

Evaluation of Breast Diseases by Triple Test, With Advantages of Ultrasonogram over Mammogram

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I. Introduction

Aim & Objectives

- To assess the effectiveness of Triple test (TT) in evaluation of breast diseases.
- To compare TT (as a combined diagnostic modality) to each of its components.
- To Find Whether Addition Of Ultrasound To Tt Provide Any Benefit To Diagnosis.

Need For the Study

- Breast lump is the clinical presentation of numerous breast diseases ranging from innocent benign cysts to malignant lesions.
- Distinction of benign from malignant is of paramount importance for proper management.
- Breast cancer accounts for 33% of all female cancers and is responsible for 20% of the cancer related deaths in women.

Methods

- Patients attending RMMCH outpatient department with breast related complaints from 1st March 2013 to 1st July 2014 were assessed.
- Each patient was subjected to clinical examination, mammography, Ultra sonogram, FNAC, and HPE and the results analyzed.

Method of Collection of Data

- Sample size: 100 patients
- Sampling method: Simple random sampling

Inclusion Criteria: Females between 15 and 80 Yrs Presenting With

- Palpable breast lumps
- Breast related complaints

Exclusion Criteria: Patients With

- Lump associated with fungation
- Open biopsy and HPE performed prior to presentation to our hospital
- Patients who did not continue treatment / lost follow up / underwent non- surgical treatment (chemotherapy/ radiotherapy).

Investigations

- Mammography of both breasts
- Ultra-sonogram of both breasts
- FNAC of breast lesion, direct or image guided
- Histopathological examination

Mammography and Ultra sound was done for patients before FNAC. The results were analyzed and categorized according to BIRADS score.

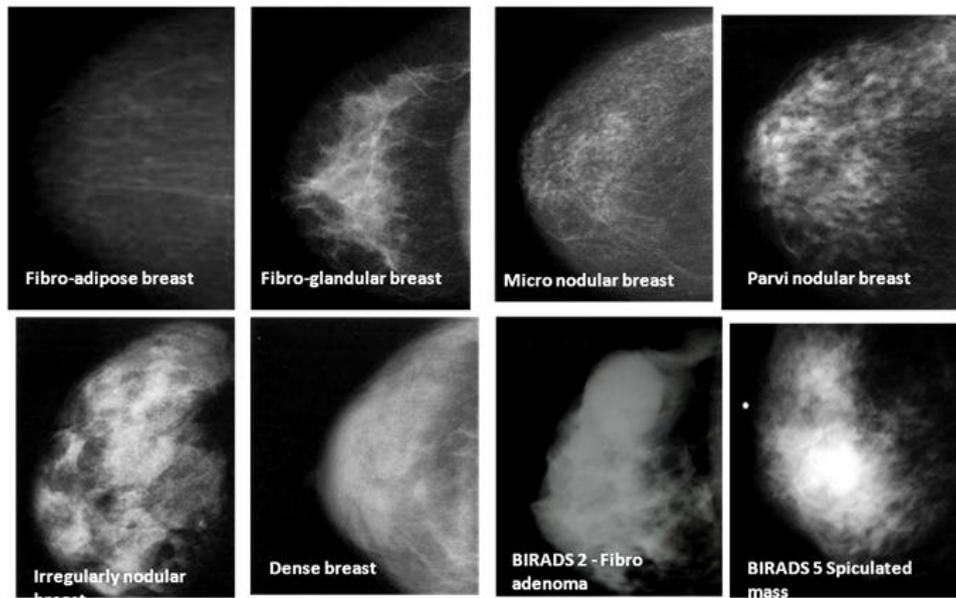
Mammography

- Conventional mammography delivers a radiation dose of 0.1 centigray (cGy) per study. By comparison, a chest x-ray delivers 25% of this dose.
- However, there is no increased breast cancer risk associated with the radiation dose delivered

With screening mammography.

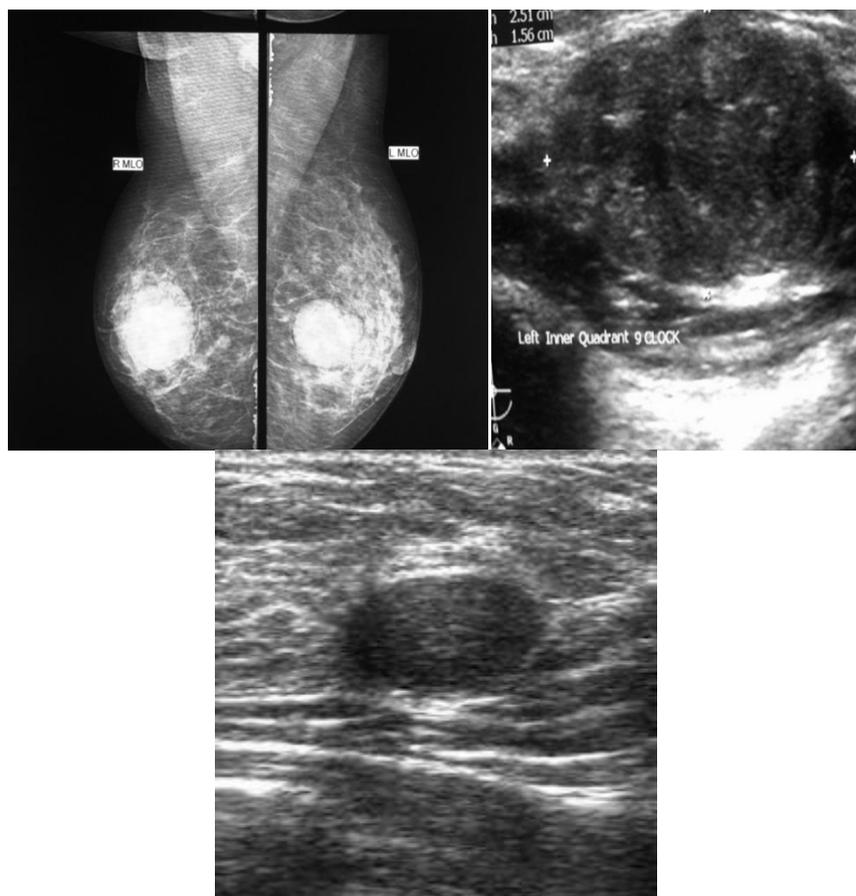
- With screening mammography, two views of the breast are obtained, the cranio-caudal (CC) view and the medio-lateral oblique (MLO) view.
- The MLO view images the greatest volume of breast tissue, including the upper outer quadrant and the axillary tail of Spence.
- The CC view provides better visualization of the medial aspect of the breast and permits greater breast compression.
- The compression device minimizes motion artifact, improves definition.
- Magnification techniques (x1.5) are used to better resolve calcifications and the margins of masses.
- Mammographic signs can be described in terms of:
 - Opacity (mass)
 - Architectural distortion
 - Calcification
 - Radiolucency
 - Asymmetry (Diffuse or focal)
 - Skin thickening and retraction
 - Edema and trabecular thickening
 - Asymmetrically dilated ducts

CRANIO-CAUDAL VIEW		EXAGGERATED CRANIO-CAUDAL VIEW	
ELEVATED CC VIEW OR PUSHED UP VIEW		CAUDO-CRANIAL VIEW	
MEDIO-LATERAL VIEW		LATERO-MEDIO-LATERAL VIEW	
SUPERO-MEDIAL INFERO-LATERAL OBLIQUE VIEW		SUPERO-MEDIAL INFERO-LATERAL OBLIQUE, 20° - 30°	
INFERO-LATERAL to SUPERO-MEDIAL OBLIQUE VIEW		SUPERO-LATERAL to INFERO-MEDIAL OBLIQUE VIEW	
INFERO-MEDIAL SUPERO-LATERAL OBLIQUE VIEW		Fig 10 : Mammographic views	



Ultrasonogram

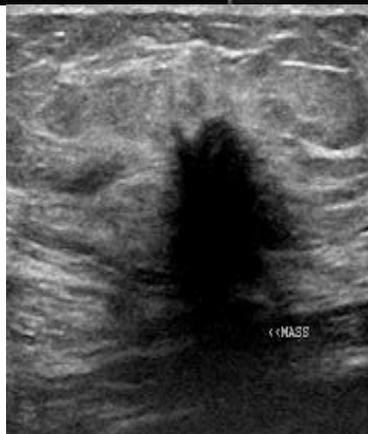
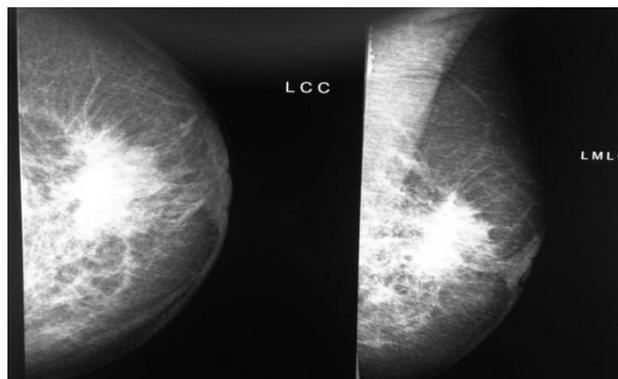
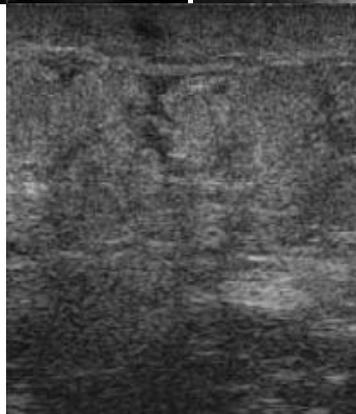
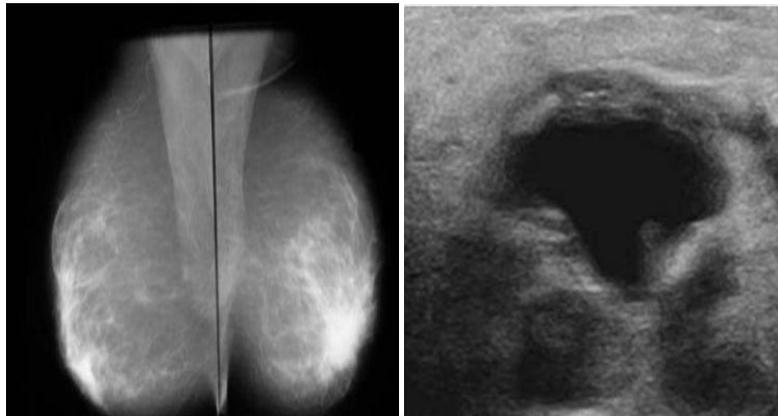
- The primary use of Ultrasonography is to distinguish between solid and cystic breast lesions.
- This includes non palpable lesions detected with mammography as well as vaguely palpable lesions.
- In pregnant women, to avoid radiation exposure and the tendency to have increased breast density, ultrasound is the modality of choice for evaluating masses.
- Even palpable masses may not be visible on radiography in a dense breast.



Well defined radio opaque density with coarse calcifications noted in inner quadrant of right breast parenchyma.

Ultrasonogram – Fibroadenoma

(Well defined hypoechoic mass with smooth margin)



Mammogram –

ill-defined opacity noted in mammogram

Ultrasonogram - Breast abscess

Hypoechoic with internal septations, and diffuse oedematous breast

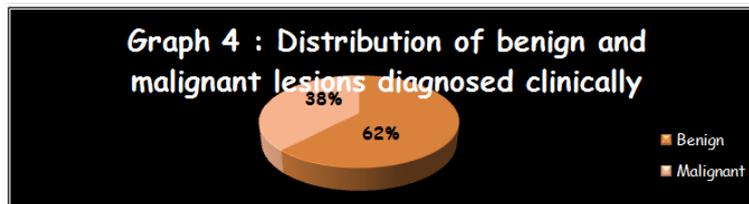
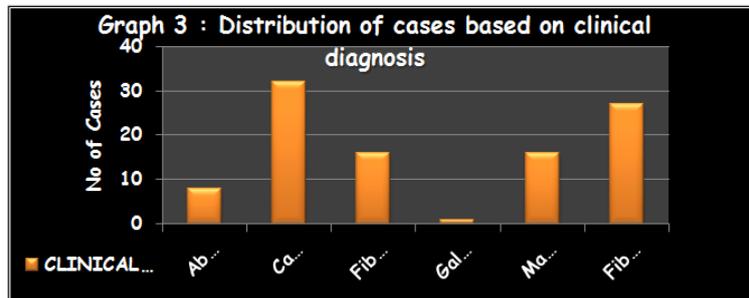
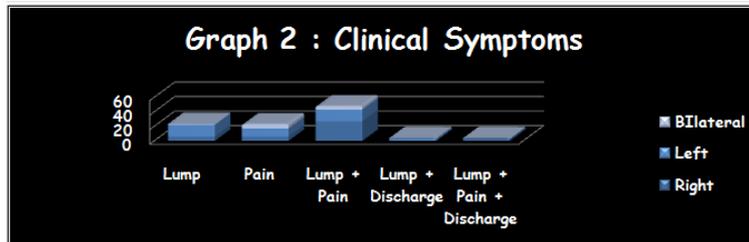
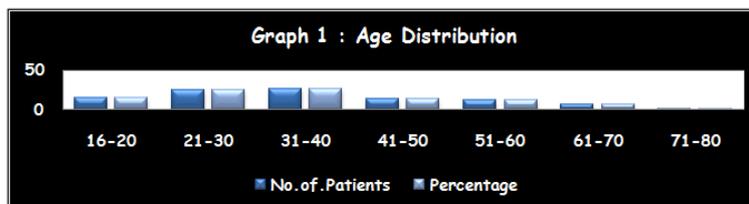
Ultrasonogram – carcinoma

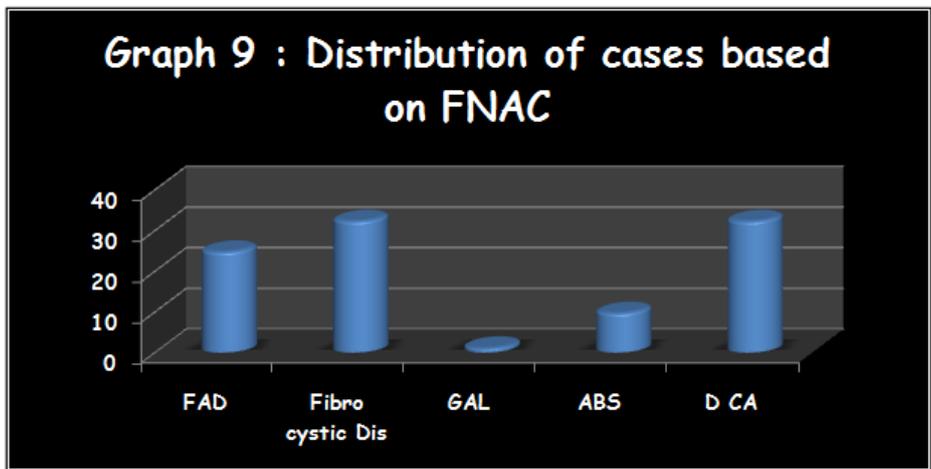
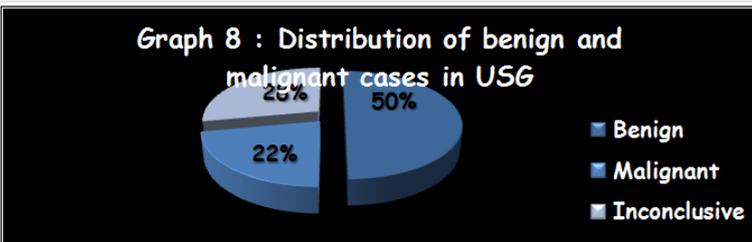
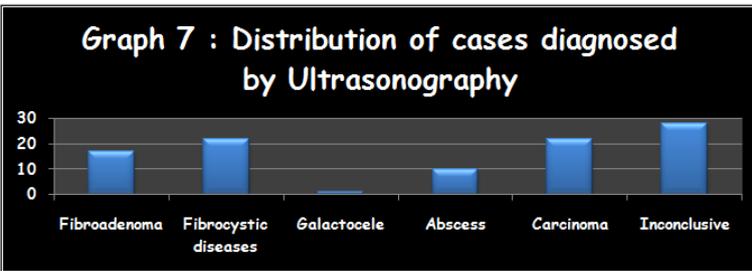
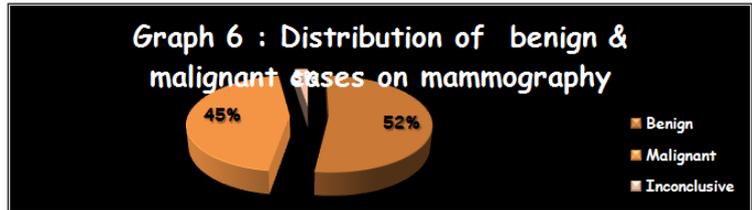
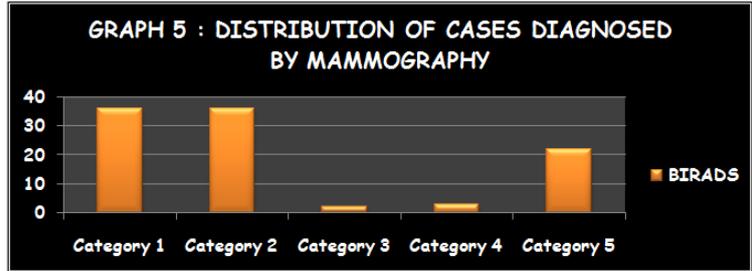
Poorly differentiated adenocarcinoma with spiculated margins and diffuse hyper echoic perifocal infiltration

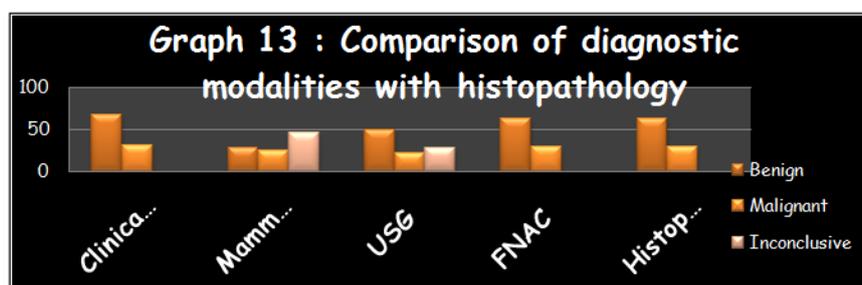
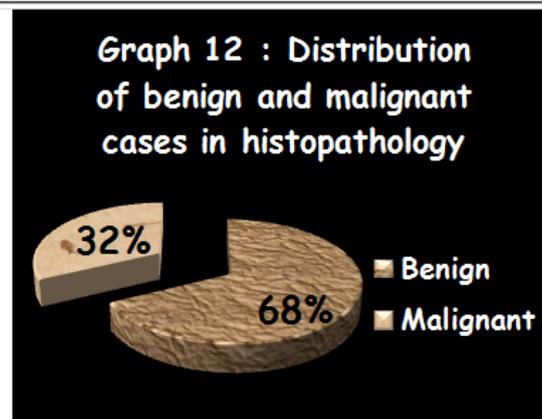
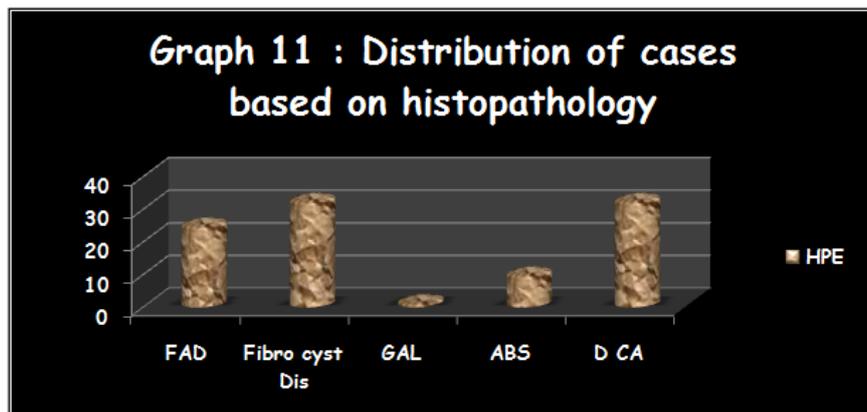
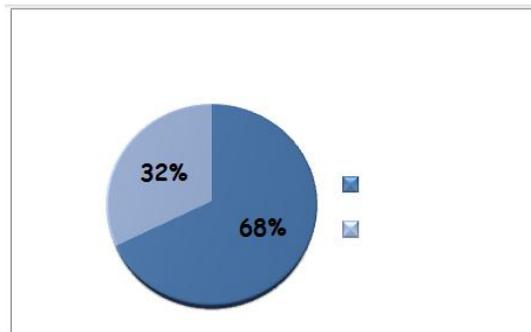
FNAC

- Needles - 23/22 gauge needle is recommended for the breast
- Plastic Syringes - 5-10ml.
- The sample is expelled onto a slide. Aspirate can be ‘dry’ (numerous cells in small amounts of tissue fluids) or ‘wet’ (small number of cells suspended in fluid or blood).

II. Results







Investigation	Sensitivity	Specificity	Positive Predictive value	Negative Predictive value
Clinical Examination	100	97.14	93.75	100
USG	77.4	85.7	98.6	83
FNAC	93.33	100	100	96.92
Mammography	61.3	100	100	92

Summary

- Clinical diagnosis of breast cancer is of higher sensitivity than specificity and has high diagnostic error.
- Mammography and FNAC respectively have lower sensitivity than specificity but have high positive predictive values.
- When combined in the triple assessment, a definitive diagnosis can be made when the diagnoses concur, suggesting that the triple assessment has a high sensitivity, specificity, positive predictive value and negative predictive value.
- 100 patients were included in the study, with age ranging from 15yrs to 80yrs. Benign diseases (67.74%) were more common than malignant (32.26%), of which fibroadenoma constituted 23% of cases.

III. Conclusion

- Triple test is a very useful tool in evaluating the breast diseases.
- Adding USG to the Triple test did not add up to the negative predictive value of Triple Test.
- USG may be used instead of mammogram to avoid the radiation due to mammogram, young females & for denser breast.



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