



ULTRASOUND AS PRIME MODALITY OF CHOICE FOR EVALUATION OF BREAST LESIONS.

Radiodiagnosis

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ABSTRACT

INTRODUCTION: The four main roles of ultrasound in Breast imaging are-primary screening, supplemental screening, diagnosis and Interventional procedures. Palpable masses, abnormal nipple discharge and mammographic abnormalities constitute the most common indication for targeted Breast Ultrasound.

AIM: To study the role of Ultrasound in evaluating Breast lesions and characterising them as Benign or Malignant.

MATERIAL AND METHODS: This is a Retrospective analysis conducted in Department of Radiology, MGM Medical College and Hospital, Kamothey, Navi Mumbai from February 2021 to June 2021. A total of 136 patients with signs and symptoms related to breast lesions were screened.

CONCLUSION: The advent of high frequency probe, easy accessibility, cost effectiveness, reliability and relatively easy to perform makes ultrasound as the prime modality of choice for screening breast lesions.

KEYWORDS

Breast lesions, Ultrasound, Malignant.

INTRODUCTION:

Ultrasound has become an indispensable tool in Breast Imaging (1).

The four main roles of ultrasound in Breast imaging are-primary screening, supplemental screening, diagnosis and Interventional procedures. Palpable masses, abnormal nipple discharge and mammographic abnormalities constitute the most common indication for targeted Breast Ultrasound (3). Suspicious findings include irregular shape, indistinct, speculated, angular, or micro lobulated margins, acoustic shadowing, hypoechoic echo texture and calcifications, not parallel orientation. Benign ultrasound features include few gentle lobulations, ellipsoid shape and thin capsule as well as a homogeneously echogenic echotexture, parallel orientation (2).

The breast imaging reporting and data system (BI-RADS) is a required standardised lexicon for describing and classifying findings and their probability of malignancy. BI-RADS categories range from 0 - Incomplete assessment, 1- Normal breast parenchyma, 2-Benign, 3- Probably Benign, 4-Suspicious, 5-Malignant and 6- Biopsy proven.

AIM:

To study the role of Ultrasound in evaluating Breast lesions and characterising them as Benign or Malignant.

MATERIAL AND METHODS:

This is a Retrospective analysis conducted in Department of Radiology, MGM Medical College and Hospital, Kamothey, Navi Mumbai from February 2021 to June 2021 during covid -19 pandemic. Due to Covid -19 the total number of patients with breast lesions had significantly reduced. A total of 136 patients with signs and symptoms related to breast lesions were screened by Philips- HD 15 by linear probe (7-10 MHz) in clockwise radial pattern by split screen imaging technique. Doppler ultrasound was also performed to help classify the lesion. Informed consent was taken from all patients.

The study material included all the breast lesions and all age groups.

RESULTS:

In our study, out of 136 patients, 128 were female and 8 were male patients with a ratio of 1:16(M:F). Following was the observation.

Table 1- Summary Of Ultrasound Findings

Breast lesion	No of patients	Percentage of cases
Fibroadenoma	38	28%
Simple cyst	13	10%
Complicated cysts- fibrocystic changes	35	25%
Galactoceles	12	8%

Highly Malignant (BI-RADS 4 and 5 lesion)	10	7%
Ductal carcinoma insitu	1	0.7%
Intraductal papilloma	1	0.7%
Mastitis (simple and complex)	12	8%
Non-Infectious mastitis- periductal mastitis/ ductal ectasia	5	3%
Neonatal breast enlargement	2	1%
Gynecomastia	5	3%
Male breast - carcinoma	1	0.7%
Ectopic breast tissue	1	0.7%

91% of the lesions were benign with most common being fibroadenoma (28%) followed by fibrocystic changes (25%). 8 % of the lesions were highly suggestive of malignancy with females showing prevalence of 7% and males showing 0.7%.

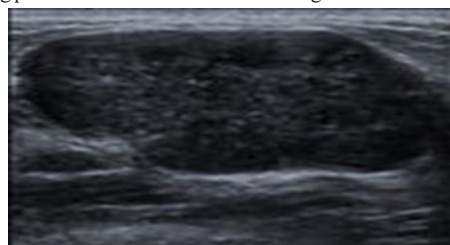


Fig. 1: Benign Solid Lesion-fibroadenoma.



Fig 2. Malignant Lesion (bi-rads 4)

DISCUSSION:

Out of 136 patients 38 females (28%) were diagnosed with fibroadenoma and were most commonly seen in the age group of 20-35 years. On ultrasound it showed an oval or ellipsoid shape, wider than tall orientation parallel to the skin, circumscribed margins, gentle and smooth lobulations.

35 patients out of 136 patients (25%) showed fibrocystic changes in breast parenchyma. These are complicated cysts and are benign as a part of the broad spectrum of benign fibrocystic changes. They are hypo echoic with no doppler flow and may also exhibit indistinct margins (4).

13 patients that is 10 % of sample size showed simple cysts which are defined as circumscribed, anechoic masses with a thin imperceptible wall.

Galactoceles and mastitis constituted 8 % of the sample size each respectively that is 12 cases each out of 136 patients. Galactoceles are most common benign breast lesion occurring in young lactating women in the age group of 20-35 years of age. It appeared as cystic well-defined collection on ultrasound (3). Mastitis can be infectious and non-infectious and was most commonly noted in the age group of 20-35 years of age. Infectious mastitis include simple mastitis (lactational) and complex mastitis (abscess, infected cysts, infected galactoceles). Non-infectious mastitis in the form of periductal mastitis showed ductal ectasia with inflammatory changes in surrounding breast parenchyma were seen in 5 out of 136 patients.

Malignant features of solid masses (BI-RADS 4 and 5) were seen in 10 females in the age group of 40 plus predominantly and in 0.7% of males. It showed spiculations, angular margins, marked hypo-echogenicity, posterior acoustic shadowing, microcalcifications, ductal extension, branching pattern, with a nonparallel orientation to the skin and may be associated with skin thickening (4).

A single case of ductal carcinoma insitu was reported and showed features of a hypoechoic mass with an irregular shape, micro-lobulated margins, no posterior acoustic features, and no internal vascularity on ultrasound. A single case of Intraductal papilloma was noted and showed features of a well-defined solid nodule or intraductal mass. On doppler study it demonstrated a vascular stalk.

Two cases of Neonatal breast enlargement were reported and on imaging showed bilateral retro-areolar hetero-echoic areas with small cystic areas within with increased echogenicity in surrounding subcutaneous soft tissues.

Gynecomastia was seen in 5 males and showed imaging features of bulky breast parenchyma with diffuse nodular and hyper echoic fibrous retro-areolar fatty tissue. The cases reported predominantly gave history of drug intake especially Isoniazid (AKT treatment)

A single rare case of ectopic breast tissue was reported in female of 30 years of age. On ultrasound breast parenchyma with fibrocystic changes were noted in apex of axilla.

CONCLUSION:

The advent of high frequency probe, superficial location, easy accessibility, cost effectiveness, painless, non-ionizing radiations, reliability and relatively easy to perform, easy follow up of the cases makes ultrasound as the prime modality of choice for breast lesions.

In this study maximum cases obtained were benign with fibroadenoma and fibrocystic changes being the most common pathologies in our hospital.

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