

Benign Breast Diseases – a Histopathological Study

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Benign breast diseases constitute a heterogeneous group of disorders range from developmental abnormalities to various neoplasms. Early presentation and prompt diagnosis is essential to relieve anxiety of non-neoplastic conditions. Analysis of patterns and frequency should provide a valuable guideline for clinical management of these lesions. This study was done to find the patterns and frequency of different benign breast diseases in both males and females. It was a retrospective cross sectional study conducted in the department of Pathology, Enam Medical College & Hospital, Savar, Dhaka during the period from January 2006 to June 2013. A total of 243 breast biopsies were selected for histopathological evaluation. There were 240 cases (99%) of female breast and 3 cases (1%) of male breast with a female to male ratio 80:1. The mean age of the sample was 28.5 years with age range 13 to 67 years. Majority of the patients were in the age range of 21-30 years (n=104; 42.8%). Inflammatory lesions comprised 61 cases (25.1%) and benign breast lesions comprised 182 cases (74.9%). Fibroadenoma was the commonest lesion (53.1%; n=129 cases), followed by breast abscess (11.93%; n=29 cases), fibrocystic change (7%; n=17 cases) and chronic mastitis (4.53%; n=11 cases). Fibroadenoma was common in third decade (45.64%) of life. Gynaecomastia was the only breast disease of males.

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Introduction

Breast tissue in females is under the influence of various hormones and is subjected to constant physiological variations throughout the reproductive live and beyond. This leads to different clinical manifestations and diseases.¹ The presence of a lump in the breast is a great cause of anxiety, apprehension and uncertainty to most patients. This may be accrued to the increasing public awareness of breast cancer which is presently the most common female malignancy worldwide.² Nevertheless the vast majority of breast lesions are benign.^{3,4} Benign breast diseases (BBD), however, constitute a heterogeneous group of disorders range from developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations to various neoplasms. They

may present a wide range of symptoms or may be detected as incidental microscopic findings.⁵ BBD can present as a palpable mass, pain, and nipple discharge or nipple inversion.

It is impossible to know whether a breast lump is cancerous without performing imaging examinations and/or a biopsy and/or Fine-needle aspiration cytology (FNAC). FNAC is a part of the triple assessment for the diagnosis of breast lesions. It is an established, highly accurate method for diagnosing breast cancer and has given rise to a reduction in the number of excision biopsies for benign breast disease,⁶ but excisional biopsy remains the gold standard for diagnosis.³

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It is important for pathologists, radiologists, and oncologists to recognize benign lesions, both to distinguish them from in situ and invasive breast cancer and to assess a patient's risk of developing breast cancer, so that the most appropriate treatment modality for each case can be established. In Bangladesh, the data available regarding the pattern of various benign breast lesions is limited. Most studies have found on malignant breast diseases. This study of BBD aims at defining the hospital frequency and evaluating the histopathologic pattern in both males and females.

Methods

This is a retrospective cross sectional study of surgical specimens from the breast conducted in the Department of Pathology of EMCH, Savar, Dhaka during the period from January 2006 to June 2013. A total of 243 breast biopsies and mastectomies from both female and male patients were selected for histopathological evaluation. Patients with any benign disorder of the breast—for example, a breast lump, breast pain or a nipple discharge, were included. Patients with an obvious malignant disease or those who had been treated for malignancy earlier, were excluded in this study. The cases were analyzed on the basis of age, sex and histological lesion. Patients without surgical biopsies were excluded from this study.

The specimens were fixed in 10% formalin, processed as per routine laboratory procedure, embedded in paraffin for the preparation of blocks and sections were stained with the routine haematoxylin and eosin method. The special stains were prepared whenever necessary.

All histopathology records and available histopathology slides were reviewed and demographic and clinical data were retrieved from histopathology request forms and

register regarding name, age and gender of the patient, lesion size, laterality and multiplicity of the lesions and diagnosis. Patients with more than one specimen for the same lesion were counted once. Patients with multiple or bilateral similar lesions, even if excised at different times, were counted once. Inflammatory conditions affecting the skin overlying the breast were not included. All the data obtained were tabulated and analyzed and histopathologically classified as inflammatory and benign lesion.

Results

Out of the total 317 patients of breast disease, 243 (76.66%) had benign breast disease and 74 (23.34%) had breast cancer. The benign to malignant ratio was 3.28:1. The mean age of benign breast disease was 28.5 years with age range 13 to 67 years. There were 240 cases (99%) of female breast and 3 cases (1%) of male breast with a female to male ratio 80:1. The mean age for females was 28.17 years, range 13 to 62 years, while that of the males was 54.67 years and 37 to 67 years respectively. Majority of the patients were in the age range of 21-30 years (n=104; 42.8%), followed by age range 11-20 years (n=61; 25.1%) and 31-40 years (n=57; 23.46%). Maximum number of cases amongst females (n=104; 42.8%) were in the 3rd decade, while amongst males (n=2; 0.63%) in the 7th decade of life. Age distribution of patients with benign breast diseases was shown in figure 1.

All the benign breast diseases were filtered and categorized into two main groups: inflammatory breast lesions comprised 61 cases (25.1%) and benign breast lesions comprised 182 cases (74.9%). With the mean age of presentation for these groups being 30.33 years for inflammatory lesions and 27.88 years for benign lesions.

In the present study, 46.5% (n=113) cases involved the left sided breast and 38.7% cases

(n=94) involved the right breast; whereas bilateral involvement was seen in 1.2% (n=3) patients. The side was not recorded in 13.6% (n=33) patients.

Fibroadenoma was the commonest lesion affecting the breast diagnosed in 129 cases (53.1% of all and 70.88% of benign lesions). The age range was between 14 and 50 years with a mean 24.46 years. Most of the patients were in the age range of 21-30 years (n=59; 45.74%), followed by 49 (37.98%) cases in age group of 11-20 years and 127 (98.45%) cases were below 40 years of age. FA occurred at relatively younger age compared to fibrocystic change and duct ectasia, those with two benign lesions had a median age of

37.18 and 38.4 years respectively. There was a left sided preponderance with 58 cases (44.96%) occurring on the left, 50 cases (38.76%) on the right; and 6 (4.65%) had bilateral disease. The side was not recorded in 15 patients (11.63%). Multiple FAs were found in 10 (7.75%) cases, all had two. The mean size of the FA was 2.98 cm with range 0.6-8 cm. Twenty-one patients (16.28%) had lesions less than 2 cm in diameter; in 101 patients (78.29%) the size was 2-5 cm, while 7 cases (5.43%) of giant FAs had size more than 5 cm as per definition. Distribution of different benign breast diseases was shown in Table I.

Table I: Distribution of benign breast diseases

Type of Lesions	Number of patients	%	Mean Age (Year)	Age Range
<i>Inflammatory lesions</i>	61	25.1	30.33	13-62
Abscess	29	11.93	28.62	13-60
Chronic mastitis	11	4.53	30.73	14-55
Granuloma	10	4.12	30.9	17-62
Duct ectasia	6	2.46	34.67	22-48
Galactocele	3	1.23	29.67	27-32
Fat necrosis	2	0.82	38	36-40
<i>Benign lesions</i>	182	74.9	27.88	14-67
Fibroadenoma	129	53.1	24.46	14-50
Fibrocystic disease	17	7	37.18	26-50
Adenosis	4	1.65	28	20-35
Epithelial hyperplasia	7	2.88	32.29	20-46
Intraductal papilloma	7	2.88	38.4	26-52
Lactating adenoma	1	0.41	25	
Benign phylloides	1	0.41	58	
Lipoma	1	0.41	45	
Tubular adenoma	1	0.41	26	
Squamous papilloma	1	0.41	25	
Sebaceous Adenoma	1	0.41	50	
Normal/Nonspecific Dx	9	3.7	32	19-45
Gynecomastia	3	1.23	54.67	37-67

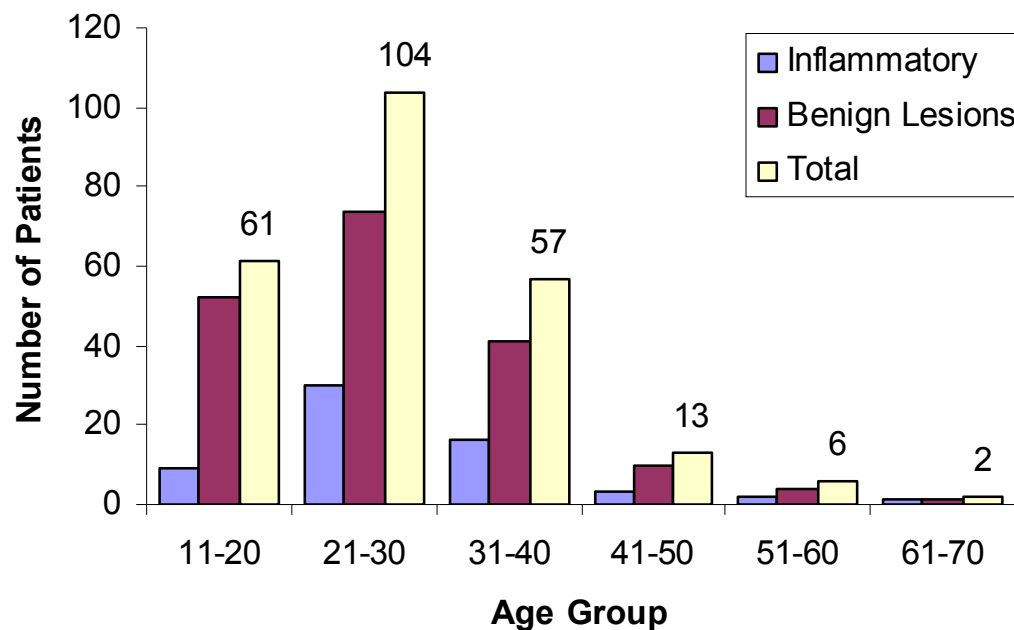


Figure 1: Age distribution of patients with benign breast diseases

Fibrocystic change, the second commonest benign lesion and ranked third in this series, found 17 cases (7% of all) with age range 26-50 years. The peak incidence in the age range 31-40 years (n=10) and 76.5% of patients were between 30-50 years age. Among other benign lesions include intraductal papilloma 7, epithelial hyperplasia 7 and adenosis 4. There was one case of benign phylloides tumor occurred in a 58 years old female. Normal breast biopsies were also reviewed during the analysis with the total of 9 cases.

Among the inflammatory lesions, acute mastitis and breast abscess was the commonest (n=29; 11.93% of all) and constitute the second major category in this series. Majority of the lesions were in the age group of 21-30 years (n=17; 5.36%) and 31-40 years (n=5; 1.58%) and 89.66% (n=26) of the patients were less than 40 years of age, reflecting the association of this lesion with pregnancy and lactation. Granulomatous mastitis was found in 10 cases (4.12% of all)

with a mean age 30.9 years and age range 17 to 62 years. Numerous granulomas were found histologically in a background of mixed inflammatory infiltrate. Three cases of tubercular mastitis were included in this group. Three cases of breast lesions were found in males, all were diagnosed as gynecomastia. Two of these involved the right side and one involved the left.

Discussion

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. There is a wide spectrum of clinical conditions both benign and malignant which affect the breast from teen age to throughout adult life. The incidence of these presentations varies in different geographical areas according to the spectrum of the breast diseases encountered. Overall, breast problems are commonly seen in females as compared to males.^{2,3} Similarly, in

this study females were more affected than males with female to male ratio 80: 1.

Benign breast diseases are significantly more common than the malignant conditions worldwide. In this study BBD comprised 76.66% of all breast lumps with a benign to malignant ratio 3.28: 1, which is comparable to other studies.^{4,7} Benign breast lesion (74.9%) was found more common than inflammatory lesion (25.1%) in our patients. Our results are consistent with other reports.^{4,8,9}

The median age of the patients was 28.17 years with age range 13 to 67 years. Most of the patients were in 21-30 years (42.8%) age group, as reported in other studies.^{10,11} Another study found majority patients in 31-40 years age group.¹² There was a left sided predominance of disease. About 46.5% occurred on the left, 38.7% on the right, while 1.2% was bilateral. This agrees with many reports.^{8,13} Few of the reports also show right-sided predominance.¹⁴

In agreement with many studies FA was the most common lesion and it constitutes 53.1% of all cases and 70.88% of benign lesions.^{9,10,11} Similar frequency of FA was found in some reports.^{4,8} But this frequency is much higher than the reported frequency in England¹⁵ (7.7%) and USA² whites (7%).

The high frequency of FAs has been reported by a local study^{16,17} as also observed in Saudi Arab^{4,10}, India¹⁸ and black American¹⁹ and African females^{11,13} and contrast with the lower frequency in Western white females¹⁵. The cause of high frequency of FA among our females is not clear but racial predisposition could be a factor. Most of our cases were in the 3rd decade of life followed by the 2nd decade, as also found by others.¹⁰ However, some reported peak incidence in the 2nd decade.¹¹ It is usually a disease of early

reproductive life and 98.45% of our cases were below 40 years of age. The mean age of FA was 24.46 years which is similar to 24 years in Iraq²⁰, Ghana¹¹ and 23 years in Saudi Arab⁸ and Pakistan⁹. Jamal AA in a series of 1084 cases reported a mean of 28.69 years.⁴ Demographic factors might play a role, considering the large number of young females within the population of these groups. Unilateral FA was reported in 83.7% cases and 92% had solitary lesion. Amr et al found 85.7% of unilateral lesion among the reported cases and 87.6% had solitary lesion.¹⁰

In accordance with many authors fibrocystic change was the second commonest benign lesion and it ranked third in this series.^{4,10,20} Others found it to be the most common BBD.^{3,21} This is also found as the most common lesion in studies from England¹⁵ (37%) and USA²² (33.9%). It constitutes 7% in our series, which is much lower than 21.1% reported by Amr et al¹⁰ and 25.6% by Chaudhary et al.²³ Fibrocystic change consists of a spectrum of morphological changes comprising cysts, adenosis, epithelial hyperplasia, fibrosis and occurs predominantly between the ages of 30 and 50 years.² In this series, the age range was 26-50 years, and 76.5% of patients were between 30-50 years age. The mean age was 37.18 years which is similar to 37 years and 38 years found by Abdulkareem et al²⁰ and Amr et al¹⁰ respectively.

Inflammatory lesions were less common than benign breast lesions in this review and comprised 25.1%. This frequency is comparable to 18.5% in Saudi Arab⁷ and 17.4% in Pakistan²⁴, but much lower than the frequency of 41.8% documented in another report from Northern Saudi Arab²⁵ where breast abscess alone accounts 36.1%. Breast abscess was the commonest inflammatory lesion and second major category in this series accounting 11.93% cases. Peak

incidence of the patient were in the 3rd decade of life (58.6%) and 89.66% were less than 40 years of age, reflecting the association of this lesion with pregnancy and lactation. Amr et al¹⁰ found 66.6% of the patients less than 36 years of age. It appears that the frequency for breast abscess is not reflective of the clinical incidence of the disease. This may be attributed to the fact that most breast abscesses are drained and only a minority is biopsied. Chronic mastitis comprised 4.53% cases, a figure consistent with the 1.2% and 4.2% documented in Saudi Arab¹⁰ and Nigeria²⁶ respectively.

Granulomatous inflammatory changes in the breast can be related to specific infectious agents such as mycobacterium tuberculosis, foreign material such as silicon or suture material, trauma or systemic autoimmune disease. We had ten cases of granulomatous mastitis. Tuberculosis is a rare disease affecting the breast in 1.48% cases as observed by Malik et al²⁴ in their study. In the present series, it accounts 1.23% of all breast lesions. A much higher figure of 23% was however reported in the literature.²⁷

Gynaecomastia was the only breast disease of males in this study. It comprised 1.2% of all breast lesions which compares well with the 1% quoted in Caucasian series,²⁸ but lower than the 12% reported from Uganda.²⁹

Conclusion

The profile of breast lesions in the present series follows a pattern similar to that of other developing countries. The commonest breast lesion was fibroadenoma followed by breast abscess.

References

1. Mahmood A, Ahmed M, Jamal S. Role of cytological grading in the management of breast lump. *J Cll Pysicians Surg Pak* 2003; 13(3): 150-152.
2. Lester SC. The Breast. In: Robbins and Cotran Pathologic basis of disease. 9th edn. Philadelphia: Elsevier Saunders, 2015; 1043-1071.
3. Kumar R. A clinicopathologic study of breast lumps in Bhairahwa, Nepal. *Asian Pacific J Cancer Prev* 2010; 11: 855-858.
4. Jamal AA. Pattern of breast diseases in a teaching hospital in Jeddah, Saudi Arabia. *Saudi Med J* 2001; 22(2): 110-113.
5. Guray M, Sahin AA. Benign breast diseases - classification, diagnosis and management. *Oncologist* 2006; 11(5): 435-449.
6. Mottahedeh M, Rashid MH, Gateley CA. Final diagnoses following C3 (atypical, probably benign) breast cytology. *Breast* 2003; 12(4): 276-279.
7. Amin TT. Histopathological patterns and risk of female breast lesions at a secondary level of care in Saudi Arabia. *Asian Pacific J Cancer Prev* 2009; 10: 1121-1126.
8. Al Nazer MA. Outline of breast diseases in Qatif Central Hospital. *Kuwait Medical Journal* 2004; 36(3): 182-185.
9. Hussain N, Ayaz B, Nadia N, Ali Z. Pattern of female breast diseases in Karachi. *Biomedica* 2005; 21: 36-38.
10. Amr SS, Sa'di AR, Ilahi F, Sheikh SS. The spectrum of breast diseases in Saudi Arab females - a 26-year pathological survey at Dhahran health center. *Ann Saudi Med* 1995; 15(2): 125-132.
11. Ohene-Yeboah MOK. An audit of excised breast lumps in Ghanaian women. *WAJM* 2005; 24(3): 252-255.
12. Parajuli S, Koirala U, Khatri R, Acyarya L, Suwal A. Histomorphological spectrum of breast lesions. *J Nepal Health Res Counc* 2011; 9(1): 48-51.
13. Shirley SE, Mitchell DIG, Soares DP, James M, Escoffery CT, Rhoden AM, Wolff C, Choy L, Wilks RJ. Clinicopathologic features of breast disease in Jamaica - findings of the

- Jamaican breast disease study, 2000-2002. *West Indian Med J* 2008; 57(2): 90-94.
14. Tesfamariam A, Parilla F, Paulos E, Mufunda J, Gebremichael A. Clinicohistopathological evaluation of breast masses and profile of breast diseases in Eritrea - a case of poor concordance between clinical and histological diagnosis. *J Eritrean Med Assoc* 2008; 3(1): 32-35.
 15. Ellis H, Cox PJ. Breast problems in 1,000 consecutive referrals to surgical outpatients. *Postgrad Med J* 1984; 60: 653-656.
 16. Alam A, Sharmin F, Faruq TIMA. Incidence of carcinoma breast in females presenting with breast lumps. *JCMCTA* 2011; 22(1): 25-27.
 17. Khatun H, Enam S, Hussain M, Begum M. Diagnostic role of fine needle aspiration cytology in the breast lump with its correlation with histopathology. *TAJ* 2001; 14(2): 65-69.
 18. Rangabashyam N, Gnanaprakasam D, Krishnaraj B, Manohar V, Vijayalakshmi SR. Spectrum of benign breast lesions in Madras. *J R Coll Surg Edinb* 1983; 28(6): 369-373.
 19. Raju GC, Jankey N, Narayansingh V. Breast disease in young West Indian women - an analysis of 1051 consecutive cases. *Postgraduate Medical Journal* 1985; 61: 977-978.
 20. Abdulkareem KF, Ali AH, Wadi RK. Breast lumps in Basrah - a retrospective Study. *Al Taqani* 2010; 23(3): 37-42.
 21. Ochicha O, Edino ST, Mohammed AZ, Amin SN. Benign breast lesions in Kano. *Nig J Surg Res* 2002; 4(1): 1-5.
 22. Leis HP. The diagnosis of breast cancer. *CA Cancer J Clin* 1977; 27: 209-232.
 23. Chaudhary IA, Qureshi SK, Rasul S. Incidence of malignancy in females presenting with breast lumps in OPD - a study of 277 cases. *Pak J Med Sci* 2003; 19(4): 287-294.
 24. Malik MAN, Salahuddin O, Azhar M, Dilawar O, Irshad H, Sadia, Salahuddin A. Breast diseases; spectrum in Wah Cantt; POF Hospital experience. *Professional Med J* 2010; 17(3): 366-372.
 25. Chiedozi LC, El Hag IA, Kollur SM. Breast diseases in the Northern region of Saudi Arabia. *Saudi Med J* 2003; 24(6): 623-627.
 26. Yusufu LMD, Odigie VI, Mohammed A. Breast masses in Zaria, Nigeria. *Annals of African Medicine* 2003; 2(1): 13-16.
 27. Hanif A, Mushtaque M, Malik K, Khan A. Tuberculosis of breast. *J Surg Pak* 2002; 7(3): 26-28.
 28. Funderburk WW, Rosero E, Leffall LD. Breast lesions in blacks. *Surg Gynecol Obstet* 1972; 135(1): 58-60.
 29. Sainsbury R. The Breast. In: Bailey & Love's short practice of surgery. 25th edn. London: Edward Arnold, 2008; 827-848.