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Original Research Article

Clinicopathological Study of Benign Breast Diseases

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ABSTRACT

Background: Benign breast lesions represent a spectrum of disorders that come to clinical attention either as palpable lesions found on physical examination or as imaging abnormalities. Many of these are clinically suspected as malignant lesions but diagnosed as benign after histopathological examination.
Aim: To study benign breast lesion in detail and to correlate their clinicopathological parameters.
Material and methods: This is a prospective study of histopathologically and cytologically diagnosed breast lesion with the help of available clinical data. This study was carried out in the department of pathology, A.C.P.M. Medical College from July 2009 to October 2011. Total 489 cases of breast lesions were studied in detail with relation to available clinical data. Detailed clinical history of patient with breast lump including age, marital status, relevant obstetric history and history of associated symptoms like pain, fever, nipple discharge was noted. Malignant breast lesions were excluded from study.
Results: Incidence of benign breast lesions in our study was found to be 78.52%. Fibroadenoma was the commonest benign breast lesion, followed by Fibrocystic disease.
Conclusion: Histopathology plays an important role in the diagnosis of benign breast diseases. When correlated with clinical data, mammographic findings, breast ultrasonography and extensive use of fine needle aspiration cytology, the histopathological examination led to the early diagnosis of a benign breast disease.
Key word: Benign breast diseases, Fibroadenoma, Fibrocystic disease.

INTRODUCTION

The mammary gland is a unique organ in that it is not fully formed at birth, undergoes cyclical changes during reproductive life. Some of the breast diseases occur during reproductive life while some occur during menopausal period indicating relation of these diseases to hormonal stimulation as a causative factor. [1] Most of the benign epithelial lesions are labeled by many pathologists with variety of terminologies such as cystic disease, fibrocystic disease, cystic mastitis, cystic mastopathy, epithelial hyperplasia, mammary dysplasia, benign breast disease. [2] Besides Fine needle aspiration cytology (FNAC) of breast, biopsies and mastectomy specimens are frequently sent for histopathological examination. Many of the breast lesions are clinically suspected as

malignant lesions but diagnosed as benign after Histopathological examination. The varied pattern of benign breast lesions attracted our attention to study them in detail with the help of available clinical and radiological data.

MATERIAL AND METHODS

The prospective study of benign breast lesions was carried out in the Department of Pathology, ACPM Medical College Dhule, from July 2009 to October 2011. Total 489 cases of breast lesions were studied in detail with relation to clinical and radiological data. Detailed history included age, sex, and duration of complaints like lump in breast, pain, fever, nipple discharge or retraction. Detailed menstrual history included age at menarche, regularity of cycles, marital history was also noted. Relevant findings of general, systemic and local examination were recorded. Cytological and histopathological examination was done. Surgically resected specimen included needle biopsy, excisional biopsy, lumpectomy and mastectomy specimen. Specimens not representing the lesion and malignant breast lesions were excluded from study. Specimens were received in 10% formalin. Gross features of each specimen were noted and sections were processed by autoprocessor, paraffin embedded sections were stained by Haematoxylin and Eosin stain. Special stain and immunohistochemistry (IHC) were performed wherever required. Diagnosis was confirmed by FNAC and / or Histopathology and correlated with clinical and radiological findings wherever available.

RESULTS

The total number of breast specimens received at Cytology and histopathology section of the Department of Pathology was 489 from June 2009 to October 2011. This included 478 females and 11 males. Out of these 489 breast lesions, 51 were FNACs, 328 were surgically excised biopsies or lumpectomy specimens, 110 were mastectomies. Out of 489 breast lesions studied, 105 were malignant cases 384 were benign breast lesions. These 384 benign breast lesions including inflammatory lesions, benign proliferative lesions and benign tumors (Table1). Maximum age incidence was particularly noted in the age group of 21 -40 years (Table 2). Amongst all benign breast lesions fibroadenoma was commonest lesion followed by fibrocystic change, sclerosing adenosis, breast abscess, Granulomatous lobular mastitis, mammary duct ectasia fibrous disease, blunt duct adenosis, fat necrosis, gynecomastia in descending order of frequency.

Fibroadenoma 151 (44.53%) was the most common lesion among benign breast lesions. Age group ranged between 15 -60 yrs. Out of 151 cases 95% were detected in left breast, rest were detected in both breasts. Multiple fibroadenomas were seen in 48 patients, 30 had two, 11 had three, 7 had more than three. Other benign tumours included lactational adenoma, intraductal papilloma, benign phylloids tumour.

Fibrocystic disease 55 cases (14.32%) was the second most common breast lesion with maximum age incidence in the age group of 31-40 years. Minimum age noted in fibrocystic disease was 18 years and maximum 60 years. Fibrocystic disease was noted predominantly in right breast. Fibrocystic changes were associated with florid epithelial hyperplasia, sclerosing adenosis and apocrine changes. Individual case association of fibrocystic disease with atypical ductal hyperplasia, duct ectasia, sclerosing adenosis and intraductal carcinoma was observed.

Table 1: Distribution and incidence of benign breast lesions (489 cases).

Sr. No	Type of Lesions	No. of Cases	% of Total Breast Lesions
Inflammatory 89 (18.20%)			
1	Breast abscess	25	5.11
2	Fat necrosis	11	2.24
3	Granulomatous lobular mastitis	24	4.90
4	Mammary duct ectasia	22	4.49
5	Tuberculous mastitis	02	0.40
6	Galactocele	05	1.02
Benign proliferative lesions 113 (23.10 %)			
7	Fibrocystic disease	55	11.24
8	Fibrous disease	15	3.06
9	Sclerosing adenosis	29	5.93
10	Blunt duct adenosis	14	2.86
Other(11)			
11	Gynecomastia	11	2.25
Benign tumour 171 (44.53%)			
12	Fibroadenoma	151	30.8
13	Lactational adenoma	02	0.40
14	Benign phylloid tumour	07	1.43
15	Intraductal papilloma	11	2.24
	Total Benign breast lesions	384	78.52%
	Malignant breast lesion	105	21.48%

Table 2: Age wise distribution of Benign Breast lesions (384 cases).

Sr. No	Type of lesion	Age group in years				
		10-20	21-30	31-40	41-50	51-above
1	Breast abscess	-	16	9	-	-
2	Fat necrosis	-	9	1	-	1
3	Granulomatous lobular Mastitis	-	-	22	2	-
4	Mammary duct ectasia	-	2	19	1	-
5	Tuberculous mastitis	-	1	1	-	-
6	Fibrocystic disease	10	15	20	7	3
7	Fibrous disease	2	11	1	1	-
8	Sclerosing adenosis	-	19	10	-	-
9	Blunt duct adenosis	-	3	11	-	-
10	Galactocele	-	5	-	-	-
11	Gynecomastia	1	4	1	2	3
Benign tumours						
12	Fibroadenoma	30	41	55	23	12
13	Lactational adenoma	-	2	-	-	-
14	Benign phylloids tumour	-	1	1	5	-
15	Intraductal papilloma	-	1	7	3	-

Sclerosing adenosis was the third common lesion in frequency comprising 7.55% of all benign breast disease particularly noted in the age group of 21- 30 years. Sclerosing adenosis was associated with epitheliosis and fibro cystic change. Other less frequent benign proliferative lesions diagnosed were fibrous disease and blunt duct adenosis.

Breast abscess (5.90% of all breast lesion & 6.51% of Benign lesions) comprised fourth major category of benign lesions followed by granulomatous lobular

mastitis which was 6.25 % of all Benign Breast lesions. Histopathologically granulomatous lobular mastitis showed multiple granulomas, which were confined to the lobules, composed of epithelioid cells, lymphocytes, and foreign body type of giant cells without caseation. Associated changes of duct ectasia and fibrocystic changes were noted. Zeil-Nielson staining was negative. In present study we found 11 cases of intraductal papilloma, out of which 3 cases were of multiple papilloma and 2 cases showed foci of ductal carcinoma in situ (DCIS) The Multiple Papilloma typically presenting as a mass comprising multiple ducts filled by papillomas, separated by dense fibrous septa associated with various proliferative fibrocystic lesions. 7 cases of phylloides tumour were diagnosed all were benign in nature. 2 cases of lactational adenoma were seen. All 5 cases of galactocoele were diagnosed in 21-30 yrs of age group. Other inflammatory lesions included in present study were duct ectasia, fat necrosis, and tubercular mastitis. There were 11 cases of Gynecomastia, it was noted bilaterally in 1 out of 11cases. Maximum age noted in gynecomastia was 65 years. All patients presented with lump in breast. Other symptoms noted were pain in breast, nipple discharge and nipple retraction.

DISCUSSION

In the present study, incidence of benign breast lesions and their clinicopathological correlations were studied. In the present study, 78.52% cases belonged to benign breast lesions. Our results are slightly lower as compared to Amr et al [3] (82.9%,) and Kulkarni et al [4] (80.7%) and higher as compared to Malik et al [5] (71.6%,) [Table 3]

Table 3: Comparison of incidence of Benign Breast lesions in our study with other study.

Sr. No	Series	Benign Breast lesions %
1	Amr et al [3]	82.9
2	Kulkarni et al [4]	80.7
3	Malik et al [5]	71.6
4	Present study	78.52

Fibroadenoma was the most common breast lesion in our study 30.8 % of total breast lesion and 39.32 % of benign breast lesion. Similar findings were reported by Amr et al, [3] Kulkarni et al, [4] Malik et al. [5] In their study they found most common benign breast lump was fibroadenoma. Amr et al [3] reported 30.7%, Kulkarni et al [4] 62.32%, Malik et al [5] 41 %, cases of fibroadenoma. In present study the most common age of fibroadenoma was second and third decade which is comparable to the above studies.

Second most common lesion was fibrocystic disease accounting for 14.32 % of benign breast lesions with maximum age incidence in the age group of 31-40 years which is in accordance with Echejoh et al [6] who observed maximum number of cases in 31-40 years. Amr et al [3] reported maximum incidence of fibrocystic disease in 31-35 years. Malik et al [5] observed maximum number of cases in 18-40 years of age. In present study, all patients presented with lump in breast. Kulkarni et al [4] observed lump as main presenting symptom in most of the benign proliferative breast lesion, which is in accordance with this study.

Three patients of fibrocystic disease gave history of hormonal intake for variable period. They showed moderate to severe degree epitheliosis but no atypia. Fechner [7] stated that patients taking estrogen or oral contraceptive have similar spectrum of epithelial hyperplasia as in patients not taking hormones. Helmuth Vorherr [8] described that pathophysiology of fibrocystic breast disease is determined by

estrogen predominance and progesterone deficiency that result in hyperproliferation of connective tissue which is followed by epithelial proliferation. The risk of breast cancer is increased 2 - 4 fold in these patients.

In present study, we encountered a broad spectrum of histopathological findings of fibrocystic change ranging from focus of abscess, areas of sclerosing adenosis to florid proliferative process. These findings are in accordance with Malik et al [5] and Echejoh et al [6] who also observed association of fibrocystic disease with foci of sclerosing adenosis. Karpas et al [9] reported that there is relative increase in proliferative change in breast with malignant lesions. He stated that there was a relationship between the rare form of fibrocystic disease showing atypical epithelial hyperplasia and cancer. In addition to histologic features of the lesion, the age at biopsy and the degree of family history of breast cancer are reported to be the major determinants of breast cancer risk after the diagnosis of Benign breast disease. [10] However, over 80% of patients with a diagnosis of atypical hyperplasia do not develop invasive cancer during their lifetimes. [11] In present study, one case of fibrocystic disease was associated with intraductal carcinoma. Sclerosing adenosis (5.93%) was third common lesion following fibrocystic lesion. Kulkarni et al [4] and Ajao et al [12] reported it as 4.93% and 4.5% respectively. As sclerosing adenosis is difficult to define, its incidence in different studies may differ according to the criteria adopted. So incidence of sclerosing adenosis is variable in different studies. In present study we observed that fibrocystic disease was the most common lesion amongst benign proliferative group followed by sclerosing adenosis.

In the present study, 18.20% of total breast biopsies belonged to inflammatory lesions, which is slightly higher in accordance with Amr et al [3] (15.20%) and Malik et al [5] (17.05 %) . Kulkarni et al [4] observed 8.70% incidence of inflammatory lesions. As most of the inflammatory lesions are treated by incision and drainage and medical treatment, biopsy is not always done in all patients with inflammatory lesions, so the incidence varies from place to place. Breast abscess was 4th benign breast lesion in frequency accounting for 5.11% of total breast lesion 6.5% of all benign breast lesion. It is predominant lesion among inflammatory breast lesion comprising 28.08 % of inflammatory breast lesion followed by Granulomatous lobular mastitis. Malik et al [5] reported breast abscess (12.4%) as second most common benign breast lesion. In present series we found maximum age incidence in the age group ranged from 21-40 years and majority of them were lactating mothers comparable with findings of Malik et al. [5] Most of cases of granulomatous mastitis were in between 31-40 years of age. Going et al [13] reported all his patients were parous women presented. Going et al [13] and Galea et al [14] and Donn et al [15] observed granulomas confined to the lobule. Our present study findings are similar to these workers that the granulomas are confined to lobule.

In present study, incidence of tuberculosis was found to be 0.4 % Several Indian studies have reported the incidence of breast tuberculosis to vary between 0.04 to 3% amongst the total number of mammary conditions. Ikard and Perkins [16] and Haagensen, [17] Shinde et al [18] observed 0.025% and 0.062% ,1- 4.5% incidence of tuberculosis of breast, respectively. We observed maximum number of patients of breast tuberculosis in 21-40 years of age group, which is comparable with incidence reported by Tewari et al [19] (20-40 years of age group) while Goldmann et al [20] ,

Veena et. al. [21] observed maximum number of cases in 20-50 years of age.

Interesting and uncommon cases studied in the benign breast lesion group were duct ectasia, and fat necrosis, galactocele. Incidence of galactocele was 1.02% of total breast biopsies which is in accordance with Khanna S et al [23] who reported it to be 1.2%. Golden et al [22] observed galactocele occurred most frequently in lactating females in the post partum period. In our study, all 5 cases were lactating females in between 21-30 years of age similar with study done by Khanna S et al [23] who observed all his cases in lactating females. Though galactocele is considered as a rare lesion, we observed 5 cases.

We encountered 15 cases of fibrous disease of breast, mainly in 3rd decade of life. Typically the lesion affect young female with voluminous breast and is discovered accidentally by the patient on palpation. Minkowitz et al [24] and Puente et al [25] recognized fibrosis of the breast as a distinct clinicopathological entity. Other authors considered it as a variation in normal involution of breast. We observed that incidence of gynecomastia was 2.25% in total number of breast lesions, which is in accordance with Kulkarni et al [4] who reported it as 2.84%. Gynecomastia observed in right breast in 2 cases (18%), left breast in 6 cases (54.55%) and bilateral in 3 cases (27.27%). Malik et al [5] observed out of 47 cases of Gynecomastia, 40 had unilateral breast involvement and 7 had bilateral breast involvement.

We found 11 cases 2.8% of intraductal papilloma. Amr et al [3] reported 2.6 %, while Kulkarni et al [4] reported 6.7% of duct papilloma over a 2-year period. Out of which 3cases of multiple papilloma with foci of DCIS with microinvasion. Radiologic investigations were available in these 2 cases, mammographic findings revealed mass with linear, clustered calcification. On histopathology these cases were diagnosed as papilloma with DCIS with microinvasion and confirmed on IHC. Atypical hyperplasia was a frequent finding particularly in cases with atypical papilloma. DCIS associated with multiple papilloma is typically low grade and arose from areas adjacent to preexisting benign lesion. When multiple papillomas are associated with atypical ductal hyprplasia , atypical lobular hyprplasia ,lobular carcinoma in situ , malignant lesions, risk for breast cancer is increased. Because carcinomas arose within or close to areas involved by preexisting benign multiple papilloma, it is appropriate to excise these atypical papilloma, and closely monitor for contralateral disease. [26] MacGrogan and Tavassoli [27] suggested that the recurrence of papillomas is related to the presence of proliferative breast lesions including usual ductal hyperplasia, atypical ductal hyperplasia and lobular hyperplasia in the surrounding breast tissue. Epithelial atypia, even to the extent of low grade DCIS has no known prognostic significance or impact on outcome when it is confined to the central papillomas. Therefore, if atypia is encountered in a papilloma on an excisional biopsy, the surrounding breast tissue should be carefully examined for further follow up of the patient. Lactating adenoma which occurred in 0.52 % of the patients in reproductive age group in present study. James et al [28] considered lactating adenoma to be a pure and readily recognisable morphological form clearly distinguishable from tubular adenoma and fibroadenoma that is always related to current or recent pregnancy.

CONCLUSION

In our study, 489 breast specimens were studied, out of which 384 were benign breast diseases. Most cases belonged to younger age group (21-40 years). Incidence of benign breast diseases found to be 79%.

Fibroadenoma is the commonest of all followed by Fibrocystic disease. Fibrocystic disease is commonest amongst proliferative breast lesions followed by Sclerosing adenosis. Breast abscess is the commonest lesion amongst inflammatory breast lesions.

Breast self examination and health education to females is very important in cases of benign proliferative lesions. The presence of a discharge in association with palpable mass and positive results on mammogram or ultrasound requires evaluation of the mass. Breast lumps evaluation includes palpation, mammography (or ultrasound imaging), and biopsy of the lump. Histopathology plays an important role in the diagnosis of benign breast diseases. When correlated with clinical data, mammographic findings, breast ultrasonography and extensive use of fine needle aspiration cytology, the histopathological examination led to the early diagnosis of a benign breast disease.

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