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Histomorphological Spectrum of Benign Breast Diseases in a Tertiary Care Centre

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Abstract: Breast lump constitutes a significant population affecting all ages and ethnic groups. They are a cause of concern to patient and hence are reported early in OPD. BBD is a complex of reactive/inflammatory lesions, proliferative and fibro-epithelial lesions some of which mimic malignancy clinically or mammographically and poses diagnostic dilemmas to both clinicians and pathologists. FNAC, Histopathology and other ancillary techniques are essential for exact pathogenesis. This study was carried out with the aim to study Incidence of Benign and Non neoplastic breast diseases out of total breast lumps presenting in OPD, 2.Frequency of individual benign breast disease 3. Distribution with age and sex. This is an observational type of study conducted in department of pathology, SMS medical college, Jaipur over period of one year (1st January 2016 to 31st December 2016). Out of total 469 cases received for histopathology, 326(69.50%) were found to be benign lesions. Commonest benign lesion was fibroadenoma 160 cases (52.45%) in females and gynaecomastia 39 cases (11.96%)in males followed by and granulomatous lesion, 23 cases (0.8%) and fibrocystic change 20 (0.6%). BBD accounts for 70 to 80 % in Indian population as seen in different studies. In our study, benign breast diseases comprised greater proportion (69.50%) than malignant disorders. Since, the prognosis and treatment of benign and malignant lesions are wide apart, and some proliferative benign lesions tend to convert into malignancy, so it is necessary to identify these lesions at the earliest and initiate appropriate treatment surgery or medical.

Keywords: Benign breast disease (BBD), Histopathology, Fibroadenoma, Granulomatous lesion, triple assessment.

INTRODUCTION

Breast disease constitutes a large magnitude of problem worldwide. BBD is most common problem among woman with a prevalence rate of 68% among all breast lesions. General prevalence rate among all diseases of women is 6.9%. Benign breast lesions are more frequent than malignant lesions [1-3]. Incidence of BBD starts rising in second decade of life, peaks in the third decade and declines thereafter, while incidence of carcinoma breast increases as age advances [1-3]. It causes great fear of malignancy in the patients mind despite many of these lumps being benign. Identifying precisely a benign disease is mandatory to avoid unnecessary mastectomy which is traumatizing to the patient.

BBDs are more frequent then malignant lesion [4-7]. Upto 30% of women suffering from BBDs will require treatment at some time in their life [8].

BBD is a complex of reactive/inflammatory lesions, proliferative and fibro-epithelial lesion some of which mimic malignancy clinically or mammographically. Clinically, BBDs present as breast lumps, breast pain, nipple discharge, inflammation. Triple assessment done by clinical, radiological (USG and Mammography) and pathological examination (FNAC/ Core needle biopsy during initial consultation allows alleviating anxiety about breast cancer.

A study was conducted with aim to assess the magnitude of benign breast diseases and to identify features which mimic malignancy. Benign breast diseases were classified as non proliferative lesion/inflammatory lesion, proliferative lesions and fibroepithelial lesion.

Aim and Objectives

1. To study Incidence of Benign/Non neoplastic breast diseases out of total breast lumps presenting in OPD in a tertiary care centre.
2. Frequency of individual benign breast disease
3. Distribution of BBD with age and sex.
4. To evaluate the histomorphological profile of different breast diseases.

MATERIALS AND METHODS

The study was conducted in Department of pathology, SMS Medical college, Jaipur. This is an observational type of study conducted in department of pathology, SMS medical college, Jaipur over period of 1st January 2016 to 31st December 2016. Core needle biopsy, excision biopsy, lumpectomy, modified radical mastectomy specimens were examined. Sections were processed, embedded for paraffin sectioning, stained with hematoxylin and eosin stain and detailed microscopic examination was done. Total of 469 cases, both Malignant and non malignant lesions were identified during the period.

Inclusion criteria

1. Non malignant/ Benign lesion were included in the study.
2. Both male and female patients with benign masses were considered.
3. Inflammatory lesions were also included

Exclusion criteria

Women with an obvious malignant disease or those who had been treated for malignancy earlier, are excluded from study.

RESULTS

A total of 469 cases of breast lesions were received in Department during the study period from 1st January 2016 to 31st December 2016. On histopathological examination, 326(69.50%) were found to be benign lesions and 143 cases (30.49%) were found malignant. All the benign lesions were categorized into non proliferative/inflammatory, fibroepithelial, benign proliferative lesions and others.

Females were frequently affected, 287 (88.04%) were females out of 326 and rest were males (11.9%) (Fig-1). Age distribution of patients in given in (Table-1). The age of patient ranged from 12 to 78 years. The age group most commonly seen was 21-30 years followed by 11-20 years.

Distribution pattern of BBDs is shown in (Table- 2).The commonest of non-malignant lesion was fibroadenoma, seen in 185 cases (56.74%) in females, followed by granulomatous mastitis, seen in 23 cases (7.06%). Gynaecomastia was most common lesion in male breast, in 39 (11.96%).

Out of total 329 lesioms, 44 cases were inflammatory (Fig-2). Amongst inflammatory lesion, Granulomatous mastitis was commonest finding accounting for 23 cases (52.27%) and 7.06% in all the benign breast diseases [Fig-3]. Microscopically, granulomas of epitheloid cells, lymphocytes and multinucleated giant cells were seen, with few showing necrosis. Mammographically, inflammatory granulomastitis may mimic invasive or inflammatory breast cancer and hence, histopathology plays a role. Similarly, granulomatous lobular mastitis which is a rare chronic inflammatory condition simulating breast cancer clinically and radiologically.

Next most frequent inflammatory lesion was duct ectasia (Fig-4) (8 cases out of total 44 inflammatory lesion, 18.18 %). 6 cases of Breast abscess were reported, which comprised 13.36% in all inflammatory lesion and 1.8% in all BBDs. Breast abscess may clinically mimics galactocele and radiology may confuse it with malignancy or breast hematoma, so pathologic biopsy has a crucial role. 3 cases of fat necrosis and 2 cases each of galactocele and epidermoid.

Among proliferative lesion, fibrocystic disease was most frequent, accounting 20 cases out of total benign lesion. Others were, usual ductal hyperplasia, ductal carcinoma in situ and sclerosing adenosis.

Common of the fibroepithelial lesions reported, 188 cases [56.74%] (Fig-5). Microscopically, Fibroadenoma was both intracanalicular and pericanalicular. Morphological change like cystic change was seen in 5 cases , whereas apocrine change was seen in 2 cases. Fibroadenoma with adenosis was seen in 3 cases. Gyanaecomastia was next most common lesion in males. Others were fibroadenomatous hyperplasia, tubular adenoma (Fig-6) and lactating adenoma.

4 cases of Phylloides were seen (Fig-7). 1 was benign and other 3 were borderline. In our study we considered them in group of benign breast disease, as they have same treatment as benign phylloides.

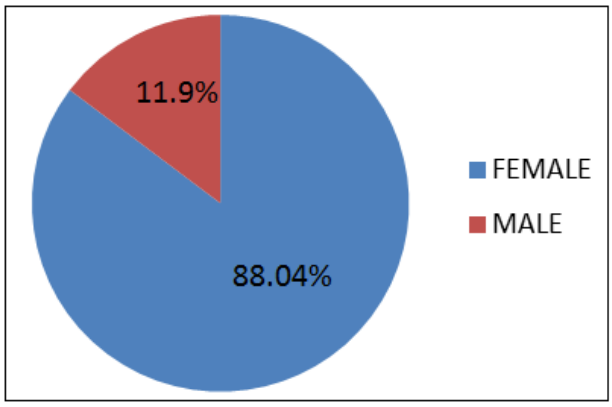

Fig-1: Sex distribution of BBDs

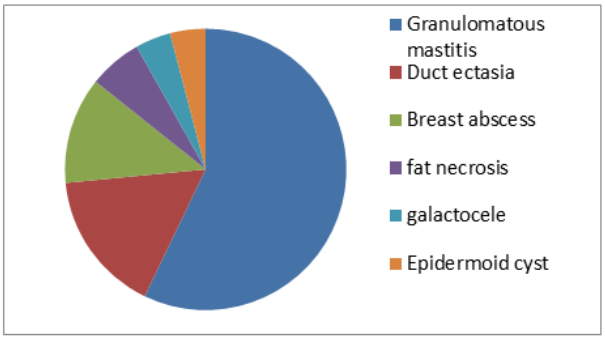

Fig-2: Distribution of various inflammatory lesions

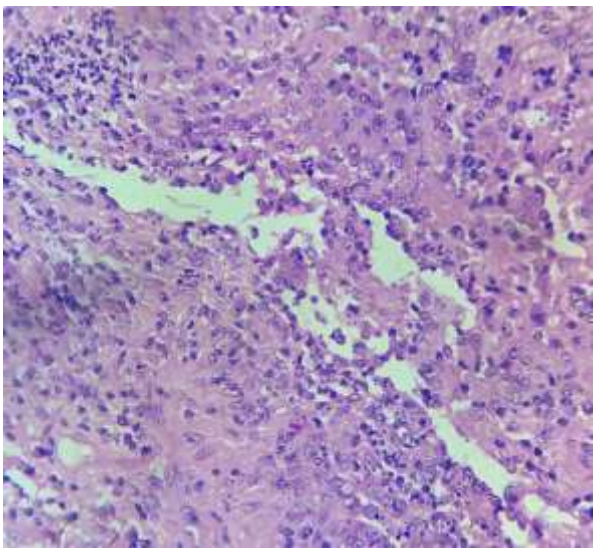

Fig-3: Microphotograph from breast showing inflammatory cells, with one foci showing epitheloid cells and necrosis in lower left field [H & E; X 400]

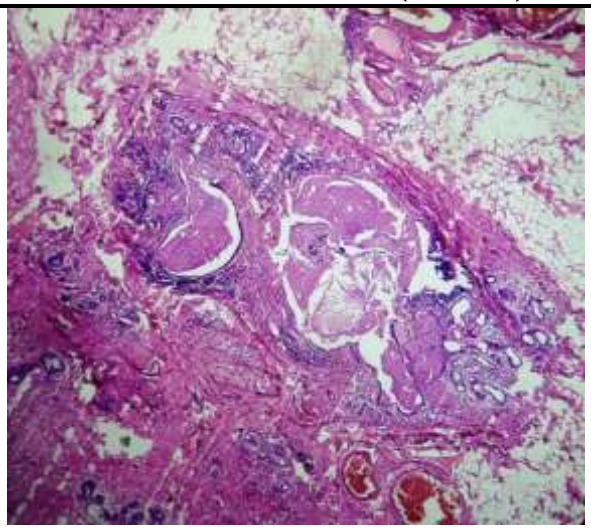

Fig-4: Microphotograph of Duct Ectasia showing large dilated ducts with fibrous thickening of wall, foamy macrophages in lumen and surrounding inflammatory infiltrate.(H and E; x 40)

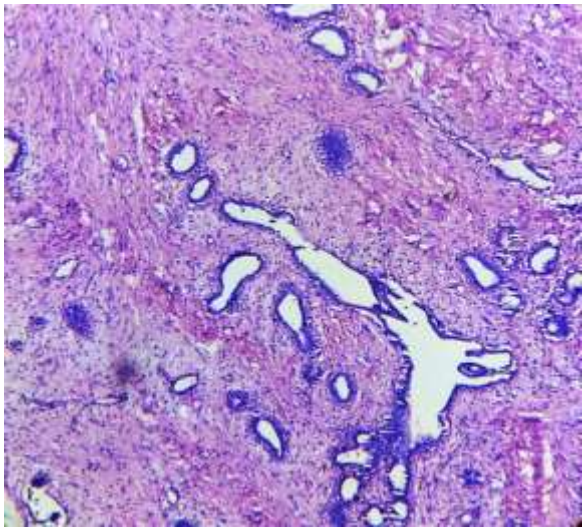

Fig-5: Microphotogrraph showing fibroademoa with percanalicular pattern [H& E ; X 100]

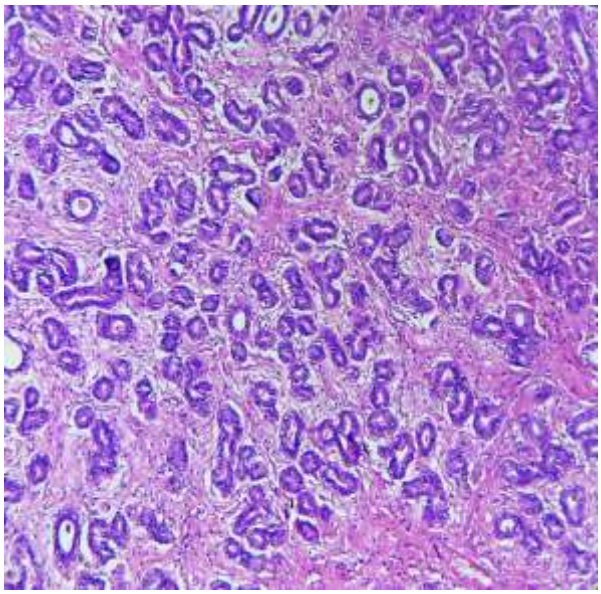

Fig-6: Microphotograph of Tubular Adenoma showing Numerous small tubular stuctures, composed mainly of secretory epithelial cells but with less obvious myoepithelial cells, set in in a fibrous stroma. [H & E X 100]

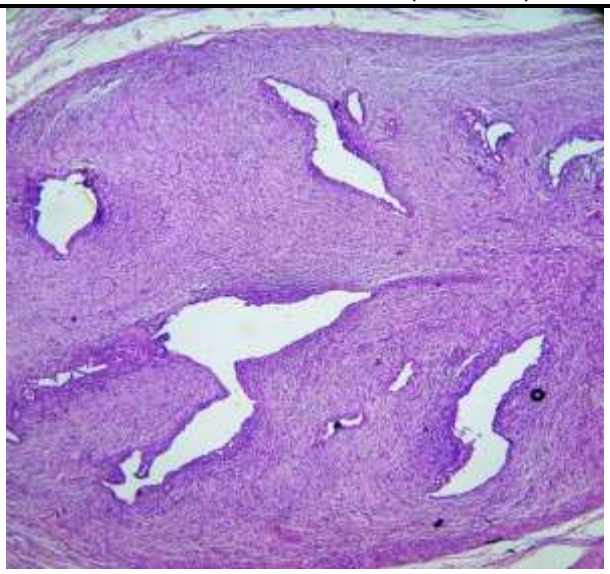

Fig-7: Microphotograph of Boderline Phylloides showing Clefts lined by epithelial cells and celllar stroma with 1-5 mitotic figues/10HPF [H& E ; X100]

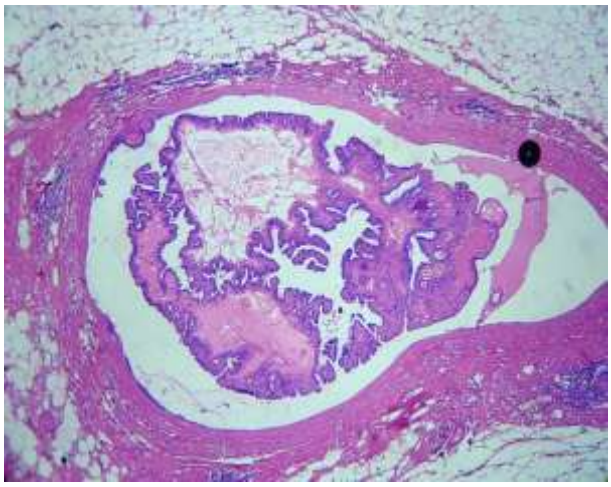

Fig-8: Microphotograph of Duct Papilloma showing Papillary fronds having fibrovascular core and are lined by bilayer of myoepithelium and epithelium[H& E ; X100]

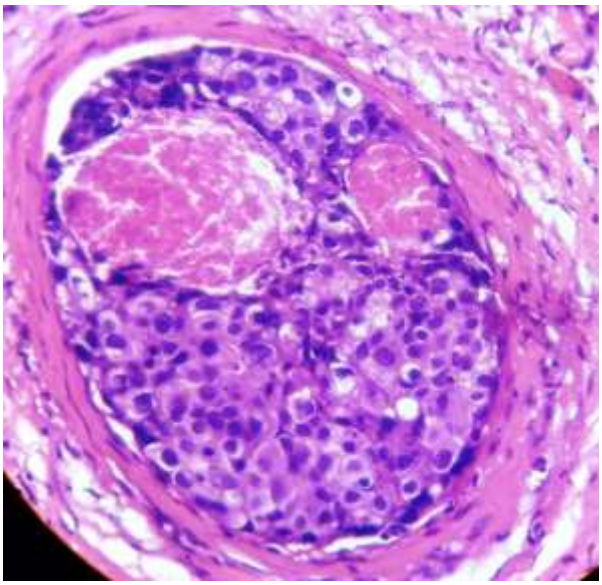

Fig-9: Duct Carcinoma in Situ showing duct with solid growth of mild to moderate pleomorphic cells with cribriforming (H and E; x 400)

Table-1: Age distribution pattern of benign breast disease

Age Distribution	Distribution of BBD according to age
11-20	92
21-30	126
31-40	63
41-50	29
51-60	10
61-70	5
71-80	1

Table-2: Distribution pattern of benign breast diseases

BENIGN BREAST DISEASES	Total cases	Percentage
	326	
INFLAMMATORY LESION		
Granulomatous mastitis	23	7.06 %
Duct ectasia	8	2.45%
Breast abscess	6	1.84%
Fat necrosis	3	0.9%
Galactocele	2	0.6%
Epidermoid cyst	2	0.6%
BENIGN PROLIFERATIVE LESION		
Fibrocystic disease	20	6.13%
UDH	3	0.9%
DCIS	2	0.6%
Sclerosing adenosis	1	0.3%
FIBROEPITHELIAL LESION		
Fibroadenoma	185	56.74%
Gyanecomastia	39	11.96%
Fibroadenomatous hyperplasia	11	3.37%
Tubular adenoma	5	1.53%
Lactating adenoma	5	1.53%
Phylloides	4	1.22%
PAPILLARY LESION		
Intraductal papilloma	3	0.9%
Lipoma	4	1.22%

Table-3: Distribution pattern of benign breast disease with comparison with other studies

Benign Breast Disease	Hatim KS *et al*.,	Pudale *et al*.,	Haque *et al*, [20]	Oluwale & Freeman	Bagale *et al*.,	Present study
Granulomatous mastitis	2.40%	2	-	-	4.90%	7.06%
Abscess	1	3.88	-	-	5.11	1.80%
Fat necrosis	0.40%	-	2.88	2.97%	2.24%	0.90%
Duct ectasia	-	-	2.88	0.49%		2.40%
Galactocele	-	-	0.96	-	-	0.60%
Fibroadeoma	77.62%	40	52.88	48.51%	30.8	56.74%
Fibrocystic disease	4.3	32	22.12	23.56%	11.24%	6.10%
Gynaecomastia	4.3	2.23	8.66	-	2.25	
Fibroadebomatoid hyperplasia						
Tubular adenoma	0.4	0.55	-	-	-	1.53%
Lactating adenoma	-	-	-	-	-	1.53%
Phylloides	3.4	0.55	-	0.49	1.43	1.22
Sclerosing Adenosis		-	-	9.45	5.93	0.3

DISCUSSION

Breast lumps are a common finding and cause of significant anxiety, therefore is necessary to identify the lesion as benign and malignant and treat appropriately. 2,00,000 breast lesions are identified annually and it is noted that palpable lesions are benign [9].

Incidence of non-malignant and malignant breast lesions: In the present study, a higher incidence

of non-malignant breast lesions (69.50%) was noted than malignant lesions (30.49%). Bagale *et al*., a study in north Maharashtra noted 78.52% cases of benign lesions while, Pudale et al noted 71.15% [10-11].The findings are also comparable with that of Oluwayle and Freeman [12].

Sex distribution: Non malignant breast lesion were higher in females, 88.04%. Similar were the findings in the the study of Khanna *et al.*, [13]. Most common age group with BBDs in our study was 21-30 years, 38.65%. .

Fibroadenoma were account for highest in study , 56.74% which are comparable with the studies of Pudale *et al*., Bagale *et al*., Mallikarjuna *et al*., Prajapati *et al*., [10, 11, 14, 15]. Majority of fibroadenomas belong to age group 21-30 years, concordant with the study of Maychet *et al*., [16].

The next most common lesion reported in our study was granulomatous mastitis, 7.06 % affecting 31-40 years females most frequently similar to study conducted by Bagale *et al*., [10]. One billion people suffer from TB worldwide, however, mammary TB is relatively rare condition (We had no case of Tubercular mastitis) [10].

Percentage of Fibrocystic disease in our study was 6.13%. It was seen in association with fibroadenoma. It was equally seen in 2nd, 3rd and 4th decade. However, Kumar *et al*. found fibrocystic disease in asge group 20-30 years[17], whereas Prajapati et al, Bagale et al. found most cases in 4th decade[10,15].

In our study we found greater incidence of BBD in males, 39 cases (11.96%) compared to other studies done by Hatim KM *et al*., (4.3%) and Pudale *et al*., (2.23%) [11, 18].

5 cases (1.53%) of tubular adenoma were encountered. Numerous small tubular stuctures, composed mainly of secretory epithelial cells but with less obvious myoepithelial cells, set in fine cellular stroma. 4 cases were seen in age group 11 to 30 years. 1 case was seen at 43 years of age. Pudale et al noted 0.55% cases of tubular adenoma commonly seen in 11 to 30 years of age [11].

3 cases of intraductal papilloma (Fig-8), 4 cases of phylloides and 11 cases of fibroadenomatous hyperplasia were seen. 5 cases of Lactating adenoma were seen in lactating females.

Fat necrosis was seen in 3 cases (0.9%).It is important to diagnose fat necrosis as it can often mimic carcinoma of breast [19]. Microscopically, early lesions show haemorrhage, anucleated adipocytes, foamy macrophages and multinucleated giant cells.

Proliferative lesions like usual ductal hyperplasia (3cases), DCIS (2 cases) (Fig-9) and sclerosing adenosis (single case) were less frequent in our study (Fig-8).

Lipoma and epidermoid cyst are rare lesion in this site. 2 cases epidermoid cyst and 4 cases of lipoma out of total 326 benign lesions were seen in our study.

Follow up every 3 months was advised for low risk and high risk categories. Triple assessment along with clinical history and time of presention help in reaching a definitive histomophological diagnosis.

CONCLUSION

Lump breast is commonest presentation along with pain and nipple discharge. Out of 469 cases, 326 cases (69.50) were histologically benign lesions. Age group ranges from 14 to 80 years with 21 to 30 years being most common. Females (88.04%) are more commonly affected with withs most common lesion Fibroadenoma (56.74%). Granulomatous mastitis was commonest inflammatory lesion comprising 52.27 % of all inflammatory lesions. 2 cases of benign and 2 cases of borderline phylloides were found. Follow up was advised in every 3 months. Histopathological diagnosis is important in deciding the management of patient therefore the onus of proper diagnosis lies on the shoulder of pathologist to precisely diagnose a benign lesion and segregate them from mimickers of malignancy along with mention of proliferative lesions which are premalignant.

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