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General Surgery

A COMPARATIVE STUDY OF CLINICAL FINDINGS, ULTRASONOGRAPHY AND HISTOPATHOLOGY FINDINGS OF BENIGN BREAST DISEASES

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ABSTRACT

BACKGROUND: Benign breast disorders are defined as non-malignant breast conditions and include a wide range of clinical and pathological disorders. BBD are very common and 1/3rd of women are diagnosed to have this disorder in one time of their life.

Benign Breast disease is the most common type of breast diseases and up to 30 percent of women will suffer from a benign breast disorder requiring treatment at some time in their lives.

AIMS & OBJECTIVES: To compare the role of clinical examination, ultrasonography and histopathological study in the diagnosis of benign breast diseases.

RESULTS : In the present study, it was found that benign breast diseases were found to be more in the age group of 21-30 years. The most common presentation was a lump in the breast followed by pain and discharge from nipple Most of them (56%) were 3-5 cms. Fibroadenoma cases (50%) were common. USG and FNAC/HPR were done in all the cases and were diagnostic. The sensitivity and specificity of the tripletest (clinical examination, USG, and FNAC) in the diagnosis of fibroadenomawere 96.66% and 96.66% respectively.

CONCLUSION: The accuracy of BBD diagnosis increases when all the three modes, i.e. clinical examination, USG, and FNAC are employed. Triple assessment may avoid unnecessary surgeries for benign breast lesions.

KEYWORDS : BBD, Clinical Examination,USG, FNAC/HPR, Triple test

INTRODUCTION

Benign breast Diseases is defined as any non-malignant breast condition and encompasses a wide range of clinical and pathologic disorders. It is one of the most common diseases in the females of any society.

The vast majority of the lesions that occur in the breast are benign. It has been noted that noncancerous pathology of the breast has always been neglected, compared to breast cancer in spite of the fact that benign conditions account for 90% of the clinical presentations related to the breast[1].

The incidence of benign breast lesions begins to rise during the second decades of life and peaks in the fourth and fifth decades, as opposed to malignant diseases, for which the incidence continues to increase after menopause, although at a less rapid pace.[2]Triple assessment, which includes clinical examination, imaging, and histopathological examination is now considered a gold standard approach to the diagnosis of breast lump[3].

NEED FOR THE STUDY

At present, a wide range of diagnostic modalities are available for evaluating the breast lump. Two techniques that are currently available with excellent patient tolerability are ultrasonography and fine needle aspiration cytology. There are numerous reports that if the results of the clinical assessment, ultrasonography,and FNAC/HPR are all combined, the accuracy of diagnosis reaches 100 %.

Thus there is a need for evolving a method to establish the diagnosis pre-operatively, which is cost-effective, least invasive and least disturbing the patient, with accuracy comparable to open biopsy.

AIMS & OBJECTIVES

The aim of the study is to compare the role of following triple assessment parameters in the diagnosis of benign breast diseases.

- Clinical examination
- Ultrasonography findings
- Histopathological findings.

MATERIALS AND METHODS

SOURCE OF DATA

Consecutive female patients with breast diseases who attended O.P.D or were admitted to wards in Department of general surgery, government general hospital, Kurnool, between November 2016 to November 2018.

METHOD OF COLLECTION OF DATA

A detailed history of the patient was noted to find out the reasonable risk factors and complaints like a lump in the breast, pain in the breast,discharge from nipple were recorded in chronological order. The evaluation was done by history, clinical examination, Ultrasonography followed by FNAC and HPE.

Sample size: 60 patients

Sampling method : Simple random sampling

STATISTICAL ANALYSIS

was done using a proper statistical test

1) Diagrammatic presentation
2) Sensitivity, Specificity and Positive & Negative predictive value.

INCLUSION CRITERIA

All cases diagnosed clinically as benign breast diseases irrespective of age were included in the study.

EXCLUSION CRITERIA

Patients who were recruited in this study as benign breast disease and later proved to had following findings were excluded from the study.

1) malignancy after investigations.
2) acute inflammatory conditions.

INVESTIGATIONS

1) Ultrasonography of both breasts
2) Fine needle aspiration cytology of breast lesion, direct orimage-guided
3) Histopathological examination

DATA COLLECTION

60 cases of benign breast lumps were studied in relation to age group, clinical, radiological and pathological assessment and then compared with the final histopathological diagnosis.Allpatients who were diagnosed to have fibroadenoma underwent excision biopsy of lump and patients diagnosed to have fibrocystic disease were subjected to

core needle biopsy and managed conservatively and remaining other diagnosed cases were also subjected to excisional biopsy. The final histopathological report was taken as the reference standard.

All these cases were subjected to ultrasound examination of both breasts and axillae and USG was done by an experienced radiologist. These patients were also subjected to FNAC of a breast lump and FNAC was done by an experienced pathologist in a standard technique. All patients who were candidates for surgery were subjected to necessary investigations and informed consent for surgery was taken. Surgery was done and the excised specimen was sent for histopathological examination for final confirmation of diagnosis.

Based on FNAC diagnosis, the benign breast lesions which could be managed surgically were subjected to excisional biopsy and those which were managed conservatively were subjected to core needle biopsy for HPE for study purpose.

RESULTS

This study includes 60 patients with a breast lump. They have undergone clinical examination followed by USG breast and FNAC/HPR evaluation. The diagnosis of a breast lump is reached with a correlation of clinical findings, ultrasonography &FNAC/HPR. The results of the study were shown in the following tables.

On analysis of my study, it was found that benign lump incidence was found to more in the age group of 21-30 years (24 patients i.e. 40%), followed by 31-40 years and then 11-20 years of age group. 40 cases(66.66%) presented with lump only and 12 cases (20%) presented with lump and pain in the breast.In total 60 cases, 4 cases presented with only pain and 4 cases presented with only discharge from the nipple.

In the present study, out of 60 cases, 32 cases (53.33%) presented with breast disease on the leftside, 26 cases (43.33%) on right side followed by 2 cases (3.33%) on bilateral sides. 28 cases presented in the upper outer quadrant,17 cases in the upper inner quadrant and 9 cases in the lower outer quadrant. 2 cases presented inlower inner quadrant and 4 cases presented involving all quadrants.Patients were divided into those with a lump <3cms (small size) in diameter, those between 3-5cms (intermediate size) and those >5cms (giant size). In the present study, 34 cases (56.66%) were 3-5cm in size, 18 cases were < 3cm in size and 8 cases were > 5 cm in size.

In this study of 60 patients, 30 cases (50%) diagnosed to have fibroadenomas, 22 cases (36.66%) had fibrocystic disease, 5 cases (8.33%) had galactocele. 2 (3.33%) cases of cystosarcoma phyllodes and 1 case of duct papilloma were diagnosed.In the present study,a most common presentation of BBD werefibroadenoma and fibrocystic disease .29 of total 30 cases of fibroadenoma were seen in 11-30 years of age group. 21 of total 22 cases of the fibrocystic disease were noted in 21-40 years of age group. 3 cases of galactocele presented in 21-30 years of age and 2 cases in 31-40 years of age . 2 cases of cystosarcoma phyllodes noted in 41-50 years of age. One case of duct papilloma presented in 31-40 years of age.

CLINICAL VS USG VS FNAC/HPR DIAGNOSIS OF BBD

In this present study, 35 cases (58.33%) of FAwere diagnosed on clinical examination, but inUSG 33 cases (55%) were diagnosed as FA,two cases were diagnosed as galactocele. Out of 33 cases of FA diagnosed on USG, 30cases were confirmed as FA, two cases were confirmed as FCD and one case as galactocelein FNAC.Out of 30 cases of FA diagnosed on FNAC, 29 cases were confirmed as FA andone case as cystosarcoma phyllodes in HPE.

For the study purpose, all cases of FA diagnosed in FNAC were subjected to excision based on patient willing for excision and confirmed in HPE. All cases of FCD diagnosed in FNAC were managed conservatively and subjected to core needle biopsy for confirmation in HPE.Galactocele, cystosarcoma,and duct papilloma cases diagnosed in FNAC were subjected to excision and confirmed in HPE.

In this present study, 21 cases (35%) of FCDwere diagnosed on clinical examination.USG and FNAC gave a diagnosisof FCDin all clinically detected cases.Two cases ofclinically detected FA were diagnosed as FCD in FNAC. In 23 cases of FCD on FNAC, 22 cases were diagnosed as FCD in HPE and 1case as FA in HPE.

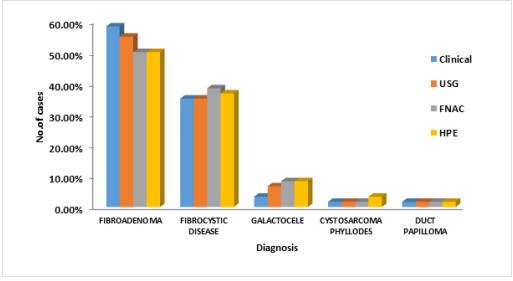
In the present study, 2 cases were diagnosed as galactocele on clinical Examination and confirmed as galactocele in USG and FNAC. Two cases diagnosed as FA in clinical examination were diagnosed as galactocele in USG and FNAC.One case diagnosed as fibroadenoma in clinical and USG, FNAC finding was galactocele. Out of 5 cases diagnosed on FNAC, all cases were confirmed as galactocele in HPE.

In the present study, one case of cystosarcoma diagnosed clinically and it was confirmed on USG, FNAC,and HPE. One case of FA diagnosed in FNAC was detected as cystosarcoma inHPE.One case of duct papilloma diagnosed clinically was detected on USG and confirmed in FNAC and HPE.

TABLE : COMPARISON OFCLINICAL, USG, FNAC AND HPE FINDINGS IN DIAGNOSIS OF BBD

Diagnosis	Clinical	%	USG	%	FNAC	%	HPE	%
Fibroadenoma	35	58.33%	33	55.00%	30	50.00%	30	50.00%
Fibrocystic disease	21	35.00%	21	35.00%	23	38.33%	22	36.66%
Galactocele	2	3.33%	4	6.66%	5	8.33%	5	8.33%
Cystosarcoma phyllodes	1	1.66%	1	1.66%	1	1.66%	2	3.33%
Duct papilloma	1	1.66%	1	1.66%	1	1.66%	1	1.66%

GRAPH :COMPARISON OFCLINICAL,USG, FNAC AND HPE FINDINGS IN DIAGNOSIS OF BBD



A COMPARATIVE STUDY OF CLINICAL FINDINGS, USG, AND HISTOPATHOLOGICAL FINDINGS OF BBD(BENIGN BREAST DISEASES)

In the present study, FA was the most common presentation of benign breast diseases. Calculation of sensitivity and specificity of each moadality for diagnosis of BBD requires large sample size and presence of malignant lesions. In the present study sample size was low and malignant leions were excluded from the study.So sensitivity, specificity, PPV and NPV of clinical examination, ultrasonography and FNAC in the diagnosis of BBD had been calculated with respect to fibroadenoma as it was the most common presentation considering HPE as gold standard.

1) Comparison of clinical diagnosis with histopathology in BBD
Statistical parameters of clinical examination in the diagnosis of fibroadenoma
Sensitivity: 93.33 % PPV: 80%
Specificity: 76.66 % NPV: 92%

2) Comparison of USG diagnosis with histopathology in BBD
Statistical parameters of USG findings in the diagnosis of fibroadenoma
Sensitivity: 96.66 % PPV: 87.87%
Specificity: 86.66 % NPV: 96.29%

3) Comparison of FNAC diagnosis with histopathology in BBD
Statistical parameters of FNAC findings in the diagnosis of fibroadenoma
Sensitivity: 96.66 % PPV: 96.66 %
Specificity: 96.66 % NPV: 96.66 %

DISCUSSION

Benign breast diseases are a common disease affecting women in our country. This study includes 60 cases of benign breast diseases which

were evaluated by clinical examination, ultrasonography,and histopathological examination and treated in government general hospital, Kurnool between November 2016 to November 2018.

In the present study, most of the patients (68.33%) belonged to the active reproductive years (20-40 years)as a result of repeated cyclical changes in the form of menstruation, pregnancy,and lactation depicting the occurrence of ANDI as described in the literature. The most common lesions in our study include fibroadenoma followed by fibrocysticdisease, galactocele,cystosarcoma phyllodes tumor, ductal papilloma.

TABLE : COMPARISON OF DISEASE PATTERN OF BBD WITH OTHER STUDIES

Author	FA	FCD	GLC	DP	CSP	OTHERS
Khanna et al[5]	40.0%	14.3%	12.0%	0.7%	4.2%	28.8%
Shukla et al study[6]	46.4%	14.3%	0.0%	0.9%	0.6%	37.8%
Rangabashyam study[7]	56.7%	16.2%	6.9%	0.0%	2.3%	17.9%
Selvakumaran study[4]	55.9%	20.8%	1.2%	1.2%	2.3%	18.6%
Present study	50.0%	36.6%	8.3%	1.6%	3.3%	0.0%

In the present study, fibroadenoma and fibrocystic disease were the most common presentations,Studies which compared all the three modalities with final HPE or which employed individual modality and compared with final HPE were analyzed. All FNAC confirmed fibroadenomas cases were subjected to excisional biopsy as part of treatment after taking patient consent for excision and all FNAC confirmed fibrocystic disease cases were treated conservatively and subjected to core needle biopsy for study purpose.In the present study, a comparison of each parameter of triple assessment was done individually to calculate sensitivity, specificity,PPV,and NPV. Comparison of each parameter had been done with respect to fibroadenoma as it was the most common presentation.

Calculation of sensitivity and specificity of each moadality for diagnosis of BBD requires large sample size and presence of malignant lesions. In the present study sample size was low and malignant leions were excluded from the study.So sensitivity, specificity, PPV and NPV of clinical examination, ultrasonography and FNAC in the diagnosis of BBD had been calculated with respect to fibroadenoma as it was the most common presentation considering HPE as gold standard.Due to small sample size, the results of this study needs further verification by relatively larger scale studies.

TABLE :COMPARISON OF CLINICAL EXAMINATION RESULTS WITH OTHER STUDIES

Study	Eltahir et al[8]	Bangaru H et al[9]	Egwuonwu et al[10]	Present study
Sensitivity	88.7%	98.8%	93.3%	93.33%
Specificity	99.1%	65.9%	58.8%	76.66%
Positive predictive value	98.5%	91.9%	85.7%	80%

TABLE : COMPARISON OF SENSITIVITY OF USG WITH OTHER STUDIES

Study	Sensitivity of USG
Carty et al[11]	98%
Gonzanga et al[12]	75%
Mansoor et al[13]	81.8%
Khailas et al[14]	81.6%
Bangaru H et al[9]	98.3%
Present study	96.66%

TABLE : COMPARISON OF SENSITIVITY OF FNAC FOR WITH OTHER STUDIES

Study	Sensitivity(%)
Carty et al[11]	84%
Velu et al[15]	97.2%
Cant et al[16]	87%
Bangaru H et al[9]	97.2%
Present study	96.66%

In this study, the sensitivity of clinical breast examination in the diagnosis of fibroadenoma was quite good but showed relatively less sensitivity and specificity than USG and FNAC. In this study, USG and FNAC showed similarsensitivity butthe specificity of FNAC is more than the specificity of USG. FNAC had more specificity and positive predictive value than clinical examination and USG. FNAC had similar sensitivity,specificity,and positive predictive value because of the low sample size in this study.

Clinical examination and USG in the diagnosis of BBD were found to be in good agreement with HPE. But the decision in the management of benign breast lumps could not be done based on these modalities alone.

Even in other studies, it was stated that FNAC features were found more informative when combined with physical and radiological findings.Single modality test was not found accurate enough to make the correct diagnosis and that the diagnostic accuracy could be increased by employing multimodality test.

The role of FNAC and USG in the diagnosis and management of breast disease is increasing. But each of these diagnostic modalities by itself has an appreciable false negative rate. This inaccuracy in the diagnosis of breast disease can be overcome by a combination of these diagnostic methods, by which sensitivity increases.

Therefore to improve diagnostic accuracy, close collaboration amongst clinicians, radiologists and pathologists were found useful.But this is a single center, record-based study. Further large-scale studies would be useful to study the accuracy and need for triple assessment of benign breast lumps.When parameters of triple assessment are combined a definitive diagnosis can be made suggesting that the triple assessment has a high sensitivity, specificity, positive predictive value,and negative predictive value with minimal error.

CONCLUSION

Benign conditions of breast were most common between 20-40 years of age of whom the majority of patients are between 20-35 years of age. The lump was the most common symptom noted followed by lump with pain,pain alone and discharge from the nipple.ANDI was found to be more common than inflammatory BBD. Fibroadenoma wasthe most common ANDI noted followed by fibrocystic disease, and least common presentations were galactocele,duct papilloma, and phyllodes tumor.

The accuracy of BBD diagnosis increases when all three modes i.e. Clinical examination, USG, and FNAC are employed. For BBD unnecessary surgeries may be avoided by triple assessment. Our study indicates that FNAC is a diagnostically accurate procedure. However, when FNAC is inconclusive,core needle biopsy /excisional biopsy is the ultimate choice for breast lesions.FNAC/HPR is useful in identifying different types of BBD presentation and thus influence the management of BBD.Hence clinical, radiological and pathological assessment by clinical breast examination, Ultrasonography and Fine needle aspiration cytology methods is a useful and effective approach in the evaluation of benign breast lumps.

SUMMARY

This study includes 60 cases of benign breast diseases which are evaluated on an outpatient basis or inpatient basis and treated between November 2016 to November 2018.

Benign breast disease incidence was found to be more in the age group of 21- 30years (24 patients i.e. 40%) followed by 31-40 years and then 11-20 years. The most common ANDI was fibroadenoma (30 cases) followed by fibrocystic disease (22 cases) and then bygalactocele, phyllodestumor, duct papilloma.

On USG breast, multiple lesions were detected in 8 cases (13.33%) and single lesions in 52 cases (86.66%). In the present study, USG could give information whether the lesion is cystic or solid but further information of the lesion had limitations, but fibroadenomacould be diagnosed accurately on USG.FNAC/HPR was done in all the cases and was diagnostic.The FNAC/HPR report showed that the commonest ANDI wasfibroadenoma (30 cases), followed by fibrocystic disease (22 cases), and the least common were Galactocele,phyllodestumor and duct papilloma. Our study indicates that FNAC was a diagnostically accurate procedure. However, when FNAC was inconclusive, a biopsy is the ultimate choice for breast

lesions.

The sensitivity and specificity of clinical examination in the diagnosis of fibroadenoma were 93.33% and 76.66% respectively. The sensitivity and specificity of USG examination in the diagnosis of fibroadenoma were 96.66% and 86.66%. The sensitivity and specificity of FNAC examination in the diagnosis of fibroadenoma were 96.66% and 96.66% respectively.

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