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A Study on Clinico-Pathological, Radiological Evaluation and Management of Benign Breast Diseases

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Abstract

Background: Benign breast diseases is usually seen in female reproductive life accounting for more than 90% of the cases with benign breast lumps on presentation. Fibroadenoma is a common cause of benign breast lumps in premenopausal women. Fibrocystic disease of breast is a histological term presenting as lump or lumpiness. Triple assessment by clinical, pathological and radiological examination is a standard approach in the evaluation of breast lumps. This study was aimed to establish a clinico-pathologic and radiological correlation and susequent management in patients with benign breast diseases. *Materials and Methods:* A prospective study was conducted at IMS & SUM Hospital, Bhubaneswar, India during the period of October 2015 to September 2017. In this study, 102 females with benign breast lumps were evaluated by clinical breast examination, ultrasonography (USG) and Fine needle aspiration cytology (FNAC) methods. All patients underwent excision biopsy of lump. Final histopathological report was taken as reference standard. *Results:* Surgical excision was an effective treatment for most of the benign breast diseases. Clinical breast examination and USG showed good sensitivity but less specificity than FNAC. FNAC showed both good sensitivity and specificity. *Conclusions:* Fibroadenoma and Fibroadenosis are the most common benign breast diseases. Triple assessment by clinical, pathological and radiological examination is a standard approach in the evaluation of breast lumps. Surgical excision was an effective treatment for most of the benign breast diseases.

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Introduction

Benign breast diseases (BBDs) is a heterogenous group of breast diseases, the most common cause of breast problems presenting in a day to day surgical practice. Benign breast lumps are the most common lesions accounting for more than 90% of the cases presented. Fibro adenoma is a common cause of benign breast lumps in premenopausal women.

Fibrocystic disease of breast is a histological term 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.Clinical examination is the first step in the assessment of breast disorders [1]. With the advent of imaging modalities, ultrasonography or ultrasound (USG) of breast has become an important diagnostic tool [2]. Triple assessment by clinical examination, imaging like mammography, pathological assessment by core or open biopsy has been a standard approach in the evaluation of breastlumps [3].

Ultrasonography of breast is relatively less expensive imaging modality available in many centers and has noroentgenographic exposure [3]. Ultrasonography can effectively distinguish solid masses from cysts, which account for approximately 25 percent of breast lesions [4].

Fine needle aspiration cytology (FNAC) breast is generally considered as a rapid, reliable, and safe diagnostic tool to distinguish non-neoplastic from neoplastic breast lesions. FNAC is an important first method of pathological assessment of breast disorders [5].

USG and FNAC are preferred as initial methods of assessment and considered to be included in triple assessment of breast lumps in few studies [6]. Histopathological examination (HPE) of excised specimen of breast lump is used for final confirmation of diagnosis [6]. The aim of this study is to study distribution of various benign breast lumps in relation to age at presentation, to identify sensitivity and specificity of clinical breast examination, Ultrasonography (USG) and Fine needle aspiration cytology (FNAC) methods in the evaluation of benign breast lumps and to compare with final histopathological diagnosis and subsequent management in patients with benign breast diseases.

Material & Methods

This prospective study was conducted at IMS & SUM Hospital, Bhubaneswar, India 102 female patients with benign breast diseases (BBDs) from October 2015 to September 2017 were enrolled into this study. An early diagnosis was made on the basis of age group, clinical examination, radiological and pathological assesment. 102 female patients with benign breast lumps were evaluated by clinical breast examination, ultrasonography (USG) and Fine needle aspiration cytology (FNAC) methods. All patients underwent surgical excision of breast lumps with final histopathological examination (HPE) as standard reference. In this study of 102 cases data were recorded in relation to their age group, clinical, radiological and pathological assessment and their comparison with final histopathological diagnosis.

Results

In this study, benign breast diseases was most common at the age between 21 and 30 years and least common age at presentation after 50 years. Fibroadenoma was found to be the most common presentation (72%). Fibrocystic disease was found to be more common in 31-40 years. Phyllodes tumour was found in 31-40 years, galactocele in 21-30 years,duct ectasia in 41-50 years and duct papilloma in 3rd and 4th decades (Table 1). Diagnosis by each modality was compared with final histopathological examination. Comparative correlation of clinical breast examination and ultrasonography finding was done with sensitivity and specificity of 97.4% and 78.3% respectively (Table 2).

The sensitivity, specificity, positive and negative predictive values of clinical diagnosis of benign breast diseases were 98.5%, 68.9%, 92.3% and 94.1% respectively (Table 3).

USG showed 98.4% sensitivity, specificity, positive and negative predictive values were 72.3%, 94.2% and 92.3% respectively (Table 4).

FNAC showed 97.4% sensitivity and 96.7% specificity while positive and negative predictive values were 98.5% and 90.2% respectively (Table 5). Each diagnostic modality and HPE were analyzed. Clinical diagnosis was found to be in good agreement with HPE with a kappa value of 0.721. USG was found to be in good agreement with HPE with a kappa value of 0.763. FNAC was found to be in very good agreement with HPE with a kappa value of 0.915.

Table 1: Age-wise distribution of benign breast diseases

Age in years	Fibroadenoma	Fibrocystic diseases	Phyllodes tumour	Galactocele	Duct ectasia	Duct papilloma
10-20	17	0	0	0	0	0
21-30	40	2	0	2	1	0
31-40	16	11	2	2	2	1
41-50	0	3	0	0	2	1
>50	0	0	0	0	0	0

Table 2: Comparative correlation of clinical and ultrasonography

BBDs	Clinical Diagnosis	Ultrasonography	Difference
Fibroadenoma	78	76	2
Fibrocystic diseases	11	16	5
Phyllodes tumour	2	2	0
Galactocele	3	2	1
Duct ectasia	5	4	1
Duct papilloma	3	2	1

Table 3: Comparative correlation of clinical diagnosis and HPE

BBDs	HPE							
	Clinical	Fibroadenoma	Fibrocystic diseases	Phyllodes tumour	Galactocele	Duct ectasia	Duct papilloma	Total
Fibroadenoma	78	69	8	0	1	0	0	78
Fibrocystic diseases	11	3	5	1	1	1	0	11
Phyllodes tumour	2	1	0	1	0	0	0	2
Galactocele	3	0	1	0	2	0	0	3
Duct ectasia	5	0	1	0	0	4	0	5
Duct papilloma	3	0	1	0	0	0	2	3
Total	102	73	16	2	4	5	2	102

Table 4: Diagnosis by USG versus HPE

BBDs	USG	HPE						
		Fibroadenoma	Fibrocystic diseases	Phyllodes tumour	Galactocele	Duct ectasia	Duct papilloma	Total
Fibroadenoma	76	71	3	0	1	1	0	76
Fibrocystic diseases	16	2	11	0	1	2	0	16
Phyllodes tumour		0	0	2	0	0	0	2
Galactocele	2	0	0	0	2	0	0	2
Duct ectasia	4	0	2	0	0	2	0	4
Duct papilloma	2	0	0	0	0	0	2	2
Total	102	73	16	2	4	5	2	102

Table 5: Diagnosis by FNAC versus HPE

BBDs	FNAC	HPE						
		Fibroadenoma	Fibrocystic diseases	Phyllodes tumour	Galactocele	Duct ectasia	Duct papilloma	Total
Fibroadenoma	76	71	3	0	1	1	0	76
Fibrocystic diseases	15	2	11	0	1	1	0	15
Phyllodes tumour	2	0	0	2	0	0	0	2
Galactocele	4	0	1	0	2	1	0	4
Duct ectasia	3	0	1	0	0	2	0	3
Duct papilloma	2	0	0	0	0	0	2	2
Total	102	73	16	2	4	5	2	102

Discussion

In our study, all the patients of benign breast diseases with palpable breast lumps were evaluated by clinical breast examination, ultrasonography and FNAC. The results of each method were compared with final HPE report. In our study, fibroadenoma was the most common breast lump (71.5%) followed by fibrocystic disease (15.6%) and rest (12.8%) consists of phylloides tumour, galactocele, duct ectasia and duct papilloma.

Aslam [7] also documented fibroadenoma as the most common benign lesion (71.3%) in their study. Even in study done by Chandanwale et al, fibroadenoma was the most common and fibrocystic disease was the second most common benign breast disease [8].

Fibroadenoma was found to be most common in 21-30 years and fibrocystic disease was most common in 31-40 years age group in our study. Unlike our study, Jayaram *et al.*, in their study of 543 cases of FNAC found fibrocystic disease (39.8%) as the most common lesion [9].

Phyllodes tumour was found common in 31-40 years, galactocele in 21-30 years, duct papilloma in 3rd and 4th decades, duct ectasia in 41-50 years age group in our study. In the study done by Chandanwale et al, cases diagnosed on FNAC as fibroadenoma were found to be more common in 21-30 years age group, fibrocystic disease in 31-40 years followed by 21-30 years, galactocele in 21-30 years,

benign phyllodes tumour in 31-40 years followed by 41-50 years, duct ectasia in 41- 50 years age group [8].

In our study the diagnosis of benign breast diseases by each modality, clinical examination, USG and FNAC was compared with final HPE. Clinical breast examination showed good sensitivity of 98.5% in the diagnosis of benign breast lumps in this study. Out of 78 cases clinically diagnosed as fibroadenoma,69 cases were histologically proved the same. In study done by Cant et al, out of the cases clinically diagnosed as fibroadenoma, histological confirmation was found in 68% [10]. In another study done by Eltahir et al, clinical diagnosis showed 88.7% sensitivity, 99.1% specificity and 98.5% positive predictive value [11]. The sensitivity, specificity and positive predictive values were 98.5%, 68.9% and 92.3% respectively in our study. In the present study, sensitivity and specificity of USG in the diagnosis of benign breast lumps were 98.4% and 72.3% respectively. In a study done by Kailash et al, sensitivity, specificity and positive predictive values of ultrasound in fibroadenoma of breast were 81.6%, 94.7% and 91.2% respectively [12]. FNAC showed 97.4% sensitivity and 96.7% specificity in the diagnosis of benign breast lumps in our study.

Study done by Khaturi et al mentioned that out of cytologically diagnosed 106 benign cases, histologically 105 cases were proved so. There was false negative diagnosis in one case [13]. In study done by Cant et al, sensitivity and specificity of FNAC for fibroadenoma were 87% and 76% respectively [10]. In our study, the sensitivity of clinical breast examination and USG in the diagnosis of benign breast lumps was quite good but showed relatively less specificity than FNAC. FNAC done in this study was blind without any imaging guidance.

Usually in cases where blind FNAC gives inconclusive results and for better accuracy, FNAC is preferred to be done under USG guidance [14]. Ultrasound combined with FNAC showed excellent improved results in the diagnosis of breast lesions in a study done by Pagani et al [14].

FNAC when combined with clinical and imaging findings showed sensitivity up to 97%, specificity, positive and negative predictive values of 94%, 79%, 98% respectively [15].

Clinical diagnosis and USG were found to be in good agreement with HPE. However, decision of further management of breast lumps could not be probably done based on these modalities alone. FNAC was found to be in very good agreement with HPE.

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 [6]. Triple assessment by clinical examination, radiological and pathological examination was suggested in patients with benign breast diseases for immediate reassurance and subsequent management of benign breast diseases in our study.

Conclusion

Good clinical examination is the key to best results. Through clinical examination and FNAC under imaging guidance could be much more informative. We found close correlation between FNAC and HPE. This reconfirms the fact that clinical examination and FNAC are important part of triple assessment of a patient with benign breast diseases.

Though majority of the benign breast lumps are found in reproductive age group, confirmation of diagnosis is essential. Triple assessment by clinical, pathological and radiological examination is a standard approach in the evaluation of breast lumps. Surgical excision was an effective treatment for most of the benign breast diseases.

Declarations

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