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Clinico-Pathological Study of Benign Breast Disease with Special Reference to Fibroadenoma of the Breast

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KEYWORDS

Benign breast disease, Fibroadenoma, FNAC, Histopathology, Breastlump.

ABSTRACT:

Background: Benign breast disease (BBD) is one of the most common conditions affecting women, with fibroadenoma being the most frequent lesion, particularly in young females. Despite its benign nature, fibroadenoma often poses diagnostic and therapeutic dilemmas. This study evaluates the clinical spectrum of benign breast diseases, with special reference to fibroadenoma, including age distribution, presentation, diagnostic accuracy of FNAC, and clinico-histopathological correlation.

Methods: A prospective study was conducted from April 2004 to April 2006 on 50 patients aged 16–40 years presenting with benign breast disease at the Department of General Surgery, Mysore Medical College, K.R. Hospital. Detailed clinical history, examination, and investigations including FNAC were performed. Patients undergoing surgery were subjected to histopathological examination. Clinical, cytological, and histological correlations were analyzed.

Results: Of 50 cases, fibroadenoma was the most common lesion (60%), followed by fibroadenosis (16%). The majority of patients were between 11–30 years of age. The most frequent presentation was a palpable breast lump (82%), with the upper outer quadrant being the most common site. FNAC had a diagnostic sensitivity of 95%. Clinico-histological correlation showed 60% sensitivity, while cyto-histological correlation showed 85% sensitivity.

Conclusion: Benign breast diseases are frequent among young women, with fibroadenoma being the predominant lesion. FNAC is highly reliable for diagnosis, and conservative management can be offered in select cases. Accurate diagnosis and tailored management prevent unnecessary surgical interventions while ensuring patient safety.

Introduction

Benign breast disease (BBD) encompasses a wide spectrum of non-malignant breast conditions ranging from simple mastalgia to palpable nodules, cystic lesions, inflammatory disorders, and fibroepithelial tumors. It is one of the most frequent clinical problems faced by women of reproductive age, and accounts for nearly 90% of all breast-related complaints in surgical outpatient departments worldwide.

While malignant breast lesions command significant clinical attention, benign conditions are four to five times more common, and they frequently influence quality of life, diagnostic evaluations, and surgical decision-making. Studies suggest that more than 50% of women experience some form of benign breast disorder during their lifetime[1].

Fibroadenoma, a benign fibroepithelial tumor arising from the terminal duct lobular unit, is by far the most common lesion seen in young women. A recent pathological review showed that fibroadenoma is the most common lesion follows by fibrocystic disease of the breast and cystosarcoma phylloids.[2] Its clinical importance lies in its frequency, its tendency to mimic carcinoma in both clinical and radiological presentation,

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and the anxiety it causes in patients.

Congenital abnormalities of the Breast

Amastia: Bilateral absence of breast tissue and nipple is exceedingly rare. When breast tissue is unilaterally absent, the pectoral muscles are often absent.

Polymastia: There is more than one breast on one or both sides. The accessory breast tissue may occur anywhere along the milk ridge, but is usually 7-10 cm below and medial to the normal nipple.

Polythelia: Occasionally fragments of mammary ridge may persist and develop into supernumary nipples.

Athelia: The nipple may be absent.

Accessary breasts: may be found away from milk line. They have been observed in the neck, cheek femoral triangle and vulva.

Inverted or crater nipple: Nipple fails to form and lactiferous ducts open into a pit.

The gland may be abnormally small (Micromastia) or abnormally large (Macromastia)

Gynaecomastia: The male breast may enlarge as in normal female and may even secrete milk.[3]

Although fibroadenomas are benign and not regarded as precancerous, rare cases of carcinoma arising within fibroadenomas have been reported. Their management has evolved over time from routine excision towards more conservative strategies, aided by the increasing use of fine needle aspiration cytology (FNAC) and imaging modalities.In India, where breast cancer awareness and screening are limited, most benign lesions present as palpable lumps. The commonest sites of involvement are the upper and outer quadrants of the breast. Since the majority of cases occur in adolescents and young women, the diagnostic approach must balance between excluding malignancy and avoiding unnecessary surgical morbidity.

This study was undertaken to evaluate the clinical profile of benign breast diseases, with special reference to fibroadenoma. It aims to analyze age distribution, clinical presentation, quadrant-wise involvement, and management outcomes, and to assess the diagnostic accuracy of FNAC in correlation with histopathology.

Materials and Methods

This was a prospective descriptive study carried out at the Department of General Surgery, Mysore Medical College and K.R. Hospital, Mysore, over a period of two years from April 2004 to April 2006. Fifty patients with suspected benign breast disease were included in the study.

Inclusion criteria: Patients of both sexes aged 16–40 years with clinical suspicion of benign breast disease were included.

Exclusion criteria:

Patients who have not attained menarche,History of trauma to the breast,

Patients with malignant breast lump,Patients who underwent Excisional biopsy before clinical evaluation,Patients who are refusing any sort of treatment

All patients underwent a detailed clinical evaluation including history of onset, duration, pain, nipple discharge, menstrual and reproductive history, use of oral contraceptives, and family history of breast disease.

Clinical examination included assessment of site, size, laterality, mobility, consistency of lump, and axillary nodes.

Fine needle aspiration cytology (FNAC) was performed for all patients. Patients selected for surgery underwent excisional biopsy, and tissue samples were subjected to histopathological examination (HPE).

Clinical, cytological, and histopathological findings were compared to assess diagnostic accuracy.

Patients were followed up for 1–15 months for recurrence, complications, and outcome. Data were compiled, and statistical

analysis was performed to calculate sensitivity, specificity, and correlation between diagnostic modalities.

Results:

A total of 50 patients were studied. The age of patients ranged from 15 to 39 years, with a mean age of 24 years. The majority (80%) of cases were in the second and third decades of life.
Distribution of lesions: Fibroadenoma accounted for 30 cases (60%), fibroadenosis for 8 (16%), breast abscess for 3 (6%), cystosarcoma phylloides for 2 (4%), simple cysts for 2 (4%), gynaecomastia for 2 (4%), intraductal papilloma for 1 (2%), antibioma for 1 (2%), and galactocele for 1 (2%).

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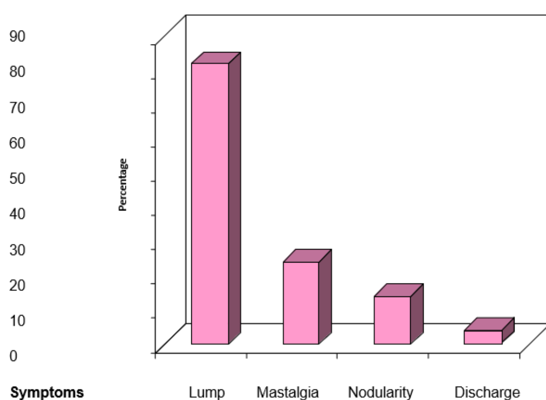
Table – 1, Age Incidence

Diagnosis	Age Groups (in years)		
	11-20	**21-30**	**31-40**
Fibroadenoma	14	11	05
Fibroadenosis	0	7	1
Cytstosarcoma phylloides	0	0	2
Breast abscess	1	1	1
Simple cyst	0	1	1
Gynaecomastia	2	0	0
Duct Papilloma	0	1	0
Antibioma	0	1	0
Galactocele	0	1	0
Total	17 (34%)	23 (46%)	10(20%)

Mode of presentation:

The most common presenting complaint was a breast lump (82%), followed by mastalgia (24%), nodularity (14%), and nipple discharge (4%). The majority of fibroadenomas presented as painless, mobile lumps. Fibroadenosis was more often associated with pain and cyclical mastalgia. common in the right breast (52%) compared to the left (30%), with bilateral involvement in 18%.

Graph 2: Mode of presentation



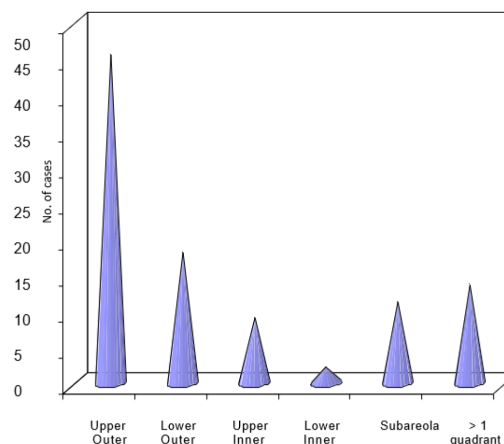
Quadrant-wise distribution:

The upper outer quadrant was the most frequently involved site (45.5%), followed by lower outer (18%), subareolar (11%), and upper inner quadrants (9%). Duration of symptoms: About 64% of fibroadenomas presented within one year of onset, while fibroadenosis tended to present later. Rapidly growing lumps such as cystosarcoma phylloides presented earlier. Nipple discharge: Observed in 2 patients (4%)—serous discharge in fibroadenosis and milky discharge in galactocele.

Table – 2 : Quadrant wise distribution of lumps

Quadrant	No. of cases	Percentage
Upper outer	20	45.45
Lower outer	8	18.18
Upper iner	4	9.09
Lower inner	1	2.27
Subareolar	5	11.36
> 1 quadrant	6	13.63

Graph 1: Quadrant wise distribution of lumps



Quadrant Diagnostic accuracy: FNAC findings correlated well with HPE in most cases. Cyto-histological correlation showed a sensitivity of 85%, while clinical-histological correlation was 60%. FNAC was particularly reliable in diagnosing fibroadenoma and fibroadenosis.

This study consists of total of 50 cases of BBD studied for 2 years period from April 2004 to April 2006.The

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youngest patient in this study was 15 years and oldest being 39 years.

In the current study 46% of the lesion occurred in the third decade of life whereas 34% and 20% presented in the second and fourth decades respectively.

Guptha JC et al[5] study shows 85% of the patients were in the age group of twelve to forty years.Tibor Decholnoky[6] reported a similar age distribution.83.3% fibroadenomas were present in the age group of 11-30 years.Rangabhashyam N, Gnana Prakasan D et al[50] in the Regarding benign cystosarcoma phylloids we had presented at 31 to 39 years.Haagensen CD[4] found 60% of his patient to be aged between third and fifth decade of life.

Distribution of cases

Fibroadenoma (60%) was the most commonest BBD encountered while fibroadenosis contitute 16% of the patients.

According to Guptha JC et al[5] the incidence of fibroadenoma is 64% and fibroadenosis 22%.

According to Rangabhashyam N, Gnanaprakasam D et al[7] the incidence of fibroadenoma is 56.7% and fibroadenosis 14.2%.Soju F Oluwole[8] reported similar figures in American black.In the most of the studies from the west, gross cysts or macrocysts are commonest benign breast lumps, however, in the current study two gross cysts were encountered.Gupta JC et al[5] did not encounter many gross cyst in his study.

Clinical features

The commonest type of presentation of BBD was lump in the breast constituting 82% in this study and pain 24%.

According to Haagensen CD[4] lump was common type of presentation.

andTibor Decholnoky's[6] noted pain in 33% of his patients.

There were 2 cases (4%) of nipple discharge in this study 1 case being fibroadnosis and the other galactocele.

Geschitcekter CF[10] noted 4% has nipple discharge and ibor Decholnoky study has no patients with nipple discharge.

Intraductal papillomas most commonly present with nipple discharge, whereas this symptoms was less in Madras Journal reported as 82%.Haagensen CD[4] reported corresponding figure as 70%.

Almost all the patient with fibroadenosis were between 20 and 40 years being a decade later compared to fibroadenoma. There are 16% of fibroadenosis in this study.

This figure correlated with Rangabhashyam N, Gnanaprakasan D et al[7] as 14.2%.Varanasi series reported as 10.6%

fibroadenosis and rare in fibroadenomas. It is common that benign cystosarcoma phylloids always present with large masses.

Right / vs left distribution of lump

There was a mild but insignificant preponderance of lesions in the right breast in this study.

Soju F. Oluwole[8] series shows marginal elevation of the lesion in the

right side and In Nigerian series, left side was more common.

Quadrant wise distribution

Upper outer quadrant was the common site of distribution of lump (45.45%) when compared to other quadrant.

Tibor Decholonky[6] noted that 50% of the lump in his study were in this quadrant of the breast whereas Soju F. Oluwole et al[9] showed 60% of the lumps at this site.

This finding is related to the large amount of breast parenchyma in this quadrant as compared to the other quadrants.

Size of the lump

Majority of lumps (76.19%) in the present study averaged 2 to 5 cms in size. 4 patients (9.52%) were within 2 cms, 6 patients (14.28%) were size more than 5 cms.

There was no relationship between the duration to the size of lesion. Benign breast lumps, especially fibroadenoma progress slowly after attaining a size of 2cms.

Tibor Decholnoky's[6] study shows that 57% of the benign lumps were less than 2cms.It is common that benign cystosarcoma phylloids always present with large masses.But Haagensen[4] emphasized that 28% of this cases was less than 5cms.

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Mammography was done in only 7 cases in our study, which reveals homogenous small mass lesion, which suggests benign fibrocystic disease. Even though it is a good non-invasive procedure, it could not be done in all cases due to its non-availability and expensiveness.

Clinical and cytohistologic correlation

According to Lopez-Ferrer P, Jimenez-Hefferman JA et al[11] cytohistolic agreement was present in 287 of the 362 cytodiagnosis. Lack of correlation was observes in 75 cases. The sensitive of the cytologic diagnosis of fibroadenoma was 86.9% with PPV 79.3%. The specificity of the cytologic diagnosis of fibroadenoma reaches 93.8% with NDV = 96.3%.

Conservative management

In this study of 50 cases of BBD 19 cases were managed conservatively out of which 10 patients were fibroadenoma 06 patients were fibroadenosis. 02 cases of simple cyst and 1 patient of gynaecomastria.

According to Larsen TK, Faurschou JP et al[12] fibroadenomas in adolescents can safely be treated conservatively. However for adult women a benign triple test is a prerequisite for conservative treatment.

Houssami N. Cheung MN et al[13] accepted that conservative approach is safe and acceptable, provides the result of an adequate triple test is both negative for cancer and consistent with a fibroadenoma.

Surgical management

31 cases of underwent surgical intervention. Majority of the benign lumps underwent simple excision of the lump, sub-cutaneous mastectomy was performed in the single case of gynaeomastia preserving nipple areolar complex. Lump occupying all the quadrants of the breast underwent simple mastructomy. The patients of breast abscess underwent I/D.

These treatment modalities are in agreement with accepted principles of Haagensen series.[4]

Follow-up

A total of 22 cases were available for follow-up, 13 conservatively managed patients and 9 surgically managed patients came for follow-up. The follow up period ranges from 1 month to 15 months. None of the patient in the present study gave any history of reduction in size or disappearance of breast lump. But 10 cases of fibroadenoma treated conservatively in this study showed neither progression in size of the lump nor any pathological changes was seen.

This is in contrast to Wilkinson[14] who noted spontaneous resolution of fibroadenoma in 16% of patients.There was no recurrence of fibroadenoma in operated cases in our series.In contrast, Haagensen's[4] series noted 16% of recurrence in his study.Retrospective study from Soju F. Oluwale et al[8] recommends observation of fibroadenoma in teenagers as upto 10% may resolve spontaneously and another 10% may develop multiple lumps necessitating repeat surgery.

None of the patients had any regression of lumps. However, the present study suffers from the drawback of lacking a control group and short follow-up.

A prospective study with longer follow-up period is necessary to reach definite conclusion.

- Carty NJ Cartes C et al[15] study showed in their 5 years of follow-up 52% have reduced in size 16% are unchanged in size and in 32% have grown. No patient has developed a carcinoma at the site of the presumed fibroadenoma.

The patient with benign cystosarcoma phylloids could not be followed up.

Chua CL et al[16] reported a recurrence of 15.8% of in his studies

Conclusion

Benign breast disease is a common clinical problem, particularly among young women. Fibroadenoma is the most frequent lesion, followed by fibroadenosis. The majority of patients present with a palpable lump, most often located in the upper outer quadrant. FNAC is a highly sensitive diagnostic tool, and when combined with histopathology, provides near-definitive diagnosis. While surgery remains the mainstay of treatment for most fibroadenomas and suspicious lesions, conservative management is appropriate for selected cases. Early diagnosis, reassurance, and appropriate management can significantly reduce patient anxiety and prevent unnecessary surgical morbidity.

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