



Sonomammographic Evaluation of Breast Lumps

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Abstract

Introduction: *Ultrasound is a useful adjunct to mammography for diagnosis & management of benign and malignant breast disease. Modern breast USG is an established, ideal and accurate tool for the investigation and characterization of breast lumps. It also compliments X-ray mammography in further evaluation and diagnosis of breast masses and thus avoids unnecessary breast surgeries in benign conditions. We present a case series of 50 patients with ultrasound findings in various breast lumps.*

Aims & Objective: *In this study we planned to evaluate breast lumps with USG examination.*

Material & Methodology: *The present study was conducted in the Department of Radio-diagnosis, Patna medical college, patna. Patients under study were referred from the department of Surgery, Oncology and gynecology & obstetrics. Patients included for study were evaluated by Clinical and Ultrasound examination. Most of the cases were already confirmed on histopathological examination.*

Result: *On examination distribution of lesions was found to be Fibroadenoma, Fibrocystic breast disease, cystosarcoma phyllodes, Breast abscess, Invasive ductal carcinoma, Simple breast cyst, Ductal ectasia, Mastitis, Invasive lobular carcinoma, Galactocele, Oil cyst, Intraductal papilloma.*

Conclusion: *Sonomammography is a very dynamic and powerful tool for the evaluation of different breast lumps. It considerably improves the visualization and evaluation of tumors in radiodense breasts as well it improves the specificity of mammography when used to complement X-ray mammography.*

Introduction

USG goes hand- in -hand with mammography in breast mass evaluation. Major advantage of US is the ability to directly correlate the clinical & imaging findings. It provides real -time evaluation of mass shapes, borders, orientation & internal characteristics to determine whether the mass is cystic or solid or malignant or benign. US is often used for further assessment of possible masses after mammography and is the initial imaging modality in the evaluation of clinically detected masses

As there is increased awareness and incidence of breast cancer in women, a breast lump may alarm both the patient and clinicians.

Breast sonography is appropriate modality in the initial evaluation of a woman younger than 30 years with a palpable lump. Although the cause may be benign, additional evaluation and histopathological confirmation might be needed.

Sonographic feature analysis of breast masses continues to improve, though inter observer variability continues to be a problem, in avoiding biopsy. An illustrated Breast in improving observer performance.

Material and Method

The study was conducted in the Department of Radio-diagnosis, Patna medical college & hospital, Patna. 50 Patients inclusive criteria were female of any age group presenting symptoms related to breast.

Study tools- clinical examination & radiologically using US MACHINE LOGIQ P3, GE HEALTHCARE with probes.

Patient Evaluation

Patients were evaluated as following:

- **Clinical examination:**

Detailed clinical history was taken along with local examination performed in all cases presenting breast lump.

- **Radiological evaluation:**

- **Ultrasonography.**

Ultrasonography of breast lump is done in all cases using US Machine LOGIQ

P3GE Healthcare with probes, installed in Department of Radiodiagnosis, Patna medical college & hospital, Patna.

The sonographic examination for inner part of breast was performed in supine position and for the outer part of breast; patient was placed in contralateral posterior oblique position with ipsilateral arm raised.

Scanning performed in transverse & sagittal planes. color Doppler & power doppler also done for assessment of vascularity in lesions. Histopathological confirmation was performed in most of the cases by using US guided FNAC.

Results

Table 1: Lesion detection in 50 patients on breast ultrasound examination

Nature of lesion	No. of cases
Lesions	50
Indeterminate	00
Normal	00

No. of patients- 50

Table 2: Sonomammographic characterization of 50 lesions in Breast

Nature of LESION	No. of cases	
Fibroadenoma	17	
Fibrocystic breast disease	12	
Cystosarcoma phyllodes	5	
Breast Abscess	4	
Invasive Ductal carcinoma	2	
Simple breast cyst	2	
Ductal ectasia	2	
Invasive lobular carcinoma	2	
Galactocele	1	
Oil cyst	1	
Intraductal papilloma	1	

N= 50

Discussion

- This case series of 50 cases presenting breast lump were assessed with both physical and radiological evaluation using ultrasound.
- Out of 50 patients, lesions were detected in all cases. Not a single patient is found with normal or indeterminate lesion on USG.
- Fibroadenoma was most common lesion found, representing (17 out of 50 cases) of lesions. Most common age group 20 & 40 yrs, presentation is among young women. On usg fibroadenomas are typically oval, circumscribed and uniformly hypoechoic and have a parallel orientation. They may have gentle lobulations and may sometimes be hypoechoic and have a parallel orientation. On Doppler images, fibroadenomas may show variety of vascularity, including no vascularity, hypovascularity and hypervascularity. the lesion following these criteria were assessed as probably benign and biopsy was not needed. few undergone histopathological examination, and were proved as benign lesion.
- 12 out of 50 cases were detected Fibrocystic breast disease or fibroadenosis. Also known as diffuse cystic mastopathy. This were found uncommon before adolescence. most often diagnosed between

the age of 20 and 40 with the peak before or at menopause. patients presented with breast pain and tender nodular swellings. most often found bilaterally.usg demonstrated prominent fibro-glandular tissue in the area of a palpable nodule, however no discernible mass. small cysts in the mammary zone.

- 5 out of 50 cases were found phyllodes tumor. commonly found among women of age group 30 to 40 years of age with classically in the fifth decade. patient presented with rapidly growing palpable mass .usg showed smoothly margined inhomogeneous mass that contains cystic spaces. Biopsy were done and therefore confirmed. CD&PD study showed increased vascularity.
- 4 out of 50 cases were found to have breast abscess. most commonly presenting group were lactating women. patients presented with painful breast lump with tense appearance.. Acute breast abscesses may occur during lactation and are clinically present with high-grade fever, painful lump, skin erythema and oedema. On USG, it showed a large complex heterogeneous cystic lesion with mobile internal echoes and adjacent inflammatory breast tissue with increased peripheral vascularity on CD & PD
- 2 out of 50 cases were found Invasive ductal carcinoma. most common round breast cancer as detected. on USG , round invasive ductal cancer appeared to be circumscribed, with indistinct or angular margins,with non parallel orientation (taller than wider) with or without echogenic rim. This indicated cancer grows up toward the skin and violates normal tissue planes rather than growing between cooper's ligament.
- 2 out of 50 cases were found simple breast cyst. Patient presented with painful breast and sometimes with palpable lump.usg

showed anechoic mass with imperceptible walls,a sharp black wall with posterior acoustic enhancement. Mostly found single without any internal echoes. Most cyst resolved after us guided aspiration .follow up done.

- 2 out of 50 cases were found ductal ectasia (periductal mastitis).Commonly seen in post menopausal age group females with presentation of nipple discharge, nipple retraction, pain and palpable mass.USG breast demonstrated dilated fluid filled subareolar ducts with moving echogenic particulate matter without mass. FNAC were performed.
- 2 out of 50 lesions showed malignant features on USG and turned out to be invasive lobular carcinoma on histopathology. This is the second most common breast malignancy and may be seen in elderly women. It is often missed on X-ray mammography. On sonography, its appearances are variable, ranging from lesions similar to ductal carcinomas to barely visualized areas of architectural distortion with picket -fence shadowing. Some of these tumors may even not visualized on USG. In our study, it showed large, ill- defined, heterogeneous, hypoechoic lesions with area of architectural distortion on USG.
- On histopathological confirmation out of 50 lesions, 31 lesions turned out to be benign, malignancy were detected in 13 lesions and 0 lesion were remain of indeterminate category
- 1 out of 50 lesions turned out to be galactoceles, which usually occur during lactation or shortly after breast-feeding is stopped, are mostly caused by an obstructed milk duct. In our study, both patients presented with complaint of breast lump during lactation. On USG, it showed a complex mass lesion filled with uniform dense echoes. On aspiration, this yielded a

milky substance and depend on the degree of fibrosis. In our study, on USG, it showed complex mass with echogenic bands that shift in orientation with changes in patient position, and an echogenic mass with posterior acoustic enhancement in other patient.

- 1 out of 50 lesions turned out to be of oil cyst. patient presented with painful with breast lump. associated with blunt trauma, after surgery or radiation therapy. The sonographic features of oil cysts are varied. lesion was round to oval and contained liquified fat that is usually hypoechoic or isoechoic. this was benign.
- 1 out of 50 cases were found to have intraductal papilloma. patient had complain of bloody nipple discharge.. On USG it presented as a solid round to oval or microlobulated hypoechoic complex cystic lesion with an intracystic, solid, polypoidal echogenic mass of varying sizes. On CD & PD, lesions presented with increased vascularity within solid echogenic component.

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Conclusion

Sonomammography is a very dynamic and powerful tool for the evaluation of breast lumps. The advantages of USG include good availability, cheaper, fast, with no ionizing radiation. As well as it helps in the assessment of vascularity of the lesion. USG should be used as the primary investigation or in conjunction with X- ray mammography for the evaluation and characterization of the breast lumps.

References

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