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Original Article

Evaluation of breast lumps by ultrasound and correlation with histological findings

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ABSTRACT

Background: A breast lump is the most common symptom associated with both benign and malignant breast diseases. Therefore, a distinction of benign from malignant lump is of importance for proper management. Though a definitive diagnosis is possible with imaging for all the lesions, histopathological study is proven essential for confirming the diagnosis.

Objective: The objective of this study was to evaluate the role of USG and histopathological findings of different breast lump in diagnosis and their comparison.

Methods: A prospective study was conducted over a period of one year from January 2017 to December 2017. A total of 116 patients were included in this study. All breast lumps underwent surgery and the ultrasound findings of these lumps were compared with the histopathological findings. Data were collected from these patients by a preformed questionnaire and finally the data were analyzed.

Results: Out of 116 patients only 21 cases were reported as malignant in ultrasound report but histopathology revealed 31 malignant patients. On histopathological examination 10 benign cases turned out to be malignant.

Conclusion: The present study was undertaken to evaluate in diagnosing breast mass lesions individually by ultrasound and compared with histopathology for definitive management of a patient.

Key words: Breast lump, Ultrasound, Histopahology.

Introduction

Breast diseases are the most common ailment from which women suffer throughout the world. About 30% of women suffer from breast disease in their lifetime. Although an accurate history and clinical examination are important methods of detecting breast disease, there are a number of investigations that can assist in the diagnosis.[1] The palpable mass lesion in breast is common findings at the clinical picture. Breast ultrasound is widely used as a diagnostic modality for evaluating clinical or radiological suspected abnormalities[2,3] and is an effective screening modality for detecting occult breast cancers in dense breasts.[4,5] Recent advances in ultrasound technology and transducer design permit greater spatial and contrast resolution.[6] False-negative results were observed in all imaging methods. Discordance between the assessment of imaging methods and pathological examination may be related to the type of tumour and breast density.[7] The aim of this study is to correlate between breast ultrasound findings and difference of benign and malignant lesions in histopathology.

Materials and methods

This study was carried out in the Surgery department of Dhaka Dental College and private clinics in between January 2017 to December 2017. Total 116 diagnosed case of breast lump in female patients those attended in and out patient department of this hospital and

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private clinics were enrolled in this study. All female patients with breast lump at the 11 to 80 years of range were included in the study. Male patient with breast disease and patient with histopathologically proved diagnosis were excluded in this study.

Relevant information were taken from patients and physical examination were done in detail. In all cases experienced radiologist analyzed the saved electronic figures on a monitor. If a case was unclear, a second breast radiologist was consulted. Tumour characteristics were assessed using the BI-RADS – Ultrasound Lexicon. The specimen after operation was collected and subsequently the reports of USG compared with histopathology reports. All data were analyzed manually in view of the objective of the study. Frequency, distribution and proportions were calculated for the values. Results were published in tabulated form.

Results

The total number of cases were 116. Most of the patients were in the age group 11-50 years. Among them 41 (35.34%) cases were present in 31-40 years of age group. The commonest disease of the breast were fibroadenoma 37 (31.90%), duct cell carcinoma 31(26.72%) and another commonest benign but notorious disease granulomatous mastitis 7(6.04%). In ultrasound benign breast lesions were 95(81.90%) but in histopathology 85(73.28%). In ultrasound malignant lesions were 21(18.10%) but in histopathology 31(26.72%).

Table 1. *Age distribution of different breast lumps*

Age of the patient	Number of cases	Percentage
11-20	05	4.31%
21-30	31	26.73%
31-40	41	35.34%
41-50	24	20.69%
51-60	14	12.07%
61-70	00	00
71-80	01	0.86%
Total	116	100%

Table 2. *Categories of breast lesions on ultrasound findings*

BIRADS	Number of cases	Percentage
II	76	65.52%
III	19	16.38%
IV	12	10.34%
V	09	7.76%
Total	116	100%

Table 3. Histopathological findings of different breast lesions

	Number of cases	Percentage
Benign	85	73.28%
Malignant	31	26.72%
Total	116	100%

Table IV. *Types of breast lesions on histopathology*

Name of the disease	Number of cases	Percentage
Fibroadenoma	37	31.90%
Fibrocystic disease	25	21.55%
Suppurative inflammation	11	9.48%
Granulomatous mastitis	07	6.04%
Galactocele	05	4.31%
Duct cell carcinoma	31	26.72%
Total	116	100

Table 4. Comparison the reports of breast lumps between ultrasound and histopathology

	Ultrasound		Histopathology	
	No. of patient	Percentage	No. of patient	Percentage
Benign	95	81.90%	85	73.28%
Malignant	21	18.10%	31	26.72%
Total	116	100%	116	100%

Discussion

The major role of breast ultrasound is to diagnose early breast cancers. Ultrasound can differentiate

benign and malignant breast lesions and detect occult breast cancer in dense breast.[3-6]

Total 116 patients were included in this study. The breast diseases were found to be more common between the age of 31-40 years.

In this study, the findings of different breast lump in USG showed 95 benign (BIRADS II & III) and 21 cases malignant (BIRADS IV & V). So USG had a significant impact on difference between malignant and benign cases which were described by shape, margin, echo pattern, calcification etc and compared with histopathological report later on. Another study showed in USG report, invasive cancers had more frequent breast cancers with an irregular shape, a not parallel orientation and a hypoechoic or complex echo pattern when compared with DCIS cases.[8] An irregular shape, a not parallel orientation and hypoechoic and complex echo pattern are the typical malignant features of solid breast masses.[6]

In comparison between benign and malignant cases among the 116 cases in histopathology 85 (73.28%) were benign and 31(26.72%) cases were malignant. Ahmed S, Raza SZ found the percentage of benign 80% and that of malignant 20%.[9]

This study revealed that maximum diseases were benign in nature. Among them 37(31.90%) were fibroadenoma, 25(21.55%) were fibrocystic disease and only 31(26.72%) were malignant. Next suppurative inflammation 11(9.48%), granulomatous mastitis 7(6.04%) and galactocele 5(4.31%) were present. A study revealed that out of 750 solid nodules, 625(83%) were benign and 125(17%) were malignant. The overall negative to positive biopsy ratio was 5:1.[6] Another study found that 24.75% cases are granulomatous mastitis and 7.29% tubercular mastitis.[10] Study showed that ultrasound has 100% sensitivity and 91.6% specificity, its positive predictive value as high as 57.15 and negative predictive value 100%. Benign lesions of the breast were more readily diagnosed by ultrasound than malignant lesion.[11]

Conclusion

Our results were based on a descriptive, prospective analysis. To avoid bias, we included all consecutive patients presented with breast lump. Patients were evaluated by ultrasound then underwent surgery and finally compared ultrasound findings with histopathology report. This study demonstrated that ultrasound play a fundamental role in the characterization of breast diseases.

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