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## Benign breast diseases: Correlation of clinical findings with those of FNAC, ultrasound and histopathology

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### Abstract

Fibroadenoma is the most common lesion of the breast; it occurs in 25% of asymptomatic women. They are benign, spherical, well-demarcated tumors of varying size. They arise from the epithelium and stroma of the terminal duct-lobular unit. It is usually a disease of early reproductive life; the peak incidence is between the ages of 15 and 35 years. All the patients were examined systematically including breast examination and systematic examination and assessment of nutritional status. All underwent routine investigations which included blood counts- Hb%, BT, CT, Blood sugar levels(RBS), Blood urea, Serum creatinine, Urine routine and ECG. Investigations like USG and Mammography were done in some number of required cases. 34 out of 50 of our patients underwent USG examination of the breast. 15 of these i.e. 30% had features of fibroadenoma, 6(12%) had features of Abscess, 7(14%) had features of benign breast disease and the remaining 5 had other features suggestive of galactocele, benign cyst, phylloides, lipoma of the breast. One patient had bilateral fibroadenoma of the breast.

**Keywords:** Benign breast diseases, FNAC, histopathology

### Introduction

Many pathologists label most of the benign epithelial lesions with variety of terminologies such as cystic disease, fibrocystic disease, cystic mastitis, cystic mastopathy, epithelial hyperplasia, mammary dysplasia, benign breast disease<sup>[1]</sup>.

Many of the breast lesions are clinically suspected as malignant lesions but diagnosed as benign after Histopathological examination.

Fibroadenoma is the most common lesion of the breast; it occurs in 25% of asymptomatic women. They are benign, spherical, well-demarcated tumors of varying size. They arise from the epithelium and stroma of the terminal duct-lobular unit. It is usually a disease of early reproductive life; the peak incidence is between the ages of 15 and 35 years<sup>[2]</sup>.

Macroscopically, the lesion is a well-circumscribed, firm mass, <3 cm in diameter, the cut surface appears lobulated and bulging. If the tumor assumes massive proportions (>5 cm), it is called "giant fibroadenoma". Microscopically, fibroadenoma consists of a proliferation of epithelial and mesenchymal elements. The stroma proliferates around tubular glands (pericanalicular growth) or compressed cleft-like ducts (intra canalicular growth)<sup>[3]</sup>.

The lesion is a hormone-dependent neoplasm that lactates during pregnancy and involutes along with the rest of the breast in perimenopause. A direct association has been noted between oral contraceptive use before age 20 and the risk of fibroadenoma. The Epstein-Barr virus might play a causative role in the development of this tumor in immunosuppressed patients.

Phylloides tumor is a fibroepithelial tumor of the breast with a spectrum of changes. Benign phylloides tumor is usually difficult to differentiate from fibroadenoma. Hypercellular stroma with cytologic atypia, increased mitoses, and infiltrative margins of the lesion are the most reliable discriminators to separate lesions with recurrence and malignant behavior<sup>[4]</sup>.

### Methodology

About 50 cases of benign breast diseases were selected, only inpatient cases are considered for the study. Outpatient cases, males, malignant cases and cases which were operated early were excluded from the study.

Detailed history of all the fifty cases were taken according to the proforma approved by the guide. Information regarding age, religion, socio-economic status, nature of symptoms, duration, menstrual status, marital status, breast feeding were taken.

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History regarding to the usage of oral contraceptive pills, built and nourishment, habits were also noted. Family history regarding any breast conditions were obtained.

All the patients were examined systematically including breast examination and systematic examination and assessment of nutritional status. All underwent routine investigations which included blood counts- Hb%, BT, CT, Blood sugar levels(RBS), Blood urea, Serum creatinine, Urine routine and ECG. Investigations like USG and Mammography were done in some number of required cases.

The follow- up of the prospective cases were done at the hospital in OPDs. About 28 cases returned to the hospital for follow- up most of them being outpatients treated conservatively and some who were operated. The period of follow- up ranged from 3- 18 months with mean of 8 months depending upon the time of entry into the study. The follow up included recording of the patients symptoms. At the end of the study period and follow- up the material was analysed and results were tabulated.

**Results**

Majority(64%) had lump varying in size from 2cm to 5cm. 36% of our patients had lump varying in size between 5- 10 cm.

54% of the patients with fibroadenoma had lump size varying between 2-5cm and 8% of fibroadenoma patients had lump > 5cm (Giant fibroadenoma).

**Table 1:** Characteristics of Lump

Lump	No. of patients (n=50)	%
<b>Size(cm)</b>		
▪ <5	32	64.0
▪ 5-10	18	36.0
▪ >10	0	0.0
<b>Shape</b>		
▪ Irregular	32	64.0
▪ Regular	18	36.0
<b>Surface</b>		
▪ Smooth	44	88.0
▪ BOS	3	6.0
▪ Nod	3	6.0
<b>Consistency</b>		
▪ Firm	41	82.0
▪ Soft	5	10.0
▪ Cystic	2	4.0
▪ Hard	2	4.0
<b>Mobility</b>		
▪ mobile	46	92.0
▪ fixed	3	6.0
▪ NM	1	2.0

Out 11 patients, 3 patients showed radio lucent shadows of simple cyst and one patient with radio lucent shadow suggestive of Galactocele. 3 patients showed mixed density suggestive of benign phylloides tumour and 2 patients had mixed density suggestive of suppurative lesions.

**Table 2:** Mammography

Mammography	No. of patients	%
NA	39	78
Radio lucent	4	8
Radio opaque	5	10
Total	11	22

34 out of 50 of our patients underwent USG examination of the breast. 15 of these i.e. 30% had features of fibroadenoma, 6(12%) had features of Abscess, 7(14%) had features of benign

breast disease and the remaining 5 had other features suggestive of galactocele, benign cyst, phylloides, lipoma of the breast. One patient had bilateral fibroadenoma of the breast.

**Table 3:** Ultrasonography of the breast

USG	No. of patients (n=50)	%
Nil	16	32.0
Yes	34	68.0
▪ Fibroadenoma	15	30.0
▪ Abscess	6	12.0
▪ BBD	7	14.0
▪ B/L FA	1	2.0
▪ Benign cyst	1	2.0
▪ Galactocele	1	2.0
▪ Phylloides	2	4.0
▪ Lipoma	1	2.0

In 25 cases, FNAC reported as fibroadenoma and subsequently biopsied and confirmed to be fibroadenoma (100% accuracy).

In 9 cases of fibrocystic disease subjected to FNAC, all 9 cases were reported as fibrocystic disease. But only 4 cases underwent excision and got confirmed histopathologically.

3 cases of phylloides on clinical examination, FNAC was done all the cases were positive for phylloides and later were confirmed by histopathology reports.

3 cases of antiabioma FNAC was done, all the cases were positive for antiabioma.

One case of benign cyst which was suspicious of cancer being subjected to FNAC yielded keratinous cyst in FNAC.

One each case of lipoma and breast abscess detected by FNAC.

**Table 4:** Fine needle aspiration cytology

Fine needle aspiration cytology	No. of patients (n=50)	%
Nil	7	14.0
Yes	43	86.0
▪ Fibroadenoma	24	48.0
▪ Fibrocystic disease	9	18.0
▪ Antiabioma	3	6.0
▪ Phylloides	3	6.0
▪ B/L FA	1	2.0
▪ Breast abscess	1	2.0
▪ Keratinous cyst	1	2.0
▪ Lipoma	1	2.0

**Table 5:** Fine Needle Aspiration Cytology

Diagnosis	No. of cases	FNAC			
		Consistent		Non- consistent	
		No.	%	No.	%
Fibroadenoma	25	25	100	0	0
Phylloides	3	3	100	0	0
Inflammatory	5	5	100	0	0
Fibrocystadenosis	9	4	44.44	-	-
Lipoma	1	1	100	0	0

**Discussion**

Sonography was done in 34(68%) cases and out of which 16(32%) were diagnosed as solid masses and given as fibroadenoma which were later proved on FNAC, 6 were diagnosed as breast abscess(12%), 7 were diagnosed as fibrocystic disease(14%) out of which one was diagnosed as fibroadenoma with FNAC.

1 case of benign cyst was detected which was galactocele, and one was given as lipoma which was proven under FNAC as lipoma of breast.

Cysts are circumscribed masses, defined with central hypoechogenicity according to Michell. M. [5].

3 cases of phylloides were identified and were proved by FNAC and one case of antibioma which was sonographically detected was proven under FNAC.

Since FNAC was diagnostic in majority of our cases and had palpable lumps in all patients the need for Mammography (22%) and ultrasonography (68%) were limited. Mammography was done in about 11 cases. Out of which 4 showed radiolucent i.e. simple cyst or galactocele, 5 showed radio opaque and 2 showed mixed density i.e. suppurative lesion.

FNAC was done for all the patients except a case each of galactocele and breast abscess cases to confirm the clinical diagnosis. 43 patients i.e. 86% out of which 50% were diagnosed as fibroadenoma.

18% of fibrocystic disease and 3 cases each of antibioma and phylloides tumour were diagnosed.

100% of the fibroadenoma and 100% of the fibroadenosis were diagnosed cytologically.

Similar results were produced in a prospective study MVJ medical College and Research Hospital, Hoskote, Bangalore, where they showed sensitivity of clinical diagnosis as 91.1% and FNAC as 100% in all the patients with fibroadenoma and only 78% sensitivity in the diagnosis of fibroadenosis [6].

Somer G. Robert *et al.* [7] showed that fine needle aspiration cytology in 92% accurate for solid neoplasia. 100% specificity and 78% sensitivity was shown in our study.

Gupta *et al.* showed that cytodiagnosis is highly dependable for benign tumours. Shukla<sup>8</sup> confirms that phylloides is confused with fibroadenoma clinically and cytologically.

Out of 50 cases, about 25(50%) were Fibroadenoma, 9 cases (18%) fibroadenosis, 6(12%) breast abscess, 3(6%) were antibioma, 3(6%) were phylloides, 1(2%) case each of lipoma, galactocele, duct ectasia, simple cyst.

Similar results were produced in a prospective study in MVJ medical College and Research Hospital, Hoskote, Bangalore in 2009, where they recorded in a total number of 110 cases, fibro adenoma as the most common with 56.4%, with fibroadenosis as the second most common with 28.6%, and similar results were depicted with other benign lesions of the breast [6].

M Kumar *et al.* [9] in a cross sectional study of 380 cases showed fibroadenoma as the most common with 160(42.1%).

Irabor *et al.* [10] showed that fibroadenoma is most common benign breast lesion and the mean age of occurrence as 24.44 years.

## Conclusion

- Ultrasonography was used in differentiating cystic lesions from solid masses.
- FNAC was used as a handy tool for initial diagnosis and execution of the treatment by choosing the appropriate modality.
- FNAC was highly accurate in our study especially for fibroadenoma cases which showed 100% accuracy.
- FNAC and HPE conclusively ruled out in about all the cases apprehension of malignancy.

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