

## CLINICOPATHOLOGICAL AND RADIOLOGICAL EVALUATION OF BENIGN BREAST DISEASES- A COMPARISON BETWEEN FNAC AND CORE BIOPSY

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### ABSTRACT

#### BACKGROUND

Benign breast lumps are the most common lesions accounting for more than 90% of the cases presented. Fibroadenoma is a common cause of benign breast lumps in premenopausal women. Fibrocystic disease of breast is a histological term referring to large group of syndromes presenting as lumps or lumpiness. Follow-up studies have shown us that there is a relationship between benign breast disease and breast cancer.

This study is aimed to exclude malignant breast condition and to emphasise their presentation and management.

#### MATERIALS AND METHODS

This study was conducted in Department of Surgery, ERA Medical College and Hospital, Lucknow in 50 subjects over a period of 1-1/2 years. All patients presenting with palpable breast lump between 10-60 years of age were included in the study. The period of evaluation was from Oct. 2013 to May 2015. Clinicoradiological and pathological study of the various types of benign breast diseases has been done. Fibroadenoma formed the major component while fibrocystic diseases were few.

#### RESULTS

In the present study, 34 cases underwent excision of which 27 were of fibroadenoma and 6 were of fibroadenosis. All the patients with abscess underwent incision and drainage. There was a single case of duct ectasia who underwent microdochectomy. Lipoma, breast cyst all were excised. 5 cases of fibroadenosis underwent conservative management with medications which included reassurance, proper breast support, Tab. Evening Primrose Oil (EPO), Tab. Vitamin E, etc.

#### CONCLUSION

Surgical excision was an effective treatment for most of the benign breast diseases. Other modalities of treatment included Incision and drainage, microdochectomy & aspiration. Sensitivity of clinical diagnosis to identify fibroadenoma was 85% and for fibroadenosis was 75%. Sensitivity of FNAC for diagnosing fibroadenoma was 85% and for fibroadenosis was 82%. Sensitivity of core biopsy was 92% for fibroadenoma and 83% for fibroadenosis.

#### KEYWORDS

Benign Breast Diseases, FNAC and Core Biopsy.

**HOW TO CITE THIS ARTICLE:** Tahir S, Ahmad S, Jain RC. Clinicopathological and radiological evaluation of benign breast diseases - A comparison between FNAC and core biopsy. J. Evolution Med. Dent. Sci. 2016;5(94):6936-6939, DOI: 10.14260/jemds/2016/1570

#### BACKGROUND

Benign breast lumps are the most common lesions accounting for more than 90% of the cases presented, related to breast.<sup>1</sup> Fibroadenoma is a common cause of benign breast lumps in premenopausal women. Fibrocystic disease of breast is a histological term referring to large group of syndromes presenting as lump or lumpiness. Fibroadenomas are the most common cause of benign breast lumps. They usually present as solitary, firm, rubbery and non-tender lumps. Follow-up

studies have shown us that there is a relationship between benign breast disease and breast cancer. Risk of cancer varies according to the histological grading of benign breast disease.<sup>2,3,4,5</sup> Thus, the aim of this study is to exclude malignant breast condition and to emphasise on their presentation, investigations and treatment of benign breast diseases.

This study of benign breast diseases includes 50 cases, where all possible attempts to study the various aspects of the disease, its presentation, investigations and management have been made. Evaluation of breast lumps in young females is essential to identify patients with benign proliferative lesions of the breast. Transition from normal to cancer begins by proliferation, then progresses to atypia & finally arrives at neoplasia.<sup>6</sup> A benign proliferative lesion of the breast is an important risk factor for subsequent transformation to malignancy. Karyotype & molecular alteration in benign proliferative breast lesions parallel to those of breast carcinoma is noted.<sup>7</sup> Proliferative lesions if recognised in the young population at an early stage along with a close followup & careful watch would make it possible to abort the development of invasive cancer.<sup>8</sup>

Financial or Other, Competing Interest: None.

Submission 20-10-2016, Peer Review 13-11-2016,

Acceptance 19-11-2016, Published 24-11-2016.

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DOI: 10.14260/jemds/2016/1570



**The likely Cases to be Identified during the Study should Encompass**

- Cysts.
- Fibroadenomas.
- Prominent Fat Lobules.
- Lymph Nodes.
- Haematomas.
- Hamartomas.
- Traumatic Fat Necrosis.
- Galactocoeles, etc.

Ultrasonography can effectively distinguish solid masses from cysts, which account for approximately 25 percent of breast lesions. When strict criteria for cyst diagnosis are met, ultrasonography has a sensitivity of 89 percent and a specificity of 78 percent in detecting abnormalities in symptomatic women. Recurrent or complex cysts may signal malignancy; therefore, further evaluation of these lesions is required. FNAC breast is generally considered as a rapid, reliable, and safe diagnostic tool to distinguish non-neoplastic from neoplastic breast lesions. In developed countries, in the last 20 years, mammographic scoring programs, which have been used extensively, are designed to detect the earliest possible breast cancer. Core-needle biopsy (CNB) is increasingly replacing FNAC in many centres in developed countries and this is mainly attributed to the inability of FNAC to distinguish carcinoma in situ from invasive carcinoma. FNAC has a role in diagnosis of palpable breast lesions in developing countries as the initial method of pathological assessment. Also, as found by different authors like Zagorianaku et al and Koss et al, FNAC of palpable breast lesions is a component of Triple test. Also, factors like low cost, rapid reporting and patient compliance are better for FNAC procedure, even though it has limitations such as operator efficiency and the need of experienced medical staff. Epithelial hyperplasia, a component of proliferative breast disease (PBD), is a known risk factor for the development of breast carcinoma. The risk of breast carcinoma in cases of PBD without atypia is 1.3 times and in PBD with atypia is 4.3 times. Histological diagnosis is ultimate for confirmation. The present series will encompass both types of biopsies i.e. FNAC and core needle in randomised control way and then comparison will be done.

**MATERIALS AND METHODS**

This study was conducted in Postgraduate Department of Surgery, ERA Medical College and Hospital, Lucknow in 50 subjects over a period of 1-½ years with following criteria and required materials and methods.

**Inclusion Criteria**

1. All patients presenting with palpable breast lump in surgical OPD or patients referred from other departments for same.
2. Age >10-60 years.
3. Breast pain but no palpable lumps were also included in the study. Identification of all patients were established by their name, age in years, sex, occupation, marital status. The clinical history will be based on presenting complaints, past history, family history, with special reference to presence of any breast disease in first degree relative, OB/GYN history with special reference to parity, HRT, contraception and socioeconomic status.

**Criteria of Exclusion**

1. Male patients.
2. Already diagnosed cases of malignant breast disease elsewhere.
3. Secondaries in breast with primary elsewhere.
4. Previously operated for breast lump/carcinoma.

**Sample Size**

Calculated using formula.

$$n=(k-1)\{z^2(p1-p2)^2\}$$

$$p1=0.67$$

$$p2=0.013$$

$$p=(p1+$$

Type I error  $\alpha=5\%$

Type II error  $\beta=20\%$

Power of study=90%

Data Loss 10%

Minimal Sample Size Comes Out n=70

Type	No. of Cases	Percentage
Fibroadenoma	27	54.0
Fibrocystic disease	11	22.0
Abscess	5	10.0
Cyclical Mastalgia/ Mastitis	4	8.0
Galactocoele	1	2.0
Duct Ectasia	1	2.0
Benign Breast Cyst	1	2.0
<b>Total</b>	<b>50</b>	<b>100</b>
<b>Benign Breast Diseases in the Present series Diagnosed by Various Modalities</b>		

Type	Age					Total%
	10-20	21-30	31-40	41-50	>50	
Fibroadenoma	1	17	9			55.0
Fibroadenosis	1	6	4			22.0
Abscess	3	2				10.0
Cyclical mastalgia	2	2				8.0
Galactocoele	1					2.0
Duct ectasia	1					1.0
Benign cyst		1				1.0
<b>Total</b>	<b>2</b>	<b>30</b>	<b>18</b>			<b>100</b>
<b>Age-wise Distribution of Various Benign Breast Disorders</b>						

In the present study, most common age at presentation is between 21 and 30 years and least common age at presentation is after 50 years of benign breast diseases.

Fibroadenoma was the commonest presentation in the age group of 21-30 and 31-40 years of age with 17 and 09 cases respectively. Fibroadenosis, cyclical mastalgia occurred commonly during 21-30 and 31-40 years range.

**Size of the Lesion**

The diameter of the lumps ranged from <2 cm to 5 cm in 50 cases which were analysed in this study.

The smallest lesion was 1 sq. cm (1 x 1 cm) whereas the largest diagnosed was 8 x 6 cm.

37 patients had a lump of size between 2 and 5 cm of which 26 patients had fibroadenoma followed by 11 cases of fibroadenosis.

Most of the cases of lesion more than 5 cm were breast abscesses and only one case of giant fibroadenoma was recorded.

Disorders	Clinical Diagnosis	Ultrasonography	Difference	Sensitivity
Fibroadenoma	10	9	1	90%
Fibroadenosis	6	6	0	100%
Abscess	2	2	0	100%
Galactocoele	2	2	0	100%
Breast Cyst	0	1	1	0%
<b>Total</b>	<b>20</b>	<b>20</b>	<b>3</b>	

**Comparative Correlation of Clinical and USG Finding**

In the present study, USG was done in 20 cases out of which 6 out of 8 clinically diagnosed fibroadenoma were diagnosed by USG with 90% sensitivity. Remaining 1 case was of fibroadenosis.

Cases of cysts, abscesses and galactocoele were more accurately diagnosed with USG.

Disorders	Clinical Diagnosis	HPE Confirmation	Difference	Sensitivity of Clinical Diagnosis
Fibroadenoma	27	23	4	85.1%
Fibroadenosis	8	6	2	75%
Breast cyst	0	1	1	0%
Lipoma	0	1	1	0%
Duct ectasia	1	1	0	100%
<b>Total</b>	<b>36</b>	<b>32</b>	<b>8</b>	

**Comparative Correlation of Clinical Diagnosis with Histopathological Confirmation**

In the present study, 27 cases were diagnosed as fibroadenoma clinically and underwent excision and histopathological study out of which 4 cases turned out to be of different diagnosis.

Of which most of them were fibroadenosis, one case turned out to be lipoma and one case turned out to be a benign breast cyst. Thus, the sensitivity of clinical diagnosis was 85% for clinical diagnosis.

Out of 8 cases of fibroadenosis who underwent excision, 2 cases turned out to be fibroadenoma on histopathological diagnosis. Thus, the sensitivity of clinical diagnosis for diagnosing fibroadenosis was 75%. Duct ectasia and antibioma were diagnosed correctly by clinical methods and were confirmed by histopathology after excision.

Disorders	FNAC	HPE Confirmation	Difference in Final Diagnosis	Sensitivity of FNAC
Fibroadenoma	17	15	2	88.2%
Fibroadenosis	08	06	2	75%
Duct ectasia	01	1	0	100%
Breast cyst	01	1	0	100%
Lipoma	01	1	1	100%
<b>Total</b>	<b>28</b>	<b>24</b>	<b>5</b>	

**Comparative Correlation of FNAC with Histopathological Confirmation**

In the present study, 17 cases of fibroadenoma diagnosed on FNAC underwent excision and out of which 2 cases turned out to be fibroadenosis. Thus, the sensitivity of FNAC for fibroadenoma in the study was 88%. 6 cases of fibroadenosis diagnosed by FNAC underwent excision and 2 cases turned out

to be fibroadenomas. Thus, the sensitivity of FNAC to diagnose fibroadenosis was 75%.

Disorders	Core Biopsy	HPE Confirmation	Difference in Final Diagnosis	Sensitivity Core Biopsy
Fibroadenoma	15	14	1	92%
Fibroadenosis	06	05	1	83%
Duct Ectasia	01	1	0	100%
Breast Cyst	01	1	0	100%
Lipoma	01	1	1	100%
<b>Total</b>	<b>24</b>	<b>22</b>	<b>3</b>	

**Comparative Correlation of Core Biopsy with Histopathological Confirmation**

Core biopsy was done in 15 patients and HPE confirmation received in 14 with sensitivity of 92%. Similarly, in fibroadenosis, 6 cases were done and 1 case was of fibroadenoma with sensitivity of 83%

Treatment Modalities						
Type	Excision	Conservative	I&D	Aspiration	Microdochectomy	Total
Fibro-adenoma	27	0	0	0	0	27
Fibro-adenosis	06	05	0	0	0	11
Abscess		5			05	
Mastalgia	04				04	
Galactocoele		2			02	
Duct Ectasia			1		01	
Lipoma Benign Breast Cyst	01					
<b>Total</b>	<b>34</b>	<b>09</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>50</b>

**Various Treatment Modalities Adapted in Present Series**

**RESULTS**

Final diagnosis based on clinical, FNAC, USG, core biopsy and histopathology was established as fibroadenoma in 2 cases, fibroadenosis in 6 cases, breast abscess in 3 cases and galactocoele, lipoma, breast cyst and ectasia 1 case each.

On clinical evaluation, total of 35 cases were labelled as fibroadenoma and fibroadenosis while remaining were abscess, cyst, lipoma and ectasia, FNAC was performed in 28 cases, of these 26 were diagnosed as benign while 1 each as ectasia, cyst and lipoma.

Core biopsy was done in 24 cases, of these 21 were benign, remaining were cyst, ectasia, lipoma 1 each. On final diagnosis, 27 cases were of fibroadenoma, 6 of fibroadenosis, 1 lipoma, 5 of breast abscess, 2 of galactocoele, 1 ectasia and 1 cyst. Among clinical, FNAC and USG; FNAC was most accurate and USG least. An agreement of 92.2% was observed between core biopsy and FNAC. With respect to disagreement, 1 case diagnosed as fibroadenosis by core biopsy was diagnosed normal in FNAC, and 1 case diagnosed as fibroadenoma was confirmed as cyst on histopathology.

## DISCUSSION

Benign breast lesions hold a significance from a point of view that they have a potential to turn into malignancy. In view of the prognostic risk of their conversion into malignancy, it requires great precision and accuracy for their diagnosis. Mammography is a highly sensitive tool but lacks specificity. Other imaging such as CT tomography, H NMR spectroscopy is very costly and not 100% accurate.

The primary objective of treating surgeon is to reduce the extent of large incisions while at the same time obtain adequate specimen for accurate diagnosis. FNAC and core biopsy are two such modalities which work as a replacement for histopathology. Hence, the present study was planned to compare FNAC with Core Biopsy.

For this purpose, 50 histopathologically proven patients of benign breast disease were enrolled in this study and were subjected to a thorough demographic, clinical, haematological, biochemical, radiological and pathological evaluation. In the present study, core biopsy had 92% sensitivity and 100% specificity whereas FNAC had sensitivity of 85% and specificity of 98.6%. In the present study, we tried to segregate fibroadenoma/fibroadenosis from other diagnosis. Fibroadenoma and fibroadenosis are basically marked by cytological changes which are more clearly visible in FNAC as well as core biopsy examination. In the past, focus of FNAC and CB has generally been in differentiating benign from malignant diseases; however, the present study found them to be equally useful in differential diagnosis of benign breast diseases. Given the varying prognostic significance of different benign breast diseases, these two least invasive techniques are helpful in the prognosis, treatment and management without essential requirement of histopathology. Further studies to corroborate the findings of the present study are recommended.

## Summary

In this study, 50 cases of benign breast diseases were evaluated during the period of Oct. 2013 to May 2015. Clinicoradiological and pathological study of the various types of benign breast disease has been done. In my study, fibroadenoma formed the major component forming 54% of cases followed by fibrocystic diseases in 22% cases. Puerperal breast abscess comprised 4 cases, cyclical mastalgia 3 cases, galactocoele 1 case, and benign breast cyst, lipoma and duct ectasia accounted for 1 case each. High resolution USG was done in 20 patients in those where clinical diagnosis has not been confirmed, out of which 9 were of fibroadenoma and 6 were fibroadenosis. Conservative management (Reassurance, breast support, evening primrose oil, vitamin E, danazol, etc.) was done in all patients of cyclical mastalgia (4) and in patients with fibroadenosis (5).

Surgical excision was an effective treatment for most of the benign breast diseases (35 cases). Other modalities of treatment included Incision and Drainage (I&D), microdochectomy, aspiration. 5 patients with fibroadenosis failed on conservative management and required excision. Sensitivity of clinical diagnosis to identify fibroadenoma was 85% and for fibroadenosis was 75%. Sensitivity of FNAC for

diagnosing fibroadenoma was 85% and for fibroadenosis was 82%. Sensitivity of core biopsy was 92% for fibroadenoma and 83% for fibroadenosis.

In view of the above summary of work, the following conclusions can be drawn in our series.

## CONCLUSION

1. Majority of the benign breast diseases occur in younger age group.
2. Most common presenting complaints are lump in the breast, pain in the breast, followed by nipple discharge.
3. Fibroadenoma and fibroadenosis are the most common benign breast diseases.
4. Early onset of fibroadenoma and fibrocystic diseases is attributed to early menarche.
5. Majority of lumps are noticed accidentally by the patient.
6. Majority of breast lumps are painless to present with.
7. Fibroadenoma usually present with unilateral solitary lump but multiple fibroadenomas in single breast and fibroadenomas in both breasts may also be present.
8. Diseases like ductal ectasia, lipoma and antiabioma are extremely rare.
9. High resolution ultrasonography (HRUSG) is very useful in diagnosing abscess, cysts and galactocoele.
10. Fine needle aspiration cytology (FNAC) is a sensitive & simple cost effective investigation in benign breast disease, but the sensitivity of core biopsy is more accurate.

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