ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 49. 23
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 4, Issue – 2, March - 2019, Page No. : 14 - 20

A Prospective Histopathological Study of Neoplastic Lesions of Breast in North West Rajasthan

Qadir Fatima[1], Megha Verma[2]

[1]Professor, [2]Resident,

Department of pathology, Sardar Patel Medical College, Bikaner.

Corresponding Author: Megha Verma, Department of Pathology, Sardar Patel Medical College, Bikaner, Rajasthan.

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background: Breast cancer is the most common cancer in the women in western world and the most common cause of death in women between 35-55 years.The aim of the study was to describe different histopathological lesions of breast in context with age, sex and mode of presentation, their incidence and prevalence in North West Rajasthan.

Methods: The present histopathological study was conducted in Department of Pathology, SPMC, Bikaner. Clinical data was obtained from hospital record and requisition submitted along with tissue specimen received in the department. Tissue bits were routinely processed. Sample was stained with H&E stain. Specimens obtained from eligible study population were examined grossly as well as microscopically to assess type of various morphological patterns, variations and +/- of secondary changes. Histologic grading was done by Modified Bloom and Richardson score.

Results: The mean age of patients was 39.1±17.8 years with 437(96.6%) females and 17 (3.7%) males. Majority of benign lesions were of Fibroadenoma (82.8%) followed by Gynaecomastia (6.7%). Most common type of malignant carcinoma was Infiltrating ductal carcinoma (IDC) (84.5%) followed by Ductal carcinoma in situ (DCIS) (9.7%). majority of IDC (91cases) had grade 2 followed by 8 cases had grade 1 and 2 cases had grade 3.

Conclusion: This study shows the importance of diagnosing in-situ carcinomas and differentiating from invasive carcinomas. Staging of the malignant lesions is helpful in assessing the patient's risk and tailor-made management can be provided in each case, which include local, regional and systemic management.

Keywords: Benign, Malignant, Fibroadenoma, Infiltrating ductal carcinoma

Introduction

Breast is a dynamic structure that undergoes changes through a woman's life. Virtually every woman with a breast lump, breast pain or discharge from nipple fears that she has breast cancer. It is the most common cancer in the women in western world and the most common cause of death in women between 35-55 years.[1] Approximately 1.38 million new breast cancer cases were diagnosed in 2008 with almost half of all breast cancer cases and nearly 60% of deaths occurring in lower income countries.[2] In India, breast cancer is the second most common malignancy in females after cervical cancer and is detected in 20/1,00,000 women.[3]

About 5-55% of all females suffer from breast diseases in their lifetime. Benign lesions of the breast are usually seen

in the reproductive age. These are thought to be hormone induced and there is drastic fall in incidence after menopause due to absence of ovarian stimulation.[4,5] Benign Breast Diseases are more common than malignant ones.[6] The incidence of benign breast lesions begins to rise during the second decade of life and peaks in the fourth and fifth decades as opposed to malignant diseases.[7]

Benign breast diseases constitute a heterogeneous group of lesions arising in the mammary epithelium or in other mammary tissues and they may also be linked to vascular, inflammatory or traumatic pathologies.[8] Some lesions are palpable masses which may be nodular, sometimes with specific or unspecific characteristics but often (particularly in lesions of greater prognostic significance such as atypical hyperplasia) there are no specific clinical signs and detection is difficult also at diagnostic imaging examinations.[9] The benign lesions can arise from different kind of cells and can be inflammatory or proliferative. They include skin lesions, vascular lesions, lymph nodes, fat necrosis, foreign bodies, infections, fibroadenomas, other benign tumors, cysts, galactoceles, adenosis, fibrosis, duct ectasias, papillomas, radial scar and spectrum of epithelial hyperplasias with or without atypia.[10]

It is important to recognize benign breast diseases from the clinical signs as well as mammographic and ultrasound (US) findings, since most lesions found in women consulting a physician are benign. [9]

Malignant breast lesions develop from breast tissue. It is the most common invasive cancer in women.[11] Signs of breast cancer include a lump in the breast, a change in breast shape, dimpling of the skin, nipple discharge or a red scaly patch of skin.[12] Breast cancer most commonly develops in cells lining the milk ducts and the lobules that supply the ducts with milk.[13]

Diagnosis of breast cancer is confirmed by taking a biopsy of the concerning lump. Risk factors for breast cancer include female sex, older age, genetics, lack of childbearing or lack of breastfeeding, higher levels of estrogens, certain dietary patterns, exposure to radiation, positive family history of breast cancer and obesity. Other cause includes tobacco smoking [14-16] and Oral contraceptives. [17]

Breast lesions have gained increasing importance and attained global attention because of increasing mortality and morbidity.[18] As non-malignant and malignant breast lesions mimic each other, diagnostic accuracy is mandatory to prevent unnecessary mutilating surgery. Malignant diseases will necessitate loss of breasts, while benign conditions will dictate its preservation. The fact that loss of breast is so traumatizing to feminine psychae that it makes diagnostic precision an utter necessity. [19]

Physical examination of the breast by a healthcare provider and mammography are considered as the primary tools for diagnosis of breast cancer.[20] Fine needle aspiration and cytology can also help to establish the diagnosis with a good degree of accuracy. Other types of biopsy include core biopsy or an excisional biopsy, in which the entire lump is removed. Imaging techniques such as ultrasound, computed tomography or magnetic resonance imaging are sufficient to give the physician accurate diagnosis and staging of the disease.[21]

The aim of the study was to describe different histopathological lesions of breast in context with age, sex and mode of presentation, their incidence and prevalence in North West Rajasthan.

Materials & Methods

The present histopathological study was conducted in Department of Pathology, SPMC, Bikaner.

Inclusion criteria: all breast biopsy specimens.

Exclusion criteria: Autolyzed specimen and Inadequate biopsy.

Methods of collection of data: Clinical data was obtained from hospital record and requisition submitted along with tissue specimen received in the department. Tissue bits were routinely processed. Three to five micron thick sections were made from paraffin blocks and were stained with H&E stain. Special stains were done whenever necessary. Specimens obtained from eligible study population were examined grossly as well as microscopically to assess type of various morphological patterns, variations and +/- of secondary changes.

Histologic grading (Modified Bloom and Richardson score) [22]

The system most widely used, based on that of Bloom and Richardson as modified by Elston and Ellis . This system includes an assessment of tubule formation, nuclear pleomorphism, and mitotic activity. The mitotic activity score should take into account the size of the high-power field used.

Parameters for assessment

Demographic details: Age, Parity.

Chief presenting complaints

On Gross examination: Location, number, size.

On histopatholgical examination: degree of cellularity, crowding and overlapping of nuclei, nuclear atypia, mitoses (per 10 HPF), coagulative necrosis, secondary changes, any variation in morphological and growth pattern

Data analysis: After entering data into Excel worksheet, it was analyzed with the help of frequency, proportion, mean, standard deviation and tests of significance wherever applicable.

Results and Discussion

Breast lesions are detected very commonly nowadays, due to awareness, knowledge, and most importantly self examination done by patients. Earlier people were unaware of the disease and were not properly guided, untreated, leading to uncontrollable end stage disease and its complications leading to increased mortality and morbidity.

For correct diagnosis of breast disease background knowledge of general features of individual breast disease like incidence, age distribution, symptoms and palpatory findings are very important.

The present study of histopathology of neoplastic lesions of breast was carried out in the department of Pathology, Sardar Patel medical college and associated group of hospitals, Bikaner. Various breast lesions were diagnosed by detailed histopathological examination of tissue sections. Of the 622 breast specimens, 454 were diagnosed as neoplastic lesions. Table 1 shows baseline profile of patients. The mean age of patients was 39.1±17.8 years with 437(96.6%) females and 17 (3.7%) males. Dhruw and Chikhlikar found 98% female patients and 2% male patients in study.[23] in our study unilateral involvement was most common than bilateral involvement. Sasank and Parvatala found that unilateral involvement was more common when compared to bilateral involvement. In unilateral cases left breast was more involved (54%) than the right breast (46%).[24] Dhruw and Chikhlikar found that left breast (53%) involvement was most common followed by right (39%) and bilateral (8%) involvement was least common. [23] Here, majority of cases were benign as compared to malignant. Dhruw and Chikhlikar found 73% cases benign and 27% cases were

malignant.[23] In present study, lymph node metastasis was present in 14.3% cases and absent in 85.7% cases. But present results were contrary to other studies. As sulhyan et al found Lymph node metastasis in 61.53% cases,[25] Mudholkar et al[26] found it in 66% cases of invasive carcinoma. We found that upper outer quadrant was at first position followed by upper inner quadrant. In consistent with this Sasank and Parvatala found that regarding the location of the palpable lump, upper outer quadrant stood first with 45% of the cases. Next common is lower outer quadrant with 19%.[24] Present findings also go with the study of Mudholkar et al (42%).[26] But differed with Reddy and Kalahasti et al in which only 22.6% cases were recorded in upper outer quadrant.[27]

In our study, nipple-areola involvement was present in 22.6% cases and absent in 77.4% cases of MRM. In concordance with this, Augustine et al found nipple-areola involvement in 4.4% cases of all type of mastectomy.[28]

Table: 1 baseline profile of patients

Mean age	39.1±17.8 years
Gender	
Male	4%
Female	96%
Benign/Malignant	
Benign lesions	53%
Malignant lesions	47%
Laterality of Lump	
Right	53.10%
Left	45%
Bilateral	1.90%
Lymph node Metastasis	
Present	14.30%
Absent	85.70%
Nipple- Areola involvement	
Present	22.60%
Absent	77.40%

Here, majority of benign lesions were of Fibroadenoma (82.8%) followed by Gynaecomastia (6.7%), Benign Phyllodes (4.2%), Intraductal Papilloma (2.09%), Tubular Adenoma (2.1%), Lactating Adenoma (1.25%) and 0.42% each Nipple Papilloma and Squamous Papilloma (Table: 2). In consistent with this, study by Nahar et al [29] also found similar results. They found highest percentage of Fibroadenoma (76.3%). In Ilesha, Enugu, Port Harcourt, and Ife Fibroadenoma accounted for 46.2%, 44.0%, 51.0%, and 59.1% of cases of benign breast disease respectively [30-32.] Hatim et al found that Benign Phyllodes tumor (3.4%) is the next common type among benign breast lesions.[33]. Most common type of malignant carcinoma was Infiltrating ductal carcinoma (IDC) (84.5%) followed by Ductal carcinoma in situ (DCIS) (9.7%), 1.4% cases of each Infiltrating Lobular Carcinoma and Invasive Papillary Carcinoma and other malignant carcinoma were less than 1% (Table: 3). In consistent with this, study by Mulka et al found similar results[34].

Table: 2 Distribution patterns of Benign neoplastic lesions

Diagnosis	No.	%
Fibroadenoma	198	82.8
Gynaecomastia	16	6.7
Intraductal Papilloma	5	2.09
Lactating Adenoma	3	1.25
Nipple Papilloma	1	0.42
Benign Phyllodes	10	4.2
Squamous Papilloma	1	0.42
Tubular Adenoma	5	2.1
Total	239	100

Table: 3 Distribution patterns of malignant neoplastic lesions

Type of malignant tumor	no.	%
DCIS	21	9.7
IDC	182	84.5
Infiltrating Lobular Carcinoma	3	1.4
Invasive Papillary Carcinoma	3	1.4

Mucinous Adenocarcinoma Poorly differentiated	1	0.47
Medullary Carcinoma	2	0.93
Squamous Cell Carcinoma [Moderately differentiated]	1	0.45
Malignant Phyllodes	1	0.45
Metastatic deposits	1	0.45
Total	215	100

Fig:1 shows majority of MRM involve posterior margin (26.5%) followed by 6.1% involve inferior margin, 4.08% each MRM involve superior, medial and lateral margins, 2.0% MRM involve all type of margins and 78.6% MRM cases with no margin involvement.

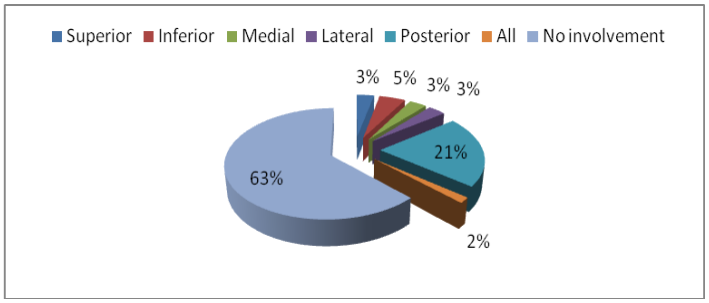

Fig: 1 Distribution of marginal involvement in MRM cases.

Fig: 2 shows that in 41.8% cases site of involvement was Upper outer quadrant followed by 22.5% had lower outer quadrant, 13.4% had Upper inner quadrant, 7.5% had Lower inner quadrant, 7.9% had Central and 6.8% had multiple quadrants involvement.

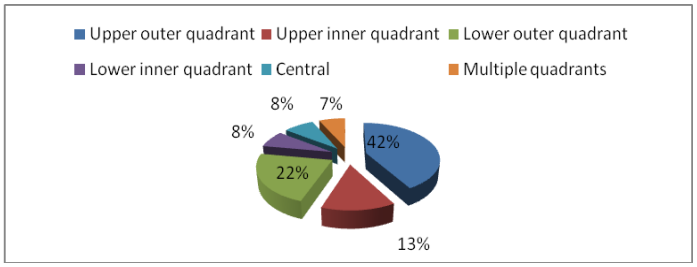

Fig: 2 Site wise distribution of breast lumps.

In present study, majority of IDC (91 cases) had grade 2 followed by 8 cases had grade 1 and 2 cases had grade 3 (Fig: 3). In concordance with this, study by Siddiqui et al[35] found 11.38% had grade 1, 59.17% had grade 2 and 29.47% had grade 3. Sulhyan et al found 23.52% had grade 1, 70.58% had grade 2 and 5.88% had grade 3. [25]

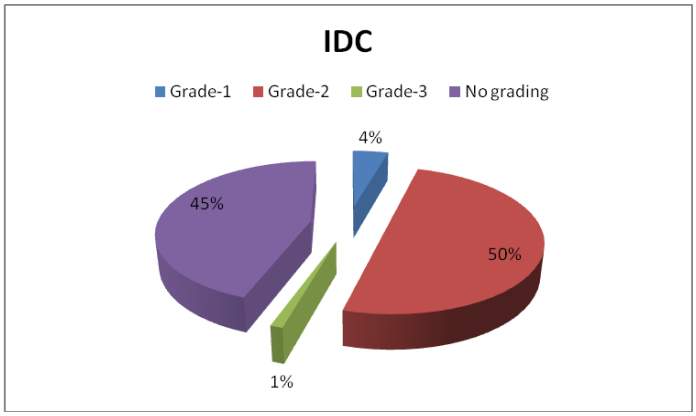

Fig: 3 histological grading of IDC breast.

Conclusion

The present study highlights the importance of histopathological examination in breast lumps not only in establishing the final diagnosis, but also in predicting the prognosis by typing, staging and grading of malignant neoplasm of breast. This study shows the importance of diagnosing in-situ carcinomas and differentiating from invasive carcinomas. Staging of the malignant lesions is helpful in assessing the patient's risk and tailor-made management can be provided in each case, which include local, regional and systemic (surgical, radiotherapy and medical) management

References

1. Russell RCG, Williams NS, Bulstrode CJK. In Bailey and Love's short practice of surgery. 24th ed. London: Arnold; 2004. p. 824-846.
2. **Ferlay J**, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer* 2010; **127**: 2893-2917

3. Jose S. A histopathological study of breast lesions: our experience. International Journal of Scientific Research. 2018;7(1):365-366.
4. Santen RJ, Mansel R. Benign breast disorders. N Engl J Med. 2005; 353:275-85.
5. Douglas J, Merchant MD. Benign Breast Diseases. Obst Gynaecol Clinics of North America. 2002; 29(1): 1-2.
6. Haagensen CD. The basis for the histologic grading of carcinoma of the breast. Amer. Cancer 19 (1933), 235. Diseases of the breast. WB Saunders Co., Philadelphia and London: 1956.
7. Guray M, Sahin AA. Benign Breast Diseases: Classification, Diagnosis, and Management. The Oncologist 2006;11:435–449.
8. Lanyi M. Mammography. Diagnosis and pathological analysis. Berlin, Heidelberg, New York: Springer-Verlag; 2003.
9. Masciadri N, Ferranti C. Benign breast lesions: Ultrasound. Journal of Ultrasound. 2011 Jun;14(2):55–65.
10. Jackson VP, Yao SF, Karin LF. Benign Breast lesions. Bassett: Diagnosis of Diseases of the Breast, 2nd Edition, 1997 by Elsevier Inc.; 2005.
11. Nelson, H.D., Smith, M.E., Griffin, J.C., Fu R., 2013. Use of medications to reduce risk for primary breast cancer: a systematic review for the U.S. Preventive Services Task Force. Annals of Internal Medicine 158: 604-14.
12. Brody JG, Rudel RA, Michels KB, Moysich KB, Bernstein L, Attfield KR, et al., 2007. Environmental pollutants, diet, physical activity, body size, and breast cancer: where do we stand in research to identify opportunities for prevention?. Cancer 109: 2627-34.
13. Peng J, Sengupta S, Jordan VC, 2009. Potential of Selective Estrogen Receptor Modulators as Treatments and Preventives of Breast Cancer. Anti-Cancer Agents in Medicinal Chemistry 9: 481-99.
14. Johnson KC, Miller AB, Collishaw NE, Palmer JR, Hammond SK, Salmon AG, et al., 2011. Active smoking and secondhand smoke increase breast cancer risk: the report of the Canadian Expert Panel on Tobacco Smoke and Breast Cancer Risk (2009).Tobacco control 20 (1): e2.
15. Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT, 2012. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. The Lancet 380 (9838): 219-29.
16. Biswas A, Oh PI, Faulkner GE, Bajaj RR, Silver MA, Mitchell MS, et al., 2015. Sedentary Time and Its Association With Risk for Disease Incidence, Mortality, and Hospitalization in Adults: A Systematic Review and Meta-analysis. Annals of Internal Medicine 162 (2): 123-32.
17. Gaffield ME, Culwell KR, Ravi A, 2009. Oral contraceptives and family history of breast cancer. Contraception 80 (4): 372-80.
18. Reddy MM, Kalahasti R. Histopathological Spectrum of Neoplastic and Non-neoplastic Breast Lesions: A Two Years Study. 2017;4(11):5.
19. Pudale S, Tonape S. A histopathological study of non-malignant breast lesions. International Journal of Research in Medical Sciences. 2015;2672–6.
20. Saslow D, Hannan J, Osuch J, Alciati MH, Baines C, Barton M, et al., 2004. Clinical breast examination: practical recommendations for optimizing performance and reporting. CA: a cancer journal for clinicians 54 (6): 327-344.

21. Yu YH, Liang C, Yuan XZ, 2010. Diagnostic value of vacuum-assisted breast biopsy for breast carcinoma: a meta-analysis and systematic review. Breast cancer research and treatment 120 (2): 469-79.
22. Stacey E. Mills, M.D., Darryl Carter, M.D., Joel K. Greenson, M.D., Harold A.Oberman, M.D., Victor E. Reuter, M.D., Mark H. Stoler, M.D.,Sternberg's diagnostic surgical pathology vol. 1, 6th Ed.
23. Dhruw D and 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), vol. 17, no. 7, 2018, pp 10-14.
24. Sasank R, Parvatala A. Research Article A Histopathological Study of Malignant Lesions of the Breast In a tertiary Care Centre. International Journal of Medical Science and Clinical Invention. 2018;5(07):4.
25. Sulhyan K.R, Anvikar A.R, Mujawar I.M, Tiwari H. Histopathological study of breast lesions. Int J Med Res Rev 2017;5(01):32-41.
26. Mudholkar VG, Kawade SB, Mashal SN. Histopathological Study of Neoplastic Lesions of Breast. Indian Medical Gazette. 2012;12.
27. Reddy MM, Kalahasti R. Histopathological Spectrum of Neoplastic and Non-neoplastic Breast Lesions: A Two Years Study. 2017;4(11):5.
28. Augustine P., Ramesh SA., Nair RK., Sukumaran R., Jose R., Cherian K., Muralee M. and Ahamad I. Nipple Areola Complex Involvement in Invasive Carcinoma Breast. Indian Journal of Surgical Oncology. 2018;9(3):343-348.
29. Nahar N, Iqbal M, Rahman KMS, Razzaque S, Yeasmin F, Alam U, et al. Age and Gender Distribution of Benign Breast Lesions of Women at Port City of Bangladesh. Journal of Science Foundation. 2018 Sep 13;16(1):27.
30. Kumar R. A clinicopathologic study of breast lumps in Bhairahwa, Nepal. Asian Pacific J Cancer Prev 2010; 11: 855-858
31. Mottahedeh M, Rashid MH, Gateley CA. Final diagnoses following C3 (atypical, probably benign) breast cytology. Breast 2003; 12(4): 276-279.
32. Adeniji KA, Adelusola KA, Odesanmi WO. Benign disease of the breast in Ile-Ife: A 10 year experience and literature review. Cent Afr J Med. 1997;43:140–3
33. Hatim KS, Laxmikant NS, Mulla T. Patterns and prevalence of benign breast disease in Western India. International Journal of Research in Medical Sciences. 2017 Jan 23;5(2):684.
34. Mulka A, Kotasthane V, Dhaka R, Kotasthane D. Correlation of Histopathological Study of Breast Lesions with cytology and mammography as a measure of internal quality and diagnostic accuracy. Annals of Pathology and Laboratory Medicine. 2017 Aug 25;4(4):A397–402.
35. Siddiqui M S, Kayani N, Gill M S, Pervez S , Aziz S A, Muzaffar S,Setna Z, Israr M, Hassan S H Breast diseases: a histopathological analysis of 3279 cases at tertiary care centre in Pakistan . JPMA 2003 53:94.