

EVALUATION OF MARKERS OF BREAST MALIGNANCY ON HIGH RESOLUTION ULTRASOUND

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ABSTRACT

The incidence of Breast Cancer has increased globally but maximum rise has been observed in Asian countries. Peak age incidence of Breast cancer in Asian population including India is in Forties as compared to Sixties in the European and American population. Hence it is needed to strengthen the Screening protocol and detect maximum cases when the disease in its earliest stage when it has not or minimally spread and completely treatable. In our study, a retrospective study of 50 histologically proven cases of breast malignancy was done to find out which sonographic features were most consistently present among those lesions on High Resolution USG breast performed at an earlier date.

KEYWORDS : Breast, Cancer, HRUSG , markers, malignancy.

INTRODUCTION

The incidence of Breast Cancer has increased globally but maximum rise has been observed in Asian countries. Peak age incidence of Breast cancer in Asian population is in Forties as compared to Sixties in the European and American population.

In India about 1,00,000 new cases of breast cancer are reported annually, and most common cancer among urban women and 2nd most common among rural females with its peak age incidence in forties and 50% of affected females belonging to the premenopausal age group.(1)

Hence it is needed to strengthen the Screening protocol and detect maximum cases when the disease in its earliest stage when it has not/ minimally spread and completely treatable.

HRBUS(high resolution ultrasound of breast) can be a very important tool in characterization of solid breast nodules. It can be of paramount importance in detection of mammographically occult lesions. It is also more accurate in identification of lesion characteristics suspicious of malignancy , specially in dense breast, showing best results among women <50 years.(2,3,4)

In our study, a retrospective study of 50 histologically proven cases of breast malignancy was done to find out which sonographic features were most consistently present among those lesions on High Resolution USG breast performed at an earlier date.

INCLUSION CRITERIA

1. Cases histopathologically diagnosed as CA breast.

EXCLUSION CRITERIA

1. Cases which were diagnosed as CA breast but histopathology not available.

The sonographic markers under evaluation were:

1. Angular margins
2. Microlobulations
3. Marked hypoechogenicity
4. Duct extension
5. Taller than wide

6. Branch pattern
7. Spiculations
8. Calcifications
9. Thick echogenic halo
10. Acoustic shadowing.

After thorough statistical analysis of the given markers individual and combined sensitivities have been calculated.

OBSERVATIONS

Sensitivity of individual parameters

S.NO	CHARACTER	NO. OF CASES POSITIVE	SENSITIVITY
1.	Angular Margins	45	91%
2.	Microlobulations	44	89%
3.	Marked Hypoechogenicity	26	53%
4.	Duct Extension	23	47%
5.	Taller than wide	20	41%
6.	Branch Pattern	19	38%
7.	Calcifications	20	41%
8.	Acoustic Shadowing	19	38%
9.	Spiculations	16	33%
10.	Thick Echogenic halo	13	27%

DISCUSSION**A) Angular Margins (Fig.A)**

It is the most commonly reported marker for malignancy in the literature. It is the most sensitive and accurate finding. It is a mammographic finding applied to sonograph. It can be acute, 90 degree or obtuse and can be found in both circumscribed and spiculated masses.

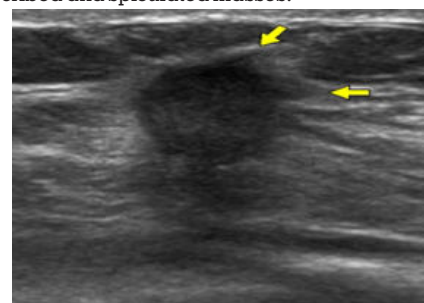


Fig.A. Angular Margins

B)Microlobulations (Fig.B)

It is a surface characteristic, a mammographic finding applied to ultrasound. It is found in both DCIS and Invasive carcinoma. It should be differentiated from gentle lobulations which are several millimeters in size and few in no. (≤ 3 gentle lobulations are considered to be benign.). Microlobulations are much smaller(1/2mm) more in no. and close together.

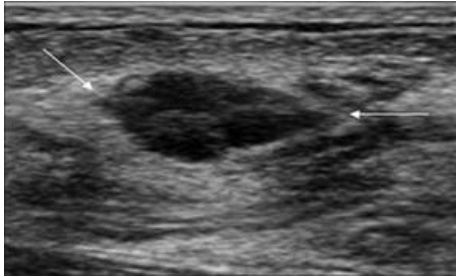


Fig.B.Microlobulations

C)Marked Hypogenicity

It is an uniquely sonographic feature. Iso or hyperechoic masses nearly rule out malignancy. Malignant masses are distinctly hypoechoic. The sensitivity of hypoechogenicity has decreased over the years still it is a significant marker.

CONCLUSIONS

While the features showing maximum sensitivity were present in maximum no. of cases and combined sensitivity of angular margins, microlobulations and marked hypoechogenicity reaches nearly 100%. That means at least one of these were present in all the cases studied at times together with other markers and sometimes as a single marker.

Certain others with intermediate sensitivity like duct extension , branch pattern, calcifications were mostly present with other markers in combination and not as independent marker. Such markers increase the overall sensitivity but relying on them only can lead to false negatives.

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