

Research Article



Spectrum of Benign Breast Lesions in a Tertiary Care Hospital of Lahore

Riffat Mehboob^{1*}, Shahida Perveen², Naseer Ahmed³

¹Faculty of Allied Health Sciences, University of Lahore, Lahore, Pakistan; ²Department of Pathology, King Edward Medical University, Lahore, Pakistan; ³Faculty of Health Sciences, University of the Punjab, Lahore, Pakistan

Abstract | Women with benign breast diseases (BBD) are at a high risk of developing breast cancer.

Objective: Purpose of the study was to analyze the spectrum of BBD in a tertiary care hospital of Lahore to understand the prevalence of inflammatory lesions, benign neoplasms and their age-wise comparison.

Methodology: The study was carried out at Pathology Department, King Edward Medical University, Lahore. Data of 368 cases of BBD during a time span of 3 years (2011-2014) was obtained retrospectively.

Results: There were 190 patients of fibroadenoma (FA), 81 of fibrocystic disease (FCD), 64 of breast abscess (BA), 12 of granulomatous mastitis (GM), 7 of lipoma, 5 of phylloides tumor (PL), 4 of fibrosis (F), 2 of intraductal papilloma (IDP) and 3 of accessory breast with Fibrocystic (FC) changes. The relation between the ages and frequency of the different types of lesions was also analyzed to understand the association between predisposing factors and the nature of lesions.

Conclusions: These results demonstrated that the FA is the most frequent benign breast lesions and is common among young females with age ranges from 10 to 20 years. FCD is the second most common lesion, while FA and FCD are less common among women older than 40 years. Benign neoplasms are more frequent among women of the Lahore. There were only three cases of sclerosing adenosis, 2 of microglandular adenosis, 3 of hyperplasia and no case of radial scar.

Received | May 23, 2017; **Accepted** | January 25, 2018; **Published** | March 18, 2018

***Correspondence** | Prof. Dr. Riffat Mehboob; Faculty of Allied Health Sciences, University of Lahore, Lahore, Pakistan; **Email:** mehboob.riffat@gmail.com

Citation | Mehboob, R., S. Perveen and N. Ahmed. 2018. Spectrum of benign breast lesions in a tertiary care hospital of Lahore. *Annals of King Edward Medical University*, 24(1): 605-609

DOI | <http://dx.doi.org/10.21649/journal.akemu/2018/24.1.605-609>

Keywords | Benign breast lesions, Fibroadenoma, Neoplasms, Hyperplasia, Fibrocystic changes, Papilloma

Introduction

Beside genetics and increased breast density by mammography, benign breast lesions are one of the three main predictors to diagnose the risk of breast cancer. The benign breast lesions can be classified according to the nature, cytological details and prognosis of lesion including nipple abnormalities and abnormal discharge from nipple⁽¹⁾. The atypical ductal hyperplasia, atypical lobular hyperplasia and lobular *in situ* is currently the best characterized pre-

malignant lesions^(2,3).

Approximately 30% of women with benign breast diseases (BBD) develop breast cancers later in life and benign lesions are those having unique fibrocystic changes, including cyst formation or augmented fibrous tissue having benign shapes of ductal or lobular distortion and benign cellular changes like as found in typical or atypical lobular or ductal hyperplasia⁽¹⁷⁾. Benign tumors are well differentiated; structure may be typical of tissue of origin. Rate of growth is usually

progressive and slow; may come to decline or regress; mitotic shapes are rare and normal. Metastasis is generally absent in these lesions. Local invasion is usually cohesive and expansile well demarcated masses that do not invade or infiltrate surrounding normal tissues (22).

Incidence rates, survival rates, pattern of presentation vary over the world (21). The majority of women (i.e. 68%) show non-proliferative disease, 29% show proliferative disease without atypia and 3% may depict a proliferative disease with atypia. Subsequent incident breast cancer have been found in 55% women (5,6). The greatest incidence, boost level disease presentation, low endures rates has been found in Pakistan (21).

The BBD forms majority of breast pathologies ranging from developmental abnormalities, inflammatory lesions, and epithelial and stromal proliferations to various neoplasms. They may present a wide range of symptoms or may be detected as incidental microscopic findings (12).

According to many studies conducted on BBD, the risks for subsequent breast cancer is associated with these lesions. The lesions are classified into 3 broad pathologic categories i.e. non proliferative, proliferative and proliferative with atypia (7,9, 25). This study will be helpful for the clinicians and pathologists for better understanding and diagnosing benign breast lesions in Oriental region, their proper treatment and management.

Materials and Methods

A retrospective study was designed comprising of past 3 years data of benign breast lesions (BBL) at the Pathology Department of a public sector medical institution. A total of 368 female subjects of all age groups, having benign breast lesions, were included in the study. We analyzed the type of lesions, which were more prominent among breast cancer women. Data were analyzed by SPSS (Statistical Package for the Social Sciences) software latest version. The co-relation between the ages of patients and various types of lesions was also investigated. Frequencies and proportions were determined for qualitative variables.

Results

Age range of patients varied from 12-70 years. In this

study, fibroadenoma (FA), fibrocystic disease (FCD), breast abscess (BA), lipoma, intraductal papilloma (IDP), accessory breast and FC change, granulomatous mastitis (GM), phylloides (PL) tumor and fibrosis (F) were observed. There were 190 patients of FA (51.6%). The number of patients of FCD was 81/368 (22%). Patients of BA were 64 /368 (17.3%). The frequency of granulomatous mastitis (TB) comes out to be 3.26% with number of patients reaching to 12. The other distribution in this population was 7 (1.90%) with lipoma, 5 (1.35%) with phylloides tumor, 4 (1.08%) with fibrosis, 3 (0.81%) with accessory breast with FC changes and 2 (0.54%) with intraductal papilloma. With these results, FA comes out to be the most prevalent benign breast lesion. The second most common finding is FCD followed by breast abscess, whereas the least findings are intraductal papilloma, fibrosis and phylloides tumor (Table 1).

Table 1: Frequency of Benign Breast Lesions

Serial no.	Histological diagnosis	No.of patients	Frequency (%)
1	Fibroadenoma	190	51.6%
2	Fibrocystic disease	81	22.0%
3	Breast abscess	64	17.3%
4	Granulomatous mastitis	12	3.26%
5	Lipoma	7	1.90%
6	Phylloides tumor	5	1.35%
7	Fibrosis	4	1.08%
8	Accessory breast with FC changes	3	0.81%
9	Intraductal papilloma	2	0.54%

In a total population of 368 subjects, 190 patients were exhibiting the fibroadenoma. A total of 117 (31.79%) patients relies between the ages ranges from 10 to 20, 56 (15.21%) patients relies between the age ranges from 21 to 30, 11 (2.98%) patients relies between the ages that ranges from 31-40 and 5 (1.35%) patients found in females of age ranges from 41-50. The fibroadenoma is found to be most prevalent (31.79%) in elder ages. Also, very rare chances (1.35%) are found in older women. 81 patients were exhibiting the FCD. 12 (3.26%) patients fall between the age ranges from 10 to 20. 31 (8.42%) patients fall between the age ranges from 21 to 30, 23 (6.25%) patients fall between the ages ranging from 31 to 40, 12 (3.26%) patients fall between the ages ranging from 41 to 50 and 3 (0.81%) patients found with ages ranging from 51 to 60. FCD is more frequent with

Table 2: *Prevalence of lesions on the basis of nature of lesion*

Classification	Lesions	No. of patients	Frequency (%)
Tumor like conditions	FCD, fibrosis and accessory breast with FC changes	88	23.91%
Inflammations of breast	Granulomatous mastitis and breast abscess	76	20.65%
Benign neoplasm	Lipoma, FA, Phylloides tumor and intraductal papilloma	204	55.43%

age ranging from 21 to 30 years old. It is less common in females with age ranged from 51 to 60 years old. 64 (17.3%) patients were exhibiting the breast abscess. 15 (4.07%) patients fall between the age ranges from 10 to 20. 29 (7.88%) patients fall between the age ranges from 21 to 30, 13 (3.53%) patients fall between the ages ranging from 31 to 40, 3 (0.81%) patients fall between the ages ranging from 41 to 50, 2 (0.54%) patients found with ages ranging from 51 to 70. The breast abscess is more prevalent (7.9%) in the age of 21 to 30 years old. It is less frequent in females of ages greater than 50's. According to this study, the breast abscess is less common in patients of older ages. 12 (3.26%) patients were exhibiting the granulomatous mastitis. 3 (0.81%) patients fall between the age ranges from 15 to 25, 6 (1.63%) patients fall between the age ranges from 26 to 35 and 3 (0.81%) patients were of age ranges from 36 to 45. The granulomatous mastitis (TB) is more frequent in females of age ranges from 26 to 35. 7 (1.90%) patients were exhibiting the lipoma. Very rare cases of lipoma were found. 2 (0.54%) patients fall between the age ranges from 25 to 35 and 5 (1.35%) patients fall. It is frequent in female patients with ages ranging from 36 to 45. 4 (1.08%) patients were exhibiting the fibrosis. 1 (0.27%) patients fall between the age ranges from 10 to 20 and 3 (0.81%) patients fall between the age ranges from 21 to 30. It is frequent in females with age ranges from 21 to 30. 5 (1.35%) patients were exhibiting the phylloides tumor. 3 (0.81%) patients fall between the age ranges from 15 to 25 and 2 (0.54%) patients fall between the age ranges from 46 to 55. Only 3 female patients were found having accessory breast with FC changes with ages 22, 50 and 30 years old. Only 2 patients were found having intraductal papilloma with ages 48 and 23 years old. There were 9 types of different benign breast lesions found among 368 patients (Table 1).

More patients were found with FD. The total number of patients of FA was 190. Out of which 117 were females with elder ages. Similarly, 81 patients of FCD, 64 of breast abscess, 12 of granulomatous mastitis, 7 of lipoma, 4 of fibrosis, 2 of intraductal papilloma, 5

of phylloides tumor and 3 patients of accessory breast with Fibro cystic changes were found.

Lesions are classified as tumor like conditions, inflammations of breast and benign neoplasm on the basis of nature, cytological details and prognosis. There were 88 (23.91%) patients of tumor like conditions found. Inflammations of breast were found in 76 (20.65%) patients. The most frequent were benign neoplasms. It was found in 204 (55.43%) patients (Table 2).

Discussion

Pakistan has the highest incidence of breast cancer among the Asian countries by having 69.1 cases per 100,000 women till 2002⁽⁴⁾. Common cause of cancer related deaths in females is late stage presentations⁽²⁰⁾. Poverty, lack of education and awareness, unhygienic practices, poor diagnostic facilities are major hurdles in this regard. Strong beliefs in tradition medicine, spiritual treatments and treatment by quacks is another major reason of delay in proper diagnosis of breast cancer cases in developing countries⁽²⁰⁾. As the benign breast lesions have a potential of developing into breast cancer, so, by having survey of these cases on large scale and their follow up will be very helpful preventive strategy.

Benign breast disease is a heterogenous condition. It encloses an extensive variety of histologic entities that embrace connective tissue and glandular structures and permutation. Under hormonal regulation, these lesions may grow and change intermittently. It is difficult to estimate the incidence of benign breast disease in the general population. The reason is that it is not a life threatening condition and it does not necessarily come to medical attention.

According to the findings, fibroadenoma was found to be most frequent. The second mainly widespread solid tumor after breast cancer is FA, and in women it is the most frequent benign tumor. In our study, FA (51.6%) is also found to be more prevalent. Similar findings were found in study of Sudan⁽¹⁴⁾, South Af-

rica, Nigeria ^(10,11), Nepal⁽²⁴⁾, Pakistan ^(15,19), India ⁽²³⁾. In a study from Pakistan, the ratio of FA comes out to be 57% showing that it is most frequent, FCD was 21%, breast abscess 16%, mammary duct ectasia 12%, Mastalgia 11%, duct papilloma 4.7%, GM was least that is 4% ⁽¹⁹⁾ whereas, the current findings shows that the ratio of FA is 51.6%, FCD is 22%, breast abscess is 17.3%, GM is 3.26%, lipoma is 1.90%, phylloides tumor is 1.35%, fibrosis is 1.08%, accessory breast with FC changes is 0.81%, IDP is 0.54%.

According to a study, fibrocystic change was found as the most widespread BBD ⁽¹⁸⁾. In another study in Pakistan, it was found that fibrocystic change constituted the majority (66.3%) of BBD ⁽¹⁸⁾. Incidence of FCC increases with increasing age ⁽¹⁹⁾. According to the findings of Dupont and Page, the FCC accounts for 31.8% of BBD ⁽⁸⁾. In current study, fibrocystic change is found to be the second most common breast lesion in Pakistani women. Similar findings were found in several studies ^(2, 19). The proportion of duct papilloma (2.8%) was not significant in the study by Khazanda and McFarlane. The current study showed different results from that study in the aspect that within 3 years in Pakistan ⁽¹⁹⁾ its proportion is 4.7%, while Jamaica over a 2 year time, it was 6.7%. The results for fibrosis were also not significant in association with other studies. According to some findings, the occurrence of focal fibrosis ranges from 3.6%-8.2% of lesions ⁽¹³⁾.

The age of BBD patients ranged from 12-70 years in this study. There is significant correlation found between ages and types of BBD lesions. According to a Nigerian study, the age of BBD patients ranged from 14-63 years, the mean age is about 32.2-9.4 years ^(11,16), while in a recent study from Nigeria again, showed that one third women with FA are under age of 20 years while two third are below 25 ⁽¹⁰⁾. In our study, 61 % of patients with FA were below 20 years of age.

In one study, females with BBL were diagnosed with lower grade and early stage cancers later in life and they were positive with hormone receptor regulation. It is thus recommended to carefully examine and follow-up after BBL diagnosis in order to avoid future complications of breast cancer risk. BBL is the easiest predictor for risk of breast cancer which allows an early treatment as well as these females have already started clinical examination⁽⁷⁾. Thus, if properly moni-

tored, it can provide breast cancer prevention.

Conclusion

It is concluded from the present study that histologically, the most frequent benign type of lesion in women of Pakistan is fibroadenoma. It is more prevalent among young females. It is also concluded that on the basis of nature, cytological details and prognosis of different type of lesions, benign neoplasms are more frequent among women of Lahore. FCD is the second most common lesion, while FA and FCD are less common among women older than 40 years.

Benign breast lesion cases should be investigated prospectively to evaluate how many of these cases develop into malignant form in our population. It will help in analyzing the prognosis. It will help in prevention of breast carcinoma cases by regular follow up and diagnostic strategies.

Author's Contribution

Riffat Mehboob: Designed and planned the study and wrote the article.

Shahida Perveen: Collected the information and analysed the histopathology slides.

Naseer Ahmed: Helped in writing up and finalizing the study.

References

1. An HY, Kim KS, Yu IK, Kim KW, Kim HH. The Nipple-Areolar Complex: A Pictorial Review of Common and Uncommon Conditions', J Ultrasound Med. 2010; 29:949-62. <https://doi.org/10.7863/jum.2010.29.6.949>
2. Anyikam A, Nzegwu MA, Ozumba BC, Okoye I, Olusina DC. Benign Breast Lesions in Eastern Nigeria. Saudi Med J. 2008; 29:241-4.
3. Arpino G, Laucirica R, Elledge RM. Premalignant and in Situ Breast Disease: Biology and Clinical Implications. Ann Intern Med. 2005; 143:446-57. <https://doi.org/10.7326/0003-4819-143-6-200509200-00009>
4. Bhurgri Y, Bhurgri A, Nishter S, Ahmed A, Usman A, Pervez S, Ahmed R, Kayani N, et al. Pakistan--Country Profile of Cancer and Cancer Control 1995-2004. J Pak Med Assoc. 2006; 56:124-30.
5. Cote ML, Ruterbusch JJ, Alosch B, Bandyopa-

- dhyay S, Kim EM, Albashiti B, Aldeen S, et al. Benign Breast Disease and the Risk of Subsequent Breast Cancer in African American Women. *Cancer Prev Res.* 2012 Dec;5(12):1375-80. doi: 10.1158/1940-6207.CAPR-12-0175. <https://doi.org/10.1158/1940-6207.CAPR-12-0175>
6. Cowan ML, Argani P, Cimino-Mathews A. Benign and Low-Grade Fibroepithelial Neoplasms of the Breast Have Low Recurrence Rate after Positive Surgical Margins. *Mod Pathol.* 2016; 29:259-65. <https://doi.org/10.1038/modpathol.2015.157>
 7. Cuzick J, Sestak I, Thorat MA. Impact of Preventive Therapy on the Risk of Breast Cancer among Women with Benign Breast Disease. *Breast.* 2015; 24(2):S51-5. <https://doi.org/10.1016/j.breast.2015.07.013>
 8. Dupont WD, Page DL. Risk Factors for Breast Cancer in Women with Proliferative Breast Disease. *N Engl J Med.* 1985; 312:146-51. <https://doi.org/10.1056/NEJM198501173120303>
 9. Dupont WD, Parl FF, Hartmann WH, Brinton LA, Winfield AC, Worrell JA, et al. Breast Cancer Risk Associated with Proliferative Breast Disease and Atypical Hyperplasia. *Cancer.* 1985; 71:1258-65. [https://doi.org/10.1002/1097-0142\(19930215\)71:4<1258::AID-CN-CR2820710415>3.0.CO;2-I](https://doi.org/10.1002/1097-0142(19930215)71:4<1258::AID-CN-CR2820710415>3.0.CO;2-I)
 10. Egwuonwu OA, Anyanwu A, Chianakwana GU, Ihekwoaba EC. Fibroadenoma: Accuracy of Clinical Diagnosis in Females Aged 25 Years or Less. *Niger J Clin Pract.* 2016; 19:336-8. <https://doi.org/10.4103/1119-3077.179283>
 11. Godwins E, David D, Akeem J. Histopathologic Analysis of Benign Breast Diseases in Makurdi, North Central Nigeria. *J Med Med Sci.* 2011 3:125-28.
 12. Guray M, Sahin AA. Benign Breast Diseases: Classification, Diagnosis, and Management. *Oncologist.* 2006; 11:435-49. <https://doi.org/10.1634/theoncologist.11-5-435>
 13. Hermann G, Schwartz IS. Focal Fibrous Disease of the Breast: Mammographic Detection of an Unappreciated Condition. *AJR Am J Roentgenol.* 1983; 140:1245-6. <https://doi.org/10.2214/ajr.140.6.1245>
 14. Ali AS, Ahmed HG, Almobarak AO. Frequency of Breast Cancer among Sudanese Patients with Breast Palpable Lumps. 2010;47(1):23-6. doi: 10.4103/0019-509X.58854. <https://doi.org/10.4103/0019-509X.58854>
 15. Hussain N, Bushra A, Nadia N, Zulfiquar A. Pattern of Female Breast Diseases in Karachi. *Bio-medica.* 2005; 21:36-8.
 16. Isaac U, Memon F, Zohra N. Frequency of Breast Diseases at a Tertiary Hospital of Karachi. *JLUMHS.* 2005;4(1):6-9. <https://doi.org/10.22442/jlumhs.05410049>
 17. Jacobs MA, Barker PB, Bluemke DA, Maranto C, Arnold C, Herskovits EH et al. Benign and Malignant Breast Lesions: Diagnosis with Multiparametric Mr Imaging. *Radiology.* 2005; 229:225-32. <https://doi.org/10.1148/radiol.2291020333>
 18. Jeje EA, Mofikoya BO, Oku YE. Pattern of Breast Masses in Lagos: A Private Health Facility Review of 189 Consecutive Patients. *Nig QJ Hosp Med.* 2010; 20:38-41. <https://doi.org/10.4314/nqjhm.v20i1.58015>
 19. Samad A Khazanda WT, Sushel C. Spectrum of Benign Breast Diseases. *Pak. J. Med. Sci.* 2009; 25(2):265-68.
 20. Khokher S, Mahmood S, Khan SA. Response to Neoadjuvant Chemotherapy in Patients with Advanced Breast Cancer: A Local Hospital Experience. *Asian Pac J Cancer Prev.* 2010; 11:303-8.
 21. Khokher S, Qureshi W, Mahmood S, Saleem A, Mahmud S. Knowledge, Attitude and Preventive Practices of Women for Breast Cancer in the Educational Institutions of Lahore, Pakistan. *Asian Pac J Cancer Prev.* 2011; 12:2419-24.
 22. Tseung J. Robbins and Cotran Pathologic Basis of Disease: 7th Edition. *Pathology.* 2005; 37(2):190. doi: 10.1080/00313020500059191 <https://doi.org/10.1080/00313020500059191>
 23. Kumar M, Ray K, Harode S, Wagh DD. The Pattern of Benign Breast Diseases in Rural Hospital in India. *East and Central African J Sur.* 2010; 15:59-64.
 24. Kumar R. A Clinicopathologic Study of Breast Lumps in Bhairahwa, Nepal. *Asian Pac J Cancer Prev.* 2010; 11:855-8.
 25. Marshall LM, Hunter DJ, Connolly JL, Schnitt SJ, Byrne C, London SJ, et al. Risk of Breast Cancer Associated with Atypical Hyperplasia of Lobular and Ductal Types. *Cancer Epidemiol Biomarkers Prev.* 1997; 6:297-301.