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Original Research Article

A study on clinical and pathological correlation of benign breast lesions

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ABSTRACT

Background: Benign breast diseases are common in females among young age group. Most common presentation is painless lump in the breast. Clinical and pathological correlation is essential. Fibroadenoma is the commonest among all other benign breast diseases. The aim was to study the age distribution of benign breast diseases. To study different types of benign breast diseases, their mode of clinical presentation and to correlate with radiological examination, cytology and histopathology of breast diseases.
Methods: This was a prospective study conducted in the outpatient department of General Surgery in MGM hospital, Kakatiya Medical College, Warangal over a period of 2 years. A total of 250 patients diagnosed as benign breast diseases on clinical examination were studied and clinical findings were correlated with radiological, cytological and histopathological findings.
Results: Patient age ranged 11 to 59 years. Majority of cases 150 (60%) were among 21-30 years. There were 98.8% female patients. Fibroadenomas were 57.6%, fibrocystic disease cases were 13.2%, breast abscesses were 1.6%, Intraductal papilloms 2.0%, simple cysts were 4.8%, Galactoceles 1.8%, Benign phyllodes were 3.6%, proliferative breast disease without atypia were 5.2% and gynaecomastia were 1.2% cases.
Conclusions: Benign breast diseases are common among young females. Most of them present as painless mobile breast lump. Breast pain and nipple discharge are the other symptoms. Fibroadenoma is the commonest in our study, followed by fibrocystic changes Clinical diagnosis was correlated with cytology and histopathology.

Keywords: Benign breast disease, Fibroadenoma, Fibrocystic changes, Proliferative breast disease

INTRODUCTION

The term "benign breast diseases" is made up of a heterogeneous group of lesions that have diverse symptoms or may be detected as incidental microscopic findings. It is relatively common in younger population and the incidence rises during the second decade of life and peaks in the fourth and fifth decades. In contrast, the malignant diseases are more common after menopause.[1-6]

Benign processes may be completely asymptomatic or have a variety of clinical manifestations, such as palpable nodularity, thickening, mass, pain, inflammation, or nipple discharge. Many of the signs and symptoms encountered in various breast diseases are nonspecific and require further evaluation by means of imaging and sometimes followed by biopsy study for definitive diagnosis. The benign lesions can arise from different kind of cells and can be inflammatory or proliferative. They include skin lesions, vascular lesions, lymph nodes, fat necrosis, foreign bodies, infections, fibroadenomas, other benign tumors, cysts, galactoceles, adenosis, fibrosis, duct ectasias, papillomas, radial scar, and spectrum of epithelial hyperplasias with or without atypia.[7]

Benign epithelial lesions are classified broadly into three groups, according to the subsequent risk of developing breast cancer.[8] Non-proliferative breast changes, which include, fibrocystic changes are not associated with an increased risk of breast cancer.[7] Proliferative breast disease characterized by proliferation of epithelial cells, without atypia, are associated with a small increase in the risk of subsequent carcinoma in either breast. They are predictors of risk but are thought to be unlikely precursors of carcinoma.[9]

Aim of the study was to study the age distribution of benign breast diseases and the spectrum of benign breast lesions with regard to mode of clinical presentation and correlation with cytological and histopathological findings.

METHODS

Written informed consent was taken from all the patients who were included in the study.

This prospective study was done in the patients attending outpatient department of General Surgery in MGM Hospital, Kakatiya Medical College, Warangal over a period of 2 years from March 2015 to April 2017.

A total of 250 patients were included in the study who were diagnosed as having benign breast disease on clinical examination and the clinical findings were correlated with cytological and histopathological findings.

A detailed clinical history was taken and local examination was done. After diagnosing clinically, patient was advised fine needle aspiration cytology (FNAC) followed by excision biopsy for histopathological confirmation.

FNAC was done under all aseptic conditions by the concerned pathologist in the department of pathology. A 5 cc to 10 cc disposable syringe and disposable 22 gauge or 23 gauge needle were used for the procedure. The smears were immediately fixed in alcohol and some were left to air dry. The smears were stained with hematoxylin and eosin stains and Giemsa stain and reporting was done using standard diagnostic criteria by the concerned pathologist.

Later the excised tissue was sent to the department of pathology for histopathological examination. The tissue was fixed in 10% buffered formalin and processed for routine histopathology. The sections were cut at five microns, stained with hematoxylin and eosin and examined under light microscope.

The clinical diagnosis, of the benign breast lumps, was compared with the cytological or the histological findings and the accuracy of the clinical diagnosis was evaluated.

Inclusion criteria

- All patients with breast lumps, breast pain or a nipple discharge
- Patients in whom all three modes of examination were documented i.e., clinical, cytological and histopathological.

Exclusion criteria

- Breast carcinoma diagnosed clinically and confirmed on histopathology
- Referral slides or paraffin blocks reported as benign breast lesions in the department of pathology where clinical examination was lacking.

RESULTS

Age included in our study range from 11 years to more than 50 years. Majority of cases i.e., 150 (60%) were among age 21-30 years. Least commonly affected age was more than 50 years (4%).

Table 1: Age wise distribution.

Age in years	No. of cases	Percentage (%)
11-20	20	8%
21-30	150	60%
31-40	55	22%
41-50	15	6%
>50	10	4%
Total	250	100%

Gender wise distribution

In the present study, there were 247 (98.8%) females and 3 (1.2%) males.

Site of involvement

The right breast was affected in 130 (52%) cases, left breast was affected in 80 (32%) cases and both breasts were affected in 40 (16%) cases. The majority of breast lumps 150 (60 %), were located in the upper outer quadrant followed by lower inner quadrant, 50 (20%) cases, followed by lower outer quadrant, 30 (12%) cases and the least number of cases was in the upper inner quadrant, 20 (8%).

Table 2: Clinical presentation.

Clinical presentation	No. of cases	%
Breast lump, mobile, painless	170	68%
Breast lump with pain	60	24%
Breast lump with pain and nipple discharge	15	6%
Nipple discharge	5	2%
Total	250	100%

Most of the cases (68%) presented with breast lumps that were mobile and painless. Majority (60% cases) of benign breast disease were seen among 21- 30 years age group. Fibroadenoma was the most common lesion identified.

Fibroadenoma diagnosed cytologically were 144/250. On histopathological examination, 142 cases were confirmed as fibroadenoma and remaining 1 case each was of fibrocystic disease and benign phyllodes tumor.

The sensitivity and specificity for detecting fibroadenoma clinically were 98.6% and 59.6% respectively when compared to that of biopsy detection.

Table 3: Age wise distribution of benign breast lesions on histopathology.

Benign breast lesions	11-20	21-30	31-40	41-50	>50	Total	%
Fibroadenoma	12	98	32	2	-	144	57.6%
Fibrocystic disease	-	10	10	7	6	33	13.2%
Breast abscess	-	2	2	-	-	4	1.6%
Intraductal papilloma	-	3	2	-	-	5	2%
Simple cysts	6	5	1	-	-	12	4.8%
Galactocele	-	2	1	-	-	3	1.2%
Benign phyllodes	1	6	2	-	-	9	3.6%
Duct ectasia	-	2	1	1	-	4	1.6%
Tuberculosis	1	2	-		-	3	1.2%
Proliferative breast disease without atypia	-	10	2	1	-	13	5.2%
Proliferative breast disease with hyperplasia	-	10	2	1	4	17	6.8%
Gynecomastia	-	-	-	3	-	3	1.2%
Total	20	150	55	15	10	250	99.8%

Table 4: Cytological and histopathological correlation.

Cytological diagnosis	Histopathological diagnosis											
Benign breast lesions	**FA (144)**	**FCD (33)**	**BA (4)**	**IDP (5)**	**SC (12)**	**GC (3)**	**BPT (9)**	**DE (4)**	**TB (3)**	**PBD without atypia (13)**	**PBD with hyperp-lasia (17)**	**Gyneco-mastia (3)**
Fibroadenoma (144)	142	1	-	-	-	-	1	-	-	-	-	-
Fibrocystic disease (37)	2	32	-	2	-	-	1	-	-	-	-	-
Breast abscess (4)	-	-	4	-	-	-	-	-	-	-	-	-
Intraductal papilloma (4)	-	-	-	3	-	-	1	-	-	-	-	-
Simple cysts (12)	-	-	-	-	12	-	-	-	-	-	-	-
Galactocele (3)	-	-	-	-		3	-	-	-	-	-	-
Phyllodes tumor (6)	-	-	-	-	-	-	6	-	-	-	-	-
Duct ectasia (4)	-	-	-	-	-	-	-	4	-	-	-	-
TB (3)	-	-	-	-	-	-	-	-	3	-	-	-
PBD without atypia (13)	-	-	-	-	-	-	-	-	-	13	-	-
PBD with hyperplasia (17)	-	-	-	-	-	-	-		-	-	17	-
Gynecomastia (3)	-	-	-	-	-	-	-	--		-	-	3
Total	144	33	4	5	12	3	9	4	3	13	17	3

FA: Fibroadenoma, FCD: Fibrocystic disease, BA: Breast abscess, IDP: Intaductal papilloma, SC: Simple cyst, GC: Galactocele, BPT: Benign phyllodes tumor, DE:Duct ectasia, TB: Tuberculosis, PBD: Proliferative breast disease

DISCUSSION

The present study included total 250 cases of benign breast lesions in whom the clinical findings were correlated with cytological, histopathological and radiological findings.

Age and gender incidence

The majority of cases (60%) in our study were encountered in the age group of 21-30 years and the least commonly affected age was above 50 years for benign breast lesions. Ilaiah et al, (n=60 cases) have also observed in a similar study that 58.3% of their cases of

benign breast lesions were in the 21-30 years age group.[10] Chalya et al, also in their study on benign breast lesions (n=346 cases), with a patient age range from 14 to 72 years observed a median age of 26 years and 69.9% of their cases fell in the 21-30 years age group.[11] Mallikarjuna et al, (n=50 cases) in a similar study found 44% of their cases in the 21-30 years age range.[12] Our findings compare well with the observations of the above authors. Bhargava et al, also reported 47% cases in the age group of 25-40 years.[13]

Table 5: Clinical and histopathological correlation.

Clinical diagnosis	Histopathological diagnosis											
Benign breast lesions	**FA (144)**	**FCD (33)**	**BA (4)**	**IDP (5)**	**SC (12)**	**GC (3)**	**PT (9)**	**DE (4)**	**TB (3)**	**PBD without atypia (13)**	**PBD with floridhyperplasia (17)**	**Gyneco-mastia (3)**
Fibroadenoma (186)	142	-	-	5	1	-	2	4	2	13	17	-
Fibrocystic disease (35)	2	33	-	-	-	-	-	-	-	-	-	-
Breast abscess (6)	-	-	4	-	2	-	-	-	-	-	-	-
Intraductal papilloma (0)	-	-	-	--	-	-	-	-	-	-	-	-
Simple cysts (9)	-	-	-	-	9	-	-	-	-	-	-	-
Galactocele (3)	-	-	-	-		3	-	-	-	-	-	-
Phyllodes tumor (7)	-	-	-	-	-	-	7	-	-	-	-	-
Duct ectasia (0)	-	-	-	-	-	-	-	-		-	-	-
TB (1)	-	-	-	-	-	-	-	-	1	-	-	-
PBD without atypia (0)	-	-	-	-	-	-	-	-	-	-	-	-
PBD with florid hyperplasia (0)	-	-	-	-	-	-	-		-	-	--	-
Gynecomastia (3)	-	-	-	-	-	-	-	--		-	-	3
Total	144	33	4	5	12	3	9	4	3	13	17	3

FA: Fibroadenoma, FCD: Fibrocystic disease, BA: Breast abscess, IDP: Intaductal papilloma, SC: Simple cyst, GC: Galactocele, BPT: Benign phyllodes tumor, DE: Duct ectasia, TB: Tuberculosis, PBD: Proliferative breast disease.

In our study, there were only 8% cases in the 11-20 years age, whereas, Ilaiah et al, and Mallikarjuna et al, reported higher values of 23.3% and 40% for this age group respectively.[10] In our series, males constituted only 1.2% cases.[12] In the study by Deshpande et al, also males contributed to only 1% though their study was on neoplastic breast lesions.[14] In the study by Danadapat et al, also there were very few male patients and most of them had gynecomastia.[15] Breast lesions are uncommon in males and our findings compare well with the above authors.

Clinical presentation

In the present study, 68% breast lumps were mobile and painless, 24% breast lumps were associated with pain, 6% presented with painful breast lump and in addition had nipple discharge also and only 2% cases presented exclusively with nipple discharge. In the study by Chalya et al, breast lump was the most frequent presentation in 67.6% of their patients.[11] The breast lumps associated with other symptoms such as pain and/or nipple discharge was reported in 12.4% patients. In the study by Ilaiah et al, most common presentation was of painless lump (58.3% cases) followed by painful lump.[10] Only one case presented with bilateral nipple discharge and was diagnosed to have duct ectasia.

Laterality and site of lesions

In the present study, 52% (130/250) cases had right breast lesion, 32% (80/250) had left breast lesions and 16% (40/250) had lesions in both breasts.

Chalya et al, also reported right breast involvement in 53.8% cases and left breast involvement in 42.8% cases.[11] Bilateral breast lesions were found in 3.4% patients in their study. Sangma et al, reported right and left breast involvement by benign disease in 48% and 40% cases respectively.[16] Bilateral involvement was seen in 12% cases which is similar to our findings.

In the present study, majority of breast lumps (60%) were located in the upper outer quadrant and least (8%) cases were seen in upper inner quadrant. Chalya et al, also in their study observed majority of (63.5%) cases of breast lumps in the outer upper quadrant and least (6.8%) in upper inner quadrant area.[11]

In the present study, the sensitivity and specificity for detecting the most common benign breast lesion, ie,

fibroadenoma on clinical examination was 98.6% and 59.6% respectively as compared to the biopsy findings. Smallwood et al, (n=480 cases) found a clinical diagnostic accuracy of 86.7%.[17]

Dandapat et al, observed an overall clinical accuracy of 91.3% for all types of breast lesions including neoplastic lesions.[15] Furnival et al, also observed an accuracy of 85% in their study.[18] Some discrepancy is expected in the clinical and cytological and/or histopathological diagnoses due to the fact that some of the histopathological entities like proliferative breast disease with or without atypia, florid epithelial hyperplasia, etc. cannot be entertained on clinical examination. But by and large the diagnosis of fibroadenoma on clinical examination can be made easily based on the clinical history and examination of the patient.

Table 6: Comparative studies of benign breast diseases.

Benign breast lesions	Mallikarjuna et al[12]	Ilaiah et al[10]	Chalya et al[11]	Bhargava et al[13]	Present study
Fibroadenoma	36	41	177	150	144
Fibrocystic disease	-	7	56	24	33
Mastalgia	-	-	-	33	-
Breast abscess	-	3	16	36	4
Intraductal papilloma	-	-	6	12	5
Simple cysts	-	-	7		12
Galactocele	2	2	9	3	3
Benign phyllodes	6	5	4	3	9
Duct ectasia	2	1	8	21	4
Tuberculosis	-	-	4	-	3
Proliferative breast disease without atypia	-	-	-	-	13
Atypical ductal hyperplasia	-	-	6	-	-
Proliferative breast disease with florid hyperplasia	-	-	-	-	17
Gynecomastia	-	-	-	-	3
Mammary fistula	-	1	-	-	-
Lipoma	2	-	2	-	-
Tubular adenoma	2	-	-	-	-
Others	-	-	-	18	-
Total	50	60	295	300	250

CONCLUSION

Benign breast diseases are common among 21-30 years. Common clinical presentation is that of a painless mobile breast lump. Breast pain and nipple discharge are the other symptoms. Fibroadenoma is the commonest in our study, followed by fibrocystic changes. Clinical diagnosis was correlated with cytology and histopathology.

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