ORIGINAL RESEARCH PAPER

General Surgery

# ACCURACY OF TRIPLE ASSESSMENT IN DIAGNOSIS OF PALPABLE BREAST LUMPS

**KEY WORDS:** pelvis, sexual dimorphism, sciatic tubercle.

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**ABSTRACT**

**Aim :**The study is conducted with the aim of assessing the combined and individual reliablility of the Triple assesment in making a pre-procedural diagnosis of palpable breast lumps.

**MATERIALS AND METHODS:**Type of study It was a prospective study. Source of data Female patients attending the Department of General Surgery, NRIAS&;GH, with the complaint of a palpable lump/lumps in the breast were Taken in to the study. This study has conducted between DEC 2015 TO November 2017

**Results:**Triple test ( Clinical examination,sonomamogram,Fnac/CNB) applied to the all participants in the study ,which showed 100% results to diagnose benign disease as benign and malignant lesion as malignant.

**Conclusion:**Our results show that the diagnostic accuracy of combined physical examination breastUSG and FNA/CNB is comparable to that of histological examination. A fine collaboration between experienced radiologists, cytologist and the Clinician is required.

## INTRODUCTION

Mammary glands or breasts are a distinguishing feature of mammals. The vast majority of the lesions that occur in the breast are benign. Much concern is given to malignant lesions of the breast because breast cancer is the most common malignancy in women ; however, benign lesions of the breast are far more frequent than malignant ones 1-9 .

A lump in the breast is of great concern to the patients and is also a challenge to the diagnostic acumen and judgments of the surgeon A lump in the breast is experienced by the patient with the phobia of cancer. The disease poses a threat to the woman s sense of bodily integrity and her conceptions of body image and sexuality. 10 It also saves the patient from unnecessary physical, emotional and psychological trauma if there is a definite preoperative diagnosis of benign lesion. 11 An efficient and accurate evaluation can maximize cancer detection and minimize unnecessary testing and procedures. Timely diagnosis and well planned, and executed treatment strategy are the cornerstones of successful management of this entity. 12

Various studies have found nearly 100% diagnostic accuracy of the TT(Triple Test) for palpable breast masses when all three elements (i.e., physical examination, mammogram and FNAC) are concordant. A clinician can proceed directly with definitive therapy without an interventional open biopsy if all the components of TT are malignant. If all the components are found to be benign, the patient can then be safely observed. 13, 14, 15 , 16

## MATERIALS AND METHODS

Type of study It was a prospective study.

Source of data Female patients attending the Department of General Surgery, NRIAS&GH, with the complaint of a palpable lump/lumps in the breast were Taken in to the study.This study has conducted between DEC 2015 TO November 2017

Sample size 80 patients.

### Inclusion criteria

1. Female- age 30 years and above.
2. C/o breast lump – clinically palpable as a localized lesion differing from the surrounding breast tissue.

### Exclusion criteria

1. Male patients
2. female patients with advanced Breast Cancer that makes diagnosis obvious were excluded from the study.

Ethical clearance The study protocol was reviewed by The Institutional Ethical Committee of the institution and permitted by it.

### Data collection

The patient was informed about the procedure and informed consent was obtained from the patient before subjecting to examination of the breast lump by triple test. Each patient In the department of general surgery a detailed history and thorough physical examination of the patient having palpable breast lump was carried out and entered in the proforma followed by sonomammogram and fnac/core needle biopsy. On the basis of a systematic clinical examination, the lumps were grouped as – malignant, benign or inconclusive.

The lesions were classified as malignant, benign or inconclusive based on the following features.

a. Malignant – ill defined, heterogenous mass with sharp angulations; presence of microcalcifications.
b. Benign lesions were either cystic or solid. Cysts – Round, oval, anechoic, well defined with through and through transmission in simple cysts. Abscesses show low level internal echoes.

### Solid leisons

Fibroadenoma - Round, oval ,bi/trilobulated,well defined with pseudocapsule homogenous internal echos Fibroadenosis - Generalized increase in the fibroglandular elements of breast. . Hyperechoeic shadows with cystic areas No distortion of breast architecture Ultrasound examination also included the contralateral breast, axillae, internal mammary lymph nodes. For deeply seated lesions Sono-guidance was utilized to aspirate cysts and to take biopsies. After this, FNAC/CNB was performed by the attending surgeon and sent for cytological/ Histopathological examination.

| | Clinical Examination | Histopathology | Malignant | Total |
|---|---|---|---|---|
| | | Benign | | |
| **Benign** | 37 | 37 | 0 | 40 |
| **Malignant** | 33 | 0 | 33 | 40 |
| **Inconclusive** | 10 | 3 | 7 | 0 |
| | 80 | 40 | 40 | 80 |

Table no 1

Sensitivity of clinical examination =92.5%
Specificity of clinical examination =100%
Positive predictive value of clinical examination =100%

Negative predictive value of clinical examination =93%

Sonomammo gram was performed in all the cases , 36 were found to be benign breast disease,34 were malignant breast disease,10 cases were inconclusive among ten inconclusive cases four cases were benign breast disease, six were malignant disease.

**Comparison between Sonomammogram and Histopathology**

**RESULTS**

In this current study patients selected from surgery OPD and in patients, who are Presented with

- complaining of swelling or lump in the breast,
-pain in the breast,
-nipple discharge

Total eighty patients selected and through history taken, radiological investigations like mammogram or ultrasound or sonomammogram performed and Fnac/Core needle biopsy taken, then results finally compared with histopathological report. Among selected 80 patients 40 are Benign Breast Diseases,40 were malignant diseases.

**Age ranges from 30-72 years.**

complaints ranging from pain the breast nipple discharge, lump in the breast,. Majority of patients has lumps in the upper and outer quadrant Among benign breast diseases Fibro adenoma is common pathology, Among malignancy Infiltrating Ductal Carcinoma is commonest variety.

In clinical examination 37 found as benign breast disease ,33 as malignant Disease, 10 as inconclusive ,finally among these 10 inconclusive in histopathology 3 Proved as benign,7 as malignant

**Comparison between Clinical examination and Histopathology**

| | Sonomammogram | Histopathology | | Total |
|---|---|---|---|---|
| | | Benign | Malignant | |
| **Benign** | 36 | 36 | 0 | 36 |
| **Malignant** | 34 | 0 | 34 | 34 |
| **Inconclusive** | 10 | 4 | 6 | 10 |
| | 80 | 40 | 40 | 80 |

**Table.2**

Sensitivity of sonomammogram = 90%
Specificity of sonomammogram = 100%
Positive predictive value of sonomammogram= 100 %
Negative predictive value of sonomammogram= 90.9%

Among eighty cases core needle biopsy performed in 19 cases, in them 18 cases are malignant and one is in conclusive ,Fine needle aspiration cytology performed in 61 cases , In them 40 were benign,16 were malignant,5 were in conclusive .later in histopathology all inconclusive cases proved as malignant. Among eighty cases 40 were benign, 34 were malignant, 6 were in conclusive, later all inconvclusive in histopathology proven as malignant disease

**Comparison between Fnac/CNB and Histopathology**

| | FNAC/CNB | Histopathology | | Total |
|---|---|---|---|---|
| | | Benign | Malignant | |
| **Benign** | 40 | 40 | 0 | 40 |
| **Malignant** | 34 | 0 | 34 | 34 |
| **Inconclusive** | 6 | 0 | 6 | 6 |
| | 80 | 40 | 40 | 80 |

**Table.3**

Sensitivity of sonomammogram = 90%
Specificity of sonomammogram = 100%
Positive predictive value of sonomammogram = 100 %
Negative predictive value of sonomammogram = 90.9%

Triple test ( Clinical examination,sonomamogram,Fnac/CNB) applied to the all participants in the study ,which showed 100% results to diagnose benign disease as benign and malignant lesion as malignant

| | Triple test | Histopathology | | Total |
|---|---|---|---|---|
| | | Benign | Malignant | |
| **Benign** | 40 | 40 | 0 | 40 |
| **Malignant** | 40 | 0 | 40 | 40 |
| **Inconclusive** | 0 | 0 | 0 | 0 |
| | 80 | 40 | 40 | 80 |

**Table.4**

Sensitivity of Triple test = 100%
Specificity of Triple test = 100%
Positive predictive value of Triple test = 100 %
Negative predictive value of Triple test = 100%

**DISCUSSION**

Breast diseases are common in women. Up to 30% of women will suffer from benign breast diseases requiring treatment at sometimes in their lives[17]. It is at least 10 times more common than breast cancer[18]. Growing public awareness has increased referrals to hospitals. Breast is a dynamic structure and undergoes various physiological changes during development. They include cyclic changes, pregnancy,

lactation and involution. These physiological changes create a concept of aberration of normal development and involution (ANDI). This does not mean that BBD does not occur pathologically, but that the term should be reserved for disorders of such severity that they are frankly abnormal. The majority ultimately prove to have a benign origin[19]. Breast lesions may present with a variety of symptoms often confusing clinical evaluation leading to error in treatment.

Breast diseases include inflammatory, benign and malignant conditions. Around 200,000 cases of breast diseases are diagnosed annually throughout the world.[20] Breast diseases are more prevalent among females as compared to males and the pattern of breast diseases and their etiology varies among different countries and ethnic groups[21] Benign breast diseases are more prevalent as compared to malignant and inflammatory, as seen throughout the world[22] Fibroadenomas are in greater frequency among the population, constituting almost half of all cases of benign diseases[23] Risk factors for benign and malignant breast diseases include low parity, nulliparity, low age at first birth and late menopause, highlighting the fact towards excessive circulating estrogen levels[23]. For correct diagnos is of breast diseases, background knowledge of general features of individual breast diseases like incidence, age distribution, symptoms on palpation findings are very important. Lump in the breast was the most common presenting symptom in both benign and malignant groups followed by pain in 10.14% in the benign group and 12.12% in the malignant group.

Detection and management of a breast mass requires an optimal environment for interpretation, relevant use of clinical information, technically excellent imaging procedures, proper interpretation of finding and patient recommendations. This study results show that the diagnostic accuracy of combined physical examination breast USG and FNA/CNB is comparable to that of histological examination.

A fine collaboration between experienced radiologists, cytologist and the Clinician is required. Ultrasound when replacing mammography serve as effective an imaging modality in palpable breast lumps and is more comprehensive. Ultrasound breast aids biopsy techniques by guidance to the representative area than increasing yield.CNB is a suitable alternative when FNA is inconclusive and may offer additional information. Thus the use of MTT to complement findings in differential diagnosis of a lesion in a symptomatic women seeking medical care deserves acceptance and further evolution. This may lead to less delay in treatment when malignancy is suspected and to avoidance of

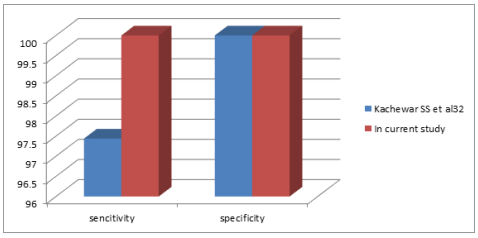
surgical exploration when a benign nature of lesion is suspected.

By Kachewar SS et al, TTS score was calculated in 200 cases out of 225 FNAC's of breast. Of 124 benign cases on cytology, only three showed discordant TTS. Out of 62 malignant cases, 61 showed concordant TTS and one case of mastitis on histopathology showed TTS of five. Out of all the benign lesions, two cases of fibrocystic disease and a single case of phylloides tumor gave a TTS ≥6. These cases were diagnosed as infiltrating ductal carcinoma and angiosarcoma respectively on histopathology. Histopathological correlation was possible in only 70 patients. Of these 70, 28 were from the benign category and 42 were from the malignant category. TTS of ≥6 has a sensitivity of 97.44%, specificity of 100%.

In current study TT showed sensitivity of100% , specificity of 100%.

| Triple test | Sensitivity | Specificity |
|---|---|---|
| Kachewar SS et al32 | 97.44 | 100 |
| Present study | 100 | 100 |

**Table.5**

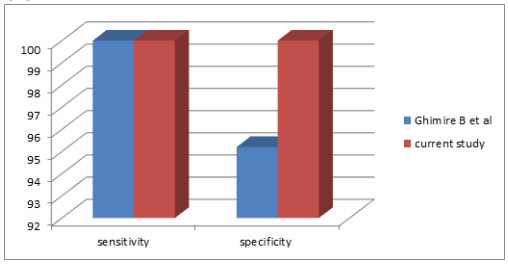



**Gragh . 1**

Ghimire B et al33 with this diagnostic test study was carried out in 117 patients admitted with breast diseases from the breast clinic over thirteen months, 87 had breast lump. Fifty patients underwent Triple Test Score ( physical examination, mammography and fine needle aspiration cytology) and were categorized into benign, suspicious and malignant. This was later correlated with the histopathological findings. Nineteen patients with breast lumps interpreted by TTS as benign correlated with the histopathological findings whereas of 31 malignant lumps, 30 turned out to be malignant and one benign. This gives TTS an over all accuracy of 98% with 100% sensitivity, 95.2% specificity and positive predictive value.In current study sensitivity ,specificity,positive predictive value ,negative predictive value of triple test were 100%,100%,100%,100% respectively

| Triple test | Sensitivity | Specificity |
|---|---|---|
| Ghimire B et al33 | 100 | 95.2 |
| Current study | 100 | 100 |

**Table.6**

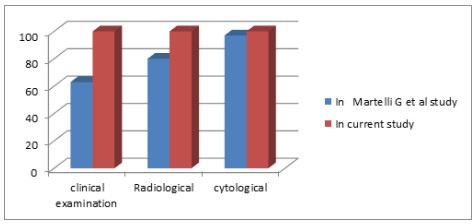



**Graph.2**

The clinical-radiologic-cytologictriplet was used by Martelli G et al for diagnostic evaluation in 1708 women over 30 years old with a breast lump. All the lumps were subjected to surgery except for 258 cases in which clinical resolution took place within 1-2 months. Seven-hundred and ninety-three out of 1450 nodules removed were cancers. Sensitivity of the clinical, mammographic and cytologic examinations was 82%, 73% and 68%, respectively. It increased to 95% when they were associated. Specificity was 63%, 80% and 97%, respectively. The predictive value of positive results of the triple test was 100%. No patient with malignant cytology was subsequently shown to have benign disease. The systematic use of the triple test in solid breast lumps for the early detection of cancer is recommended as a routine procedure. However, participation of experienced radiologists and pathologists as well as physicians skilled in fine needle puncture is required.

| sensitivity | Clinical examination | Radiological | Cytological |
|---|---|---|---|
| in Martelli G et al study | 82 | 73 | 68 |
| In present study | 92.5 | 90 | 100 |

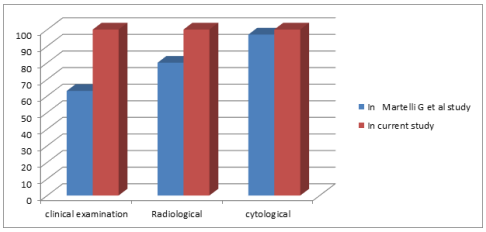
**Table.7**




**Graph.3**

| specificity | Clinical examination | Radiological | Cytological |
|---|---|---|---|
| in Martelli G et al study | 63 | 80 | 97 |
| In present study | 100 | 100 | 100 |

**Table.8**




**Graph.4**

## CONCLUSION

Detection and management of a breast mass requires an optimal environment for interpretation, relevant use of clinical information, technically excellent imaging procedures, proper interpretation of finding and patient recommendations. Our results show that the diagnostic accuracy of combined physical examination breast USG and FNA/CNB is comparable to that of histological examination. A fine collaboration between experienced radiologists, cytologist and the Clinician is required. Ultrasound when replacing mammography serve as effective an imaging modality in palpable breast lumps and is more comprehensive. Ultrasound breast aids biopsy techniques by guidance to the representative area than increasing yield. CNB is a suitable alternative when FNA is inconclusive and may offer additional information. Thus the use of TT to complement findings in differential diagnosis of a lesion in symptomatic women seeking medical care deserves acceptance and further evaluation. This may lead to less delay in treatment when malignancy is suspected and to avoidance of surgical exploration when a benign lesion is suspected.

FNAC/ CNB as a single test was a superior diagnostic test than the other two tests, but only when complemented by them could the lesion be characterized in all dimensions for the chosen interventional procedure. Results of this study highlight the importance of Triple Assessesment and re reconfirm its efficacy in diagnosis of brteast lumps. However studies with large samples may throw more light on the value on the value of Triple Assessments.

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