

Spectrum of Benign Breast Lesions in Females of Age Group 11-60 Years - A Hospital Based Study

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Abstract

Objectives: To find the prevalence & clinical profile of various benign breast lesions in females presenting with breast lump and to establish its cytohistologic correlation. **Methods:** A prospective study was conducted in the Department of Pathology, Chirayu Medical College and Hospital, Bhopal [M.P]. A total of 203 patients were diagnosed with benign breast lesions both by Fine Needle Aspiration Cytology and Histopathology over a period of twenty four months. Data including age, complaints and clinical examination was collected from patients presented for FNAC in Cytology Department with Breast complains. **Result:** Benign breast lesions are more common in younger age group. Of 203 cases 47.3% belongs to 3rd decade of life (Age 21-30yrs) followed by 31% from 4th decade (31-40). The commonest mode of presentation was Lump in breast in 55.7% cases. The spectrum of lesions were Fibroadenoma 54.2% (n=110), Fibrocystic disease 14.3% (n=29), Fibroadenoma with atypia 3.9% (n=8), Granulomatous mastitis 3.4% (n=7), Breast abscess 4.9% (n=10), Galactocele 2.0% (n=4) and Acute mastitis 3.0% (n=6), Papillary lesion 3.4% (n=7), Phyllodes 2.0% (n=4), Duct ectasia 1% (n=2), Fat necrosis 0.5 % (n=1). Histology was available for 117 cases. No discrepancy was noted. **Conclusion:** It is essential to diagnose the Breast lesions at the earliest for appropriate management. Diagnosis by FNAC is safe, easy, accurate and economical procedure with easy repeatability, yielding quick results and reducing the need for open biopsies in the reproductive age group. Confirmation of diagnosis by Clinical Examination, FNAC and Histopathology is an important part of diagnostic workup.

Keywords: Breast, FNAC, Histopathology, Benign.

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INTRODUCTION

Breast lesions are common heterogeneous group of disorders ranging from self-limiting inflammatory lesions to life threatening invasive cancers [1]. Breast diseases are common in women because oestrogen cyclically stimulates breast development during their reproductive life [2]. Benign breast diseases are most common cause of breast problems [3]. Benign breast disease is a neglected entity despite the fact that it constitutes the majority of breast problems. Breast cancer has taken precedence over benign breast disease since it is more fearsome although the number of females with benign breast disease is substantial [4]. Risk factors for breast cancer are assessed based on the histologic classification of a benign breast lesion and a family history of breast cancer. The combination of fine needle cytology, clinical examination, and mammography has been suggested as a triple test for the preoperative diagnosis of breast masses [5]. The advantage of the cytological procedures lies in the fact that they are simple to

perform, cost-effective, rapidly accepted by the patient, and cosmetically least disfiguring. This more rapid diagnostic approach helps to allay the anxiety caused by delays in scheduling, performing, and interpreting an open biopsy. A benign diagnosis allows surgery to be avoided in the majority of cases, while a positive diagnosis of carcinoma allows preoperative discussion with the patient and proper treatment planning with minimal morbidity [6].

AIMS AND OBJECTIVES

To find the prevalence & clinical profile of various benign breast lesions in females presenting with breast lump and to establish its cytohistologic correlation

MATERIALS AND METHODS

Sample size

A total number of 203 patients diagnosed with benign breast lesions both by Fine Needle Aspiration cytology and histopathology of age group (11-60years)

over a period of 24 months were included in the study. All malignant lesions, Breast lump in male, age before 10 years and after 60 years were excluded from the study

METHODOLOGY OF THE STUDY

A study was conducted in the Department of Pathology, Chirayu Medical College and Hospital, Bhopal (M.P) on the patients who were diagnosed with benign breast diseases both by FNAC and histopathology. Information about the patient's age, sex, detailed clinical history and duration of lesion, marital status, pregnancy, lactation and OCP was taken. Clinical examination, nature of lesion and previous history (if any), radiological findings was obtained and recorded. For FNAC, Aspiration was done under full aseptic precautions using 22-23-gauge needle in a 10 ml syringe. Multiple smears were prepared from the aspirate, the one immediately fixed in 95% ethanol were stained using Papanicolaou stains and air-dried smears were stained using MGG stains. The excised specimens after surgical removal were subjected to Histopathology examination. For histopathology, the specimens were processed and stained by H& E stains. The results were obtained, and findings were tabulated and analysed for the frequency of lesions, their age distribution and then cytohistological correlation was done.

RESULTS

In the present study 203 cases were studied. The spectrum of Benign Breast Diseases diagnosed by

FNAC and Histopathological examination are analysed and are showed in the following tables.

Age distribution

Benign breast lesions are more common in younger age group. Of 203 cases 47.3% belongs to 3rd decade of life (Age 21-30yrs) followed by 31% from 4th decade (31-40years).

Table-1: Distribution of cases according to age

Age group (Yrs.)	No.	%
11 – 20	18	8.9%
21 – 30	96	47.3%
31 – 40	63	31.0%
41 – 50	23	11.3%
51 – 60	3	1.5%
Total	203	100%

Mode of presentation

The various presentations of the symptoms were breast lump, vague mass, mastalgia and nipple discharge. The commonest mode of presentation in our study was Lump in breast 55.7% (n=113), Lump with pain 22.2% (n=45). Rest of the patients presented with Vague mass 8.4 % (n=17) & mastalgia 3.9% (n=8) and few presented with combination of symptoms.

Regarding the laterality of the breast disease 49.8% (n=101) were on right side and 44.3% (n=90) were of the left side, and 5.9 % (n=12) was bilateral.

Table-2: Mode of presentations

Mode of presentations	Total no. of cases	% of Total cases
LUMP	113	55.7
LUMP+PAIN	45	22.2
VAGUE MASS	17	8.4
LUMP+DISCHARGE	8	3.9
LUMP+PAIN+DISCHARGE	8	3.9
MASTALGIA	8	3.9
NIPPLE DISCHARGE	4	2.0
Grand Total	203	100

Table-3: Laterality distribution of various Benign Breast lesions

	Right	Left	Bilateral
Laterality	49.8% (n=101)	44.3% (n=90)	5.9% (n=12)

The commonest affected quadrant was Upper Outer Quadrant in 47.3% cases (n=96), followed by Central in 17.2% (n=35), Lower Outer Quadrant in

15.3% (n=31) and least commonly affected was lump occupying all the quadrants.

Table-4: Quadrant distribution of Benign Breast lesions

Quadrants	Total no. of cases	% of Total cases
UOQ	96	47.3%
CENTRAL	35	17.2%
LOQ	31	15.3%
UIQ	26	12.8%
LIQ	14	6.9%
ALL	1	0.5%
TOTAL	203	100.0%

DISEASE DISTRIBUTION

In our study of 203 cases, 198 reached up to conclusion as 3 cases were haemorrhagic and 2 were acellular. The spectrum of lesions were Fibroadenoma 54.2% (n=110), Fibrocystic disease 14.3% (n=29),

Fibroadenoma with atypia 3.9% (n=8), Granulomatous mastitis 3.4% (n=7), Breast abscess 4.9% (n=10), Galactocoele 2.0% (n=4) and Acute mastitis 3.0% (n=6), Papillary lesion 3.4% (n=7), Phyllodes 2.0% (n=4), Duct ectasia 1.0% (n=2), Fat necrosis 0.5% (n=1).

Table-5: Frequency Distribution of Benign Breast lesions

DISEASE	No. of cases	% of Total cases
FIBROADENOMA	110	54.2
FIBROCYSTIC DISEASE	29	14.3
BREAST ABSCESS	10	4.9
FIBROADENOMA WITH MILD ATYPIA	8	3.9
GRANULOMATOUS MASTITIS	7	3.4
PAPILLARY LESION	7	3.4
ACUTE MASTITIS	6	3.0
BENIGN EPITHELIAL HYPERPLASIA	6	3.0
GALACTOCELE	4	2.0
PHYLLODES TUMOR	4	2.0
HAEMORRHAGIC	3	1.5
ACELLULAR	2	1.0
CELLULAR FIBROADENOMA	2	1.0
DUCT ECTASIA	2	1.0
FIBROADENOMA WITH APOCRINE METAPLASIA	2	1.0
FAT NECROSIS	1	0.5
Grand Total	203	100

In our study, 203 patients were subjected to FNAC, Biopsy was done in 57.6% cases (n=117) patients. Cytological diagnosis was confirmed in 110

patients giving it a diagnostic accuracy of 94.01%.

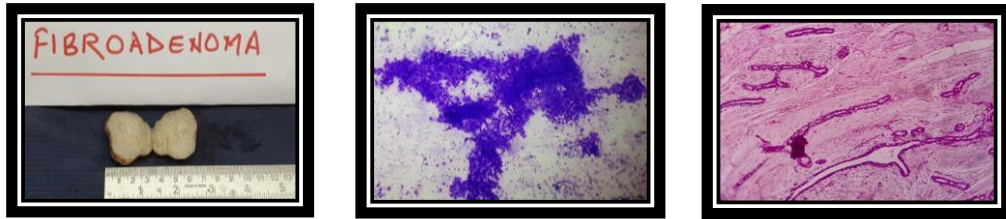
Table-6: Cyto – histopathological correlation

Histo-Pathological Diagnosis	Cytological Diagnosis	ADH	BENIGN EPITHELIAL HYPERPLASIA	FIBROADENOMA	FIBROADENOMA WITH MILD ATYPIA	FIBROCYSTIC DISEASE	GALACTOCELE	GRANULOMATOUS MASTITIS	PAPILLARY LESION	PHYLLODES TUMOR	TUBULAR ADENOMA	UDH	Grand Total	correlation (%)
BENIGN EPITHELIAL HYPERPLASIA			3									1	4	75
FIBROADENOMA				85		1					1		87	97.7
FIBROADENOMA WITH MILD ATYPIA		1			3								4	75
FIBROCYSTIC DISEASE				1		10						1	12	83.3
GALACTOCELE							1						1	100
GRANULOMATOUS MASTITIS								2					2	100
PAPILLARY LESION		1							3				4	75
PHYLLODES TUMOR										3			3	100

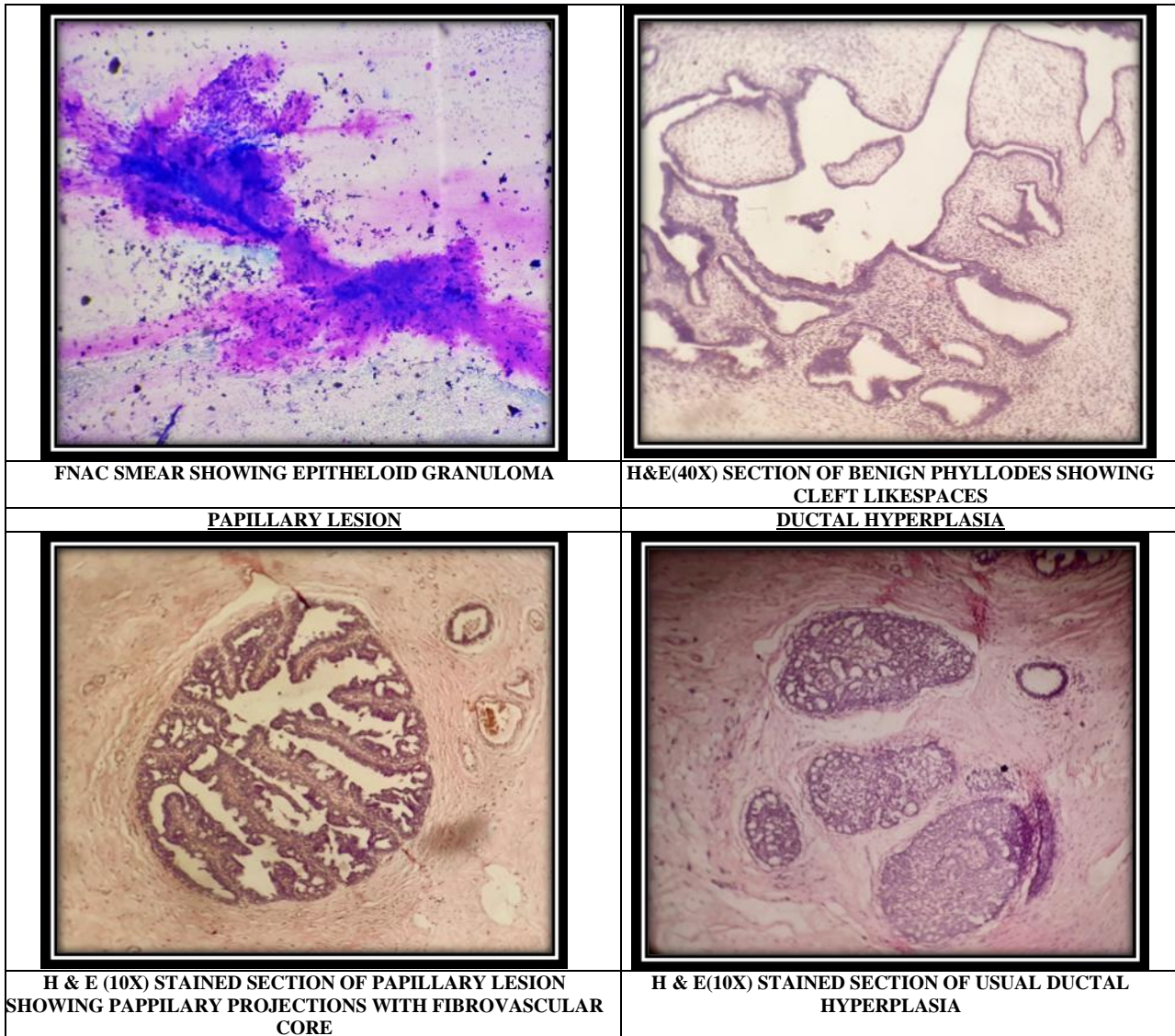
Sensitivity of FNAC in diagnosing Fibroadenoma was found to be 98.84%, specificity was

found to be 93.55%. Positive Predictive Value was 97.7% and Negative Predictive Value was 96.7%.

Fibroadenoma



Gross appearance	Geimsa (400x)	H&E (10x)
FIBROCYSTIC DISEASE		
FNAC SMEAR OF FIBROCYSTIC DISEASE SHOWING STROMAL ELEMENTS WITH CYSTIC MACROPHAGES.MGG 40X		H&E(10X) STAINED SECTION OF FIBROCYSTIC DISEASE SHOWING VARIABLE SIZED DIALATED CYSTIC SPACES
Granulomatous mastitis		
BENIGN EPITHELIAL CELLS IN FIBROMYXOID STROMA (40X)		H&E (40X) SHOWING GRANULOMATOUS MASTITIS
Phyllodes		



DISCUSSION

Benign breast diseases are the most common diseases affecting females worldwide. The present study was conducted on 203 female patients aged between 11 to 60 years, who were clinically examined and investigated cytologically. The diagnosis confirmed by histopathological examination.

Age incidence

In the present study of 203 cases, most of the benign breast disease belonged to age group of 21-30 years comprising 96 of the total cases. The next common age group is 31-40 years. These findings are consistent with those of similar studies from Naveen *et al.* [7], Shukla *et al.* [8], Karki *et al.* [9], Guray *et al.* [1], Houssami *et al.* [10] and Dahri *et al.* [11]. The Age incidence of benign breast diseases in present study as compared with other studies is shown in following Table.

Table-7: Age incidence of benign breast lesions

Study	Peak Age Incidence of Benign Breast Disease	Percentage in Study Population
Karki <i>et al.</i> [9]	21-40	67 %
Dahri <i>et al.</i> [11]	21-30	44 %
Shukla <i>et al.</i> [8]	21-30	43 %
Naveen <i>et al.</i> [7]	21-30	50 %
Present study	21-30	44 %

Mode of presentation

The most common mode of presentation of the patients was either Lump in the breast 55.7% (n=113) and a lump with pain 22.2% (n=45). Dixon *et al.* [24] conducted a study and found breast lump in 69%, breast pain in 50% and nipple discharge in 5% of cases. Griffith [25] studied frequency of presenting symptoms in benign breast diseases. He found common symptoms as lump in 33% of cases followed by pain and nipple discharge and noted that the patients may present with one or more of the symptoms.

Regarding the laterality of the breast disease, 49.8% (n=101) were on right side, 44.3% (n=90) were on left side and 5.9% (n=12) were bilateral.

Hussain *et al.* [26] reported left breast involvement in 27 patients (54%) and right breast involvement in 23 cases (46%) and concluded similarly that left breast was involved more commonly than right.

Distribution of various benign breast disorders

In the present study, the most common benign breast disease was fibroadenoma, accounting for 54.2% of cases. The study of Aslam [12] also documented fibroadenoma as the most common benign lesion (71.3%) in their study. The study by Malik [13] reported 55% of fibroadenoma, the findings is also consistent with Naveen *et al.* [7] and Khanzada *et al.* [14].

The origin of Fibroadenoma has been postulated that it may arise for Bcl-2 positive mesenchymal cells of the Breast [15]. A simple Fibroadenoma does not confer additional risk of malignancy, whereas a complex fibroadenoma poses a slightly higher risk of developing malignancy [16]. Increase in awareness about Breast lumps and growing concerns for detecting Breast malignancies at an earlier stage has led to the early detection and evaluation of Breast mass.

Fibrocystic disease was the second most common Breast lesion in our study which is similar to the findings of Naveen *et al.* [7]. Fibrocystic disease is common in females of age group 20-50[1] which often occurs multifocal and bilateral. Hormonal imbalance plays a major role in the pathogenesis with oestrogen predominance over progesterone [17]. Though this has been called by many names as Cystic mastopathy, Reclus's disease, chronic cystic disease and Mazoplasia for many years the term. Fibrocystic disease is preferred because of the characteristic clinical and Histopathological findings observed in 50% of the patients clinically and 90% histologically [18,19]. This entity poses a low risk of development of Breast cancer later in life [1].

Phyllodes tumour constituted 2.1% (2 cases) in this study. Phyllodes tumour can have a spectrum of

changes and it is important to recognize infiltration, cytologic atypia and increased mitotic activity to predict the recurrent and malignant behaviour which is often treated by mastectomy [20, 21].

We had 3 cases (3.2%) of Intraductal papilloma. They usually arise from the terminal ends of the ducts and ductules. The risk of developing atypical hyperplasia and in situ carcinoma in an otherwise benign papilloma is still a topic of controversy [22].

There were 3 inflammatory lesions, 3 cases (3.2%) of Breast abscess and 4 cases (4.3%) of Granulomatous mastitis and 3 cases of acute mastitis. Acute mastitis involves the inflammation of the interlobular connective tissue of the breast and if not properly managed can lead to septicaemia [23].

CONCLUSION

Benign breast lesions are a common problem in women with reproductive age group. Fibroadenoma was the commonest commonly seen in the 21-30years age group with painless lump as the commonest presentation. FNAC was useful in making the diagnosis of breast lesions and to distinguish benign and malignant lesions. A comprehensive approach to diagnosis of benign breast lesions by using a combination of clinical history and cytology helps to reduce unnecessary apprehension of the fear of cancer to the patient and helps the surgeon to plan appropriate treatment of benign breast lesions.

RECOMMENDATION

It is essential to diagnose and recognize the significance of Benign Breast disease in a reproductive age group to segregate the high-risk group of patients for whom a regular surveillance is needed for an appropriate management and to reduce the amount of surgical procedures.

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