RESEARCH PAPER | Medical Science | Volume : 5 | Issue : 11 | November 2015 | ISSN - 2249-555X

Evaluation of Benign Breast Diseases with Clinico, Pathological and Radiological Correlation

KEYWORDS

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ABSTRACT *The benign breast diseases are one of the most confused areas of surgery because there are different terms describing the same pathology, and more important preoccupation with malignant disease, and also because of confused correlation between clinical diagnosis and histopathological findings. As the breast is constantly undergoing changes because of various hormonal influences there is lot of confusion in differentiating between normality and pathology. Also interesting is the important, though small relationship between diseases and cancer and the malignant potential of benign diseases.*

Methods

This study was done in the department of general surgery, Gandhi hospital during the period from August 2011 to October 2013. Total 60 patients were included in the study

Inclusion criteria: 1) Female patients

2) Age group: Menarche to 50 years

Exclusion criteria: 1) Female patients who have not attained menarche yet

2) Post menopausal women

3) Female patients with carcinoma breast

Record was made regarding the predominant complaint (Swelling/ Pain/Discharge), duration, size, nodularity, anatomic distribution of swelling, parity, menstrual, lactational history and axillary lymphadenopathy.

In this study for all the patiens clinical diagnosis was made, patients further investigated and treated.

Cytology smears stained by Papanicolaou's technique and also by heamotoxylin Eosin and Leishman's stain. Radiology included USG, Mammogram, MRI. While reporting clinical findings are also correlated and final opinion formed. Histopathology studied in all the cases and taken as the gold standard for comparison.

Patients were followed up for a variable duration as demanded by the detected breast lesion.

All these reports correlated and the results were analysed.

Observations and Results

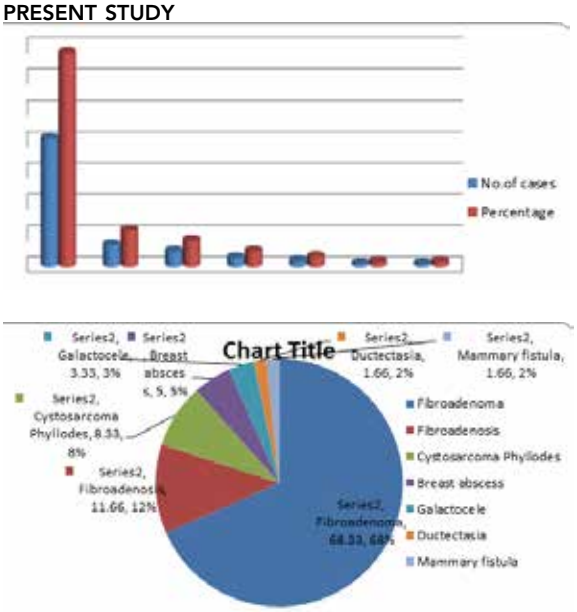
1. Types and incidence of lesions:

In this study, the most common type of benign breast disease is Fibroadenoma with 68.33% of patients followed by Fibroadenosis. Other diseases encountered are cystosarcoma phyllodes, breast abscess, galactocele, duct ectasia and mammary fistula as shown in the table.

Type	No. of cases	Percentage
Fibroadenoma	41	68.33
Fibroadenosis	7	11.66
Cystosarcoma Phyllodes	5	8.33
Breast abscess	3	5.00
Galactocele	2	3.33
Ductectasia	1	1.66
Mammary fistula	1	1.66

TABLE-1 TYPES OF BENIGN BREAST DISEASE IN THE PRESENT STUDY

GRAPH -1 TYPES OF BENIGN BREAST DISEASE IN THE PRESENT STUDY



2. Age distribution of different benign breast disease in the present study

The youngest patient in my study is of 17 yrs old, pre-

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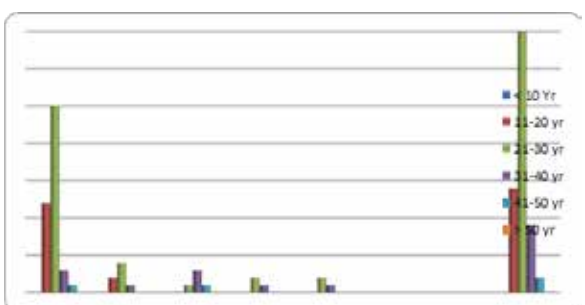
sented with breast lump and diagnosed to be a case of Fibroadenoma. The oldest patient is 50yrs lady with clinical diagnosis of phyllodes tumor, but found to have fibroadenoma on histopathology. The other mentioned benign conditions are more common in the 20 to 40 yrs age group.

Disease	<10 YR	11-20 YR	21-30 YR	31-40 YR	41-50 YR	>50 YR
Fibroadenoma	--	12 (29.2%)	25 (60.9%)	3 (7.31%)	1 (2.43%)	--
Fibroadenosis	--	2 (28.5%)	4 (57.1%)	1 (14.2%)	-	--
Cystosarcoma Phyllodes	--	--	1(20%)	3 (60)	1 (20%)	--
Breast abscess	--	--	2 (66.6%)	1 (33.3%)	--	--
Galactocele	--	--	2 (100%)	-	--	--
Ductectasia	--	--	-	1 (100%)	--	--
Mammary fistula	--	--	1 (100%)	-	--	--
Total Cases	--	14	35	9	2	--

TABLE-2 AGE DISTRIBUTION OF DIFFERENT BENIGN BREAST DISEASE IN THE PRESENT STUDY



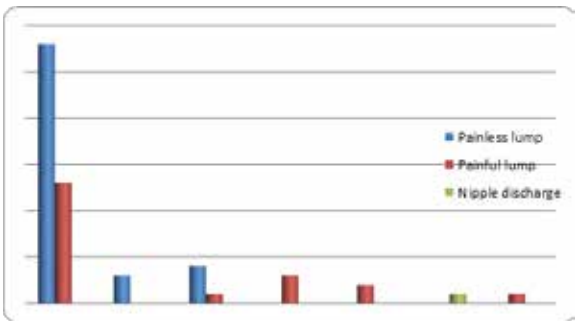
GRAPH-2 AGE DISTRIBUTION OF DIFFERENT BENIGN BREAST DISEASE IN THE PRESENT STUDY

3. Mode of presentation:

In this study the most common presentation of benign diseases is painless lump(58.33%) followed by painful lump. One case presented with bilateral nipple discharge and diagnosed to have Duct ectasia

Disease	Total	Painless lump	%	Painful lump	%	Nipple discharge
Fibroadenoma	41	28	68.29	13	31.70	--
Fibroadenosis	7	3	42.85	4	57.14	--
Cystosarcoma Phyllodes	5	4	80.0	1	20.0	--
Breast abscess	3	--	--	3	100	--
Galactocele	2	--	--	2	100	--
Ductectasia	1	--	--	--		1
Mammary fistula	1	--	--	1	100	--
Total Cases	60	35	58.33	24	40	1

TABLE-3 MODE OF PRESENTATION



GRAPH-3-MODE OF PRESENTATION

4) Cyto-Histological correlation in B.B.D. :

In this study, FNAC is consistent with histopathological findings in 90.24% of Fibroadenoma cases only. Out of 41 cases of Fibroadenoma, 3 cases are reported as fibroadenosis and 1case as non specific mastitis by Cytology. All cases of Fibroadenosis are consistent with histology (100%). Other benign lesions cytologically correlated with histopathology.

HISTOLOGICAL DIAGNOSIS	CYTOLOGICAL DIAGNOSIS						
	FA (%)	FDS (%)	CSP (%)	BEH (%)	GAL (%)	NSM (%)	BDC (%)
Fibroadenoma (41 cases)	37	3	--	--	--	1	--
Fibroadenosis (7 cases)	7	--	--	--	--	--	--
Cystosarcoma Phyllodes (5 cases)	--	--	4	1	--	--	--
Breast abscess 3(cases)	--	--	--	--	--	3	--
Galactocele (2 cases)	--	--	--	--	2	--	--
Ductectasia (1 case)	--	--	--	--	--	--	1
Mammary fistula(1 case)	--	--	--	--	1	--	--

TABLE-4 CYTO-HISTOLOGICAL CORRELATION IN B.B.D.

5. Clinico - Histological correlation

All the cases suspected as Fibroadenoma clinically are proven by histology(100%). One case of clinically suspected Fibroadenosis is being diagnosed as Fibroadenoma by histology. Other benign conditions diagnosed clinically are consistent with histopathological diagnosis.

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CLINICAL DIAGNOSIS	HISTOLOGICAL DIAGNOSIS					
	FA	FDS	CSP	GAL	BA/ NSM	DE
Fibroadenoma (41 cases)	41	--	_	--	--	_
Fibroadenosis (7 cases)	1	6	_	-	--	-
Cystosarcoma Phyllodes(5 cases)	1	_	4	_	-	-
Breast abscess(3 cases)	_	_	_	-	3	_
Galactocele(2 cases)	_	_	_	2	-	-
Ductectasia(1 case)	_	_	-	-	-	1
Mammary fistula(1 case)	_	_	-	1	_	-

TABLE-5-CLINICO-HISTOLOGICAL CORRELATION

6. Clinico –Histological and Radiological correlation:
All the 60 cases were subjected to USG, for 6 cases mammography was done and MRI in a single case. Out of 41 cases of fibroadenoma suspected clinically, 40 (97.56%) cases were confirmed by radiology. Out of 7 cases of Fibroadenosis suspected clinically, 6 (85.71%) cases were confirmed and one case was reported as fibroadenoma by USG. All the cases of Breast abscess, Galactocele, Ductectasia and Mammary fistula were consistent with radiological findings (100%).

CLINICAL DIAGNOSIS	RADIOLOGICAL DIAGNOSIS						
	FA	FDS	CSP	GAL	BA/ NSM	DE	MF
Fibroadenoma (41 cases)	40	--	1	--	--	_	_
Fibroadenosis (7 cases)	1	6		-	--	_	_
Cystosarcoma Phyllodes(5 cases)	1	_	4	_	_	_	_
Breast abscess(3 cases)	_	_	_	_	3	_	_
Galactocele(2 cases)	_	_	_	2	_	_	_
Ductectasia(1 case)	_	_	_	_	_	1	_
Mammary fistula(1 case)	_	_	_	_	_	_	1

HISTOLOGICAL DIAGNOSIS	RADIOLOGICAL DIAGNOSIS						
	FA	FDS	CSP	GAL	BA/ NSM	DE	MF
Fibroadenoma (41 cases)	40	--	1	--	--	_	_
Fibroadenosis (7 cases)	1	6	_	_	--	_	_
Cystosarcoma Phyllodes(5 cases)	1	_	4	_	_	_	_
Breast abscess(3 cases)	_	_	_	_	3	_	_
Galactocele(2 cases)	_	_	_	2	_	_	_
Ductectasia(1 case)	_	_	_	_	_	1	_
Mammary fistula(1 case)	_	_	_	_	_	_	1

Out of 60 cases, 12 cases which are of clinically doubtful benign etiology were further studied by radiological investigations. Mammography done in 6 cases and MRI in 1young female. USG detected 5 cases of phyllodes tumor and findings are consistent with histology.

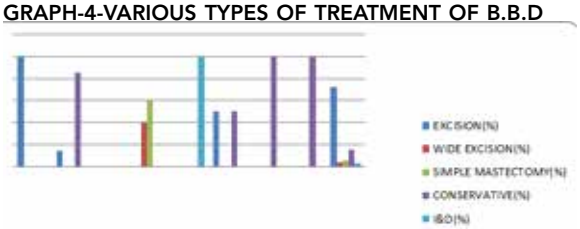
Mammography of 6 cases showed features of benign etiology.of which 4 cases are calcified Fibroadenomas and 2 cases are galactocele. In one young female having clinically giant fibroadenomas in both the breast, subjected to MRI revealed it to be the case of multiple fibroadenomas. Findings are consistent with histopathology.

6. Various types of treatment of B.B.D.
In this study, all the 41 cases of fibroadenoma underwent surgery in the form of excision biopsy. Of the 5 cases of Cystosarcoma phyllodes, 3 cases (60%) underwent wide excision and the remaining 2 case(40%) underwent simple mastectomy. One case of Galactocele and one case of Fibroadenosis underwent excision biopsy. 3 cases of breast abscess were treated by drainage and antibiotics.

DISEASE	EXCISION	WIDE EXCISION	SIMPLE MASTECTOMY	CONSERVATIVE	I & D
Fibroadenoma(41)	41	-	-	-	-
Fibroadenosis(7)	1	-	-	6	-
Cystosarcoma Phyllodes (5)	-	3	2	-	
Breast abscess(3)	-	-	-	-	3
Galactocele(2)	1	-	-	1	-
Ductectasia(1)	-	-		1	-
Mammary fistula(1)	-	-	-	1	-
Total Cases	43	3	2	9	3

TABLE-6-VARIOUS TYPES OF TREATMENT OF B.B.D

GRAPH-4-VARIOUS TYPES OF TREATMENT OF B.B.D



DISCUSSION
Benign breast diseases are the most common breast diseases affecting women of our country. According to the statistics obtained in my study conducted at Gandhi hospital, Secunderabad the majority of diseases affecting the female breast are benign diseases.

TYPE OF LESION:
In my study, the most common benign breast disease was fibroadenoma occurring in 68.33% of cases. Fibrodenoma was also the main type of tumour among the Benign breast tumour studied by Rang a Bhashyam et al.,[47] (57%) in 1983, Khanna et al.,[48] (40.8%) in 1988.

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The next common benign tumour in my stud y was fibroadenosis in 11.66% of cases followed by cystosarcoma phyllodes i.e. 8.33, breast abscess 5%, galactocele i.e. 3.33%, mammary fistula and ductal ectasia 1.66% each.

Relative Incidence of Benign Breast Disease in Females in various reported series (percentage).

Authors& Year	Ethnic Group	Fibroad-enoma	Phyllodes Tumour
Funder burk et al(1972)	Black n = 1955	35.9	0.4
Oluwole& Freeman (1979)	Black n = 202	48.0	0.5
Ranga Bashyam (1983)	Indian n = 215	57.0	2.3
Khanna et al (1988)	Indian n = 971	40.8	13.8
Present study (2011 - 13)	Indian n = 60	68.33	8.33

AGE DISTRIBUTION:

In my study of 60 cases, most of the benign breast diseases belonged to age group of 21-30 yrs comprising 58.33% of the total cases. The next common age group is 11 -20, accounting for 23.33% of cases. This corresponds to the study of Sushila Khanna [49] in which 40.06% cases were in the age group of 21-30 yrs. In my study, fibroadenoma was the commonest benign disease with highest incidence in age group of 21-30 years(60.97%). The youngest patient was 17 years old and the oldest patient was 50 years old. Duray and collegues [50] described fibroadenoma most likely to occur in adolescents. Mies and Rosen [51] have described a series of patients with an average age of 26 years with fibroadenomas. Foster ME. Et al.,[52] in their series, patients of 5 fibroadenoma reported the largest number of patients in age group of 21-25 years. In the present study, around 90.24% of fibroadenomas were observed in age group of 11 -30 years. In an Indian study done by Dr. Rangabashyam et al.[47] maximum 73 number of fibroadenoma (75.39%) were noted in 11-30 years age group. Similarly, Sushila Khanna[48] study also showed 82. 78% of fibroadenoma to be present in age gr oup of 11-30 years.

Age Group	Present Study	Rangabashy-am et al study	Sushila Khanna et al study
11 – 30 Years	90.24%	75.39%	82.78%

In my study Fibroadenosis is the second most common disease seen, and it occurred mainly in age group of 21-30 years, followed by 11-20 years age group accounting for remaining cases. Cystosarcoma phyllodes was more common in 31-40 years age group, breastabscess and Galactocele were equally distributed in age group of 21-30 years Ductal ectasia was seen in age group of 31-40 years and mammary fistula 21-30 years group.

CLINICAL FEATURES:

In my study, most prominent presenting symptom was the presence of pain less lump seen in 35 cases(58. 66%) and 24 cases (40.0%) presented as painful lump. In 41 cases of fibro adenoma, 28 (68.29%) cases presented with a painless lump which was accidentally noticed by the patient. 13 cases (31.7%) presented with a painful lump and pain started after the appearance of the lump. The pain was reported to be dull aching, non radiating, continuous and not in relation with menstruation. No cases of fibroadenoma presented with nipple discharge. Most of the fibroadenomas occurred with a duration o f 4 -6 months. No patient with fibroadenoma had a history of previous surgery for benign breast diseases. There was no positive family history, although it is known that there may be a familial predisposition for bilateral fibroadenomas.

In 5 cases of cystosarcoma phyllodes, 4 cases(80%) presented as painless lump, where as 1 case(20%) presented with a lump associated with pain which started later. one case of ductectasia presented with nipple discharge. Majority of cases in my study belonged to reproductive age group. 2 cases complained of menstrual irregularities and none of them had any significant change in the swelling during or before menstruation.

INVESTIGATIONS:

In this study accuracy of FNAC is 90.24%. Linsk et al.,[53] reported an accuracy of 60.4% in 1972. Hand Uma et al.,[54] reported in their series of 82 17 360 FNACs as efficacy o f 98.3% in diagnosis. The other 3 cases (7.31%) were reported as fibroadenosis and 1 cases (2.43%) each was reported as Nonspecific mastitis the 5 cases of Cystosarcoma phyllodes FNAC correctly diagnosed four of them with accuracy of 80%. Of the total 60 cases, FNAC diagnosis was consistent in 50 cases, showing sensitivity of 83.33 %. In this study all the FNAC reports were indicative of benign nature of the lesions. As the number of cases studied in this series is relatively small, further study is required with a large number of cases to find out the diagnostic accuracy of FNAC in differentiating benign from malignant tumors of the breast.

In this study, the clinical diagnosis correlated well with the histopathological diagnosis, except for one case which was diagnosed clinically as Fibroadenosis but was found to be fibroadenoma on histopathological examination. A total no of 60 cases were subjected to radiological investigations of which ultrasound was done in all the 60 cases, mammography in 6 cases and MRI in 1 case The results were correlated with histopathology. Ultrasound findings were consistent with histopathological findings in 7 cases of fibroadenoma (100%) and 5 cases of Cystosarcoma phyllodes (100%). Mammography showed 4 cases of calcified fibroadenoma and 2 cases of galactocele MRI done in a single case was evident of bilateral multiple giant fibroadenomas.

TREATMENT:

In this study, all the 41 cases of fibroadenoma underwent surgery in the form of excision biopsy. Excision was not difficult in any of the cases. 1 case of bilateral fibroadenoma underwent bilateral excision. The incisions used for surgery were either a subareolar or semicircular and radial incision following the natural lines in the skin. Of the 5 cases of Cystosarcoma phyllodes, 3 cases(60%) underwent wide excision and the remaining 2 cases(40%) underwent simple mastectomy. one case of Galactocele and one case of Fibroadenosis underwent excision biopsy. Postoperatively patients were put on antibiotics and analgesics. Suture were removed after 5-7 days and none of the cases had wound infection or gaping.

FOLLOW UP:

A fair attempt was made to follow up the cases, but it was very disappointing and very few cases attended the outpatient in response to the appeal made to them.

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Recurrence of the lesion was not noticed in any of the patients who came for follow up for periods of up to 6 months. Haagensen has reported recurrence of benign breast tumors to be very rare in a period of 3 years. Foster ME et al,[52] reported in their series that recurrence of fibroadenomas was related to inadequate primary excision or the development of a new lesion and the mean time for the development of new lesions was over 4 years. Another series reports a recurrence rate of these lesions within a range of 15%. Moffat and colleagues have reported incomplete excision of phyllodes tumor as a major determinant of local recurrence.

Conclusion

1. Benign breast diseases are the most common diseases affecting female breast.
2. The most commonly affected age group is 21-30 years with predominant symptom of painless lump.
3. In the evaluation of these conditions ultrasound and cytology play vital role.
4. FNAC is simple, reliable, can be done as an out patient procedure, and can be repeated. Fine needle aspiration cytology has an accuracy of 90.24% for benign breast diseases in the present study.
5. Ultrasonogram (USG) is the initial screening procedure to be done in all the breast diseases. It is simple, painless, quick and localizes the lesion/ gives correct information regarding condition of the affected breast, lymph nodes. It has an accuracy of 97.56% for benign breast diseases in the present study.
6. USG has high specificity for benign breast diseases. It detects the presence of calcifications, minute lesions up to 3-4mm can be detected. It can be done in any age group.
7. Mammography and Magnetic resonance imaging (MRI) have limited role in benign breast diseases. Mammography is accurate in detecting fluid containing lesions like like galactocele and micro calcifications.
8. In the present study the most common benign breast disease is Fibroadenoma(68.33%) followed by Fibroadenosis(11.66%), Cystosarcoma Phyllodes(8.33%), Breast abscess(5%), Galactocele(3.33%),Ductectasia(1.66%) and Mammary fistula(1.66%). A definitive preoperative diagnosis was made in all the cases by ultrasonogram.
9. Complementary imaging modalities and new biopsy techniques can eliminate uncertainties and reduce the large no.of surgical biopsy performed for benign conditions.
10. Making the right decision in critical cases requires knowledge of all methods and cognizance of their potential, limitations, appropriate application and respective roles.
11. At present, sonography is the most important adjunctive breast imaging modality.
12. The examiner must compare mammographic, clinical findings and information from patient history and age to sonographic findings when assessing the diseases.
13. Follow up sonoghaphy or further diagnostic studies in cases of small hypo echoic lesions (needle core biopsy, excision or rare cases MRI are indicated for indeterminate findings.
14. Benign disorders are generally characterized by increased radio density, occasionally micro calcifications and often nodular/firm palpable findings. Therefore mammographic visualization is limited in comparison with fatty breast.
15. Clinical examination, mammography (structural changes, radiodensity, microcalcifications) or sonography (hyper echoic glandular tissue, dilated ducts) can be suggestive of BBD but can't prove it. BBD can only be confirmed histologically.
16. Histopathology plays an important role in the diagnosis of BBD. When correlated with clinical data, mammogram, USG and extensive use of FNAC , the histopathological examination led to the early diagnosis of a BBD.

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