.02%)	52.87 ± 12.944	28	92

Table 4. Distribution of Histopathologic Pattern of Malignant Breast Lesions According to Age

Sl. No.	Histological Grade (MBR Score)	Number of Cases	Percentage (%)
1	Grade I (3-5)	29	26.13%
2	Grade II (6-7)	57	51.35%
3	Grade III (7-9)	25	22.52%
	Total	**111**	**100.00%**

Table 5. Histological Grading of Malignant Breast Lesions

DISCUSSION

In recent years the scenario of cases of breast carcinoma in females are on increasing trends. That because of change of life style, increased awareness regarding breast lesion, advancement of in diagnostic technology (like mammography, ultrasonography, fine needle biopsy, histopathological study of core needle biopsy study along with immunohistochemistry and hormone receptor) a greater number of breast lesions are being detected early and all of these contribute the rising incidence rate.

Increased awareness and screening programme diagnosed breast malignancy relatively in earlier age and stages. But still breast carcinoma has mortality of female around 376000 yearly worldwide and 9,00,000 new cases per year are being diagnosed.[10] Present study is a cross sectional study of malignant lesions of female breast for a duration of 2 years in the Pathology department of Jawahar Lal Nehru Medical College, Ajmer Rajasthan.

Here, we were discussing and comparing important features of the breast lesion with the other similar type studies. In this study as only, malignant lesions from female patient were included so there is no gender related study and comparison.

Incidence of Lesions

In this study, out of total 611 cases of breast lesions, malignant lesions were less common (159 cases, 26.02%) and benign lesions were more common (452 cases, 73.98%). Similar results were observed in Najar Hussain et al,[11] SE Shirley et al [12], Tarek Tawfik et al,[13] Rasheed et al,[14] Kalyani et al,[15] Kasturi Chikhalikar et al,[16] Arunima Mukhopadadhyay et al,[17] R. Sasank et al[5] study. All study shows the malignant lesions were less prevalent then benign lesions as seen in this study.

Age Incidence

In present study, the most common age group is 41-50 year of age (29.56) that have almost similar to Anyikam et al[18] (30.8%), Kalyani et al,[15] Kasturi Chikhalikar el al[16] (34.61%), Reddy and Kalahasti et al[19] studies.

Laterality

In this study, involvement of breast was more on right breast (53.5%) than the left breast (46.5%) but this result were opposite with other study mean left were more common in Singh S K et al[1] (52.63%) and Shashank R et al[5] (54%) study.

Site Incidence

The most common site of the malignant lesion in breast was upper outer quadrant with 30.43% of the cases followed by lower outer quadrant with 21.16%. These results are similar to the study of VG Mudholkar et al (42%),[20] Vani Dayanand et al. [21]

Histopathological Pattern

In this study, infiltrating ductal cell carcinoma was the commonest malignant lesion in females with 142 cases

(89.3%). This is similar with most of the peer studies as Awatif A. et al[22] Mudhokar VG. et al, [20] Vani Dayanand et al,[21] Ibrahim et al,[23] Reddy and Kalahasti et al,[19] Phulpagar M et al,[24] R Shashank et al.[5] Histopathological distribution showed that out of 159 cases, 155 were invasive carcinomas (97.48%) and remaining only 4 cases (2.52%) were in situ carcinomas.

Lymph Nodes

Lymph nodes with specimen were received in 99 HP samples, out of which 65 cases found positive for metastatic deposits (65.6%). This have similar result like study of VG Mudhokar. et al [20] with 66% cases and K R Sulhyan et al [25] with 61.53% cases having metastatic deposit.

Histological Grade

Histological grading was done in 111 cases of malignant breast lesions. Grade II lesions were most common in 57 out of 111 cases (51.35%). This is similar with S. Siddiqui Aziz study,[26] (2003) and Vanisha Dhaka et al.[27] Sulhyan K R et al[25] study. Imam Mohammed Ibrahim et al[24] reported Grade I tumours to be most common.

CONCLUSIONS

Infiltrating ductal carcinoma is the commonest malignant lesion of breast in females. Incidence of malignant breast lesions was maximum in 4th and 5th decades of life. More than 50% cases present in advanced stage. So, screening and awareness before 4th and 5th decade life can detect the malignancy at an early stage. Staging and grade of the malignant lesions is important for assessing the patient's prognosis and deciding the treatment plan, which includes local, regional, and systemic or combined (surgery, radiotherapy, chemotherapy and hormonal therapy) treatment.

ACKNOWLEDGEMENT

Authors thank the Principal, the Superintendent, Prof. & HOD and faculty of JLNMC Hospital, Ajmer, for their guidance.

REFERENCES

[1] Singh SK, Pankaj D, Kumar R, et al. A clinico-pathological study of malignant breast lump in a tertiary care hospital in Kosi region of Bihar. Int Surg J 2016;3(1):32-6.
[2] Pervin MS, Al-Amin MM, Ahmed AU, et al. Clinico-pathological study of carcinoma breast in females presenting with breast lumps. Austral - Asian Journal of Cancer January 2014;13(1):13-20.
[3] Ferlay J, Shin HR, Bray F, et al. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. Int J Cancer 2010;127(12):2893-917.
[4] National Cancer Registry Program. Ten years consolidated report of the hospital based cancer registries, 1984-1993, an assessment of the burden and care of cancer patients. New Delhi: Indian Council of Medical Research 2001.
[5] Sasank R, Parvatala A. A histopathological study of malignant lesions of the breast in a tertiary care centre. International Journal of Medical Science and Clinical Invention 2018;5(7):3955-8.
[6] National Cancer Registry Programme. Consolidated report of the hospital based cancer registries, 1990-1996. New Delhi: Indian Council of Medical Research 2001.
[7] Agrawal G, Pradeep PV, Agarwal V, et al. Spectrum of breast cancer in Asian women. World J Surg 2007;31(5):1031-40.
[8] Baum M. Modern concept of natural history of breast cancer: a guide to design and publication of trials of the treatment of breast cancer. Eur J Cancer 2013;49(1):60-4.
[9] Suvarna K. Bancroft's theory and practice of histological techniques. 7th edn. Churchill Livingstone 2013:80-163.
[10] Kene TS, Odigie VI, Yusufu LM, et al. Pattern of presentation and survival of breast cancer in a teaching hospital in North Western Nigeria. Oman Med J 2010;25(2):104-7.
[11] Hussain N, Ayaz B, Nadia N, et al. Pattern of female breast diseases in Karachi. Biomedica 2005;21:36-8.
[12] Shirley SE, Mitchell DIG, Soares DP, et al. Clinicopathologic features of breast disease in Jamaica: findings of the Jamaican breast disease study, 2000-2002. West Indian Med J 2008;57(2):90-4.
[13] Amin TT, Al-Mulhim ARS, Chopra R. Histopathological patterns of female breast lesions at secondary level care in Saudi Arabia. Asian Pac J Cancer Prev 2009;10(6):1121-6.
[14] Rasheed A, Sharma, S, Mohsin-ul-Rasool BS, et al. A three year study of breast lesions in women aged 15-70 years in tertiary care hospital. Sch J App Med Sci 2014;2(1B):166-8.
[15] Kalyani S, Mehraj Banu OA. Study of breast lesions in the tertiary health care centre. International Journal of Recent Trends in Science and Technology 2016;18(3):415-9.
[16] Dhruw D, Chikhlikar K. A study of patterns of breast lesions in the tertiary care centre of Bastar Region. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 2018;17(7):10-4.
[17] Mukhopadhyay A, Naskar S, Dey R, et al. Female breast lesions - a five year study in a tertiary care centre. International Journal of Anatomy, Radiology and Surgery 2017;6(1):SO10-4.
[18] Anyikam A, Nzegwu MA, Ozumba BC, et al. Benign breast lesions in Eastern Nigeria. Saudi Med J 2008;29(2):241-4.
[19] Manasa Reddy M, Raghu K. Histopathological spectrum of neoplastic and non-neoplastic breast lesions: a two years study. Int J Sci Stud 2017;4(11):158-62.
[20] Mudholkar VG, Kawade SB, Mashal SN. Histopathological study of neoplastic lesions of breast. Indian Med Gazette 2012:353-64.

[21] Dayanand V, Shashidhar HB, Sandhya M, et al. Spectrum of breast neoplasms in females: a 10 years histopathological review in a tertiary care hospital. Int J Sci Stud 2015;3(2):79-84.
[22] Jamal AA. Pattern of breast diseases in a teaching hospital in Jeddah, Saudi Arabia. Saudi Med J 2001;22(2):110-3.
[23] Ibrahim IM, Iliyasu Y, Mohammed AZ. Histopathological review of breast tumors in Kano, northern Nigeria. Sub-Saharan African J Med 2015;2(1):47-51.
[24] Phulpagar M, Shedge R, Wakkar D, et al. Study of histomorphological spectrum of breast diseases in a tertiary care centre of Mumbai. Global Journal for Research Analysis 2018;7(6):65-7.
[25] Sulhyan KR, Anvikar AR, Mujawar IM, et al. Histopathological study of breast lesions. Int J Med Res Rev 2017;5(1):32-41.
[26] Siddiqui MS, Kayani N, Gill MS, et al. Breast diseases: a histopathological analysis of 3279 cases at a tertiary care Centre in Pakistan. J Pak Med Assoc 2003;53(3):94-7.
[27] Dhaka V, Mane VP, Pawar VR, et al. Clinicopathological study of mastectomy specimens in tertiary hospital. Indian Journal of Pathology and Oncology 2016;3(3):446-9.