



## Efficacy of Modified Triple Test in the Assessment of Breast Lump in A Rural Medical College

### KEYWORDS

Modified triple test score, Breast Lump, Carcinoma Breast.

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**ABSTRACT** **Back Ground-** Breast cancer is the second most common cancer in Indian females after carcinoma cervix. The main complaint of the patient is a lump in the breast. The diagnosis depends on the triple test which includes Clinical Breast Examination (CBE), Mammography and Fine Needle Aspiration Cytology (FNAC).

As mammography is not easily available at every hospital especially at rural level, we decided to include ultrasonography (USG) of breast instead of mammography for the diagnosis of Carcinoma Breast. This is known as modified triple test.

**Material & Method-** 50 female patients having breast lump presenting in the Out Patient Department of General surgery, F.H. Medical College & Hospital, Tundla Firozabad wef September 2015 till August 2016 were included in this study. All patients underwent CBE, USG & FNAC and the results were evaluated. These results were compared with excisional biopsy and histopathological examination.

**Result-** Accuracy of modified triple test was confirmed in our study by histopathological examination.

**Conclusion-** Modified triple test is cost effective, easily done on outpatient basis, widely applicable and has a reliable diagnostic approach in palpable breast lumps.

**Introduction** - Breast lump is a very common problem in female patients attending general surgery outpatient department. Breast cancer is the second most common cancer after carcinoma cervix in Indian females.

Self breast examination, proper history and clinical breast examination by a clinician are the commonest screening methods in India. Previously we were using triple test to assess breast lump which includes clinical breast examination, mammography and FNAC/ Core Needle Biopsy (CNB). (10, 11)

As mammography is not readily available at every hospital especially in rural areas, we decided to replace mammography with ultrasonography. Moreover ultrasonography is more sensitive and specific, it can diagnose upto 2mm breast lump by using high frequency probe. Mammography has its limitations in breast cases due to fat plane of breast. (18,19,20,21). The patient is also not exposed to radiation and follow up is safer if ultrasound is used.

Though role of FNAC and clinical breast examination has been unanimous the role of ultrasonography instead of mammography has been emphasized recently especially in young female patients. (5,6,13,14,15,16)

'Every palpable mass in the breast must be excised', should be replaced by the recommendation that 'Every palpable mass in the breast must be assessed and clarified'. Surgical excision or biopsy of mass can be painful, expensive and frequently unnecessary in young patients who have very low incidence of malignancy. This also avoids unnecessary scars, stress, work load and expenditure. (7,17)

**Material and Method-** 50 female patients attending general surgery OPD from September 2015 to August 2016 aged 30 years and more were included in this study.

### Exclusion criteria are following:-

- Female less than 30 years of age
- Females more than 50 years of age.
- Male patient having breast mass.
- Strong family history of breast cancer.
- Previously diagnosed malignancy of same breast.
- Obvious advanced malignancy of breast.
- Radiation therapy given to breast.
- Any inflammatory condition of breast.
- Unmarried females

This was a prospective study including female with breast lump in the age group 30 to 50 years in one or both breasts.

All patients underwent detailed medical history, clinical breast examination, Ultrasonograph of breast, FNAC, and histopathological examination of excised breast lump. Open surgical excisional biopsy has been the gold standard of reference for evaluating a suspicious breast lump. (12)

### Detailed clinical history includes:-

1. Time of onset.
2. Progress, Increase in size
3. History of pain in lump.
4. Difficulty in movement of limb.
5. Other lumps present in breast or axilla.
6. Any family history of carcinoma of breast.
7. Medical or surgical treatment taken in the past.
8. Family history of diabetes mellitus, hypertension, or any chronic illness.
9. Type of diet taken- vegetarian/non-vegetarian.
10. Socio economic status.
11. Menarche
12. Number of children
13. Duration of breast feeding

After taking detailed clinical history, each patient underwent

**clinical breast examination which included**

- (a) Site of lump
- (b) Size of lump
- (c) Number of lump
- (d) Shape of lump
- (e) Consistency of lump
- (f) Any tenderness over the lump
- (g) Mobility
- (h) Fixity to skin and deeper structure
- (i) Any discharge from lump
- (j) Any skin ulceration over lump
- (k) Axillary and supraclavicular lymph node involvement

**Ultrasonography:-** High frequency transducer probe was used to perform ultrasound of breast. Frequency of transducer was 7.5 to 13 mega hertz. Multiple ultrasonographic studies were done by placing probe in coronal and sagittal plane. Patient should be supine with extended arm of involved breast. Ultrasonography of the uninvolved breast was also done. Ultrasound should also be done for internal mammary Lymph Nodes for deep seated lesions. Aspiration of cyst (if any) was done under ultrasound guidance.(22)

**FNAC / core needle biopsy:-** FNAC was done by using 21/22 gauge needle and 20 ml syringe. Material was aspirated from lump going in and out many times.

Aspirated material was put on six slides and they were dried in air and then fixed using ethyl alcohol.

All patients who underwent the above tests (CBE, USG, & FNAC) were assigned a score depending on the result. For benign lesion score given was 1, for malignant score given was 3, and for suspicious score given was 2.

So minimum modified triple test score (MTTS) score is 3 and maximum was 9.

It seems in study that score 3 & 4 were benign and score 7, 8, 9, are malignant. Score 5 and 6 need further study by histopathological examination.

**Histopathology:-** All the lumps included in the study were excised and sent for histopathological examination.(12)

The histopathological report in most cases confirmed the results of MTTS in our study.

**OBSERVATION & RESULT**

**Table-01:-**

**Age wise incidence of breast mass:-**

Age Distribution	No. Of Cases	Percentage
30 to 35	22	44
35 to 40	24	48
40 to 45	3	6
45 to 50	1	2

**Table -02:-**

**Mean duration of patient symptoms:-**

Duration in months	Number	Percentage
1 to 6 month	45	90%
More than 6 month	5	10%

**Table- 03:-**

**Most common side of breast affected:-**

Side	Number	Percentage
Rt Breast	21	42%
Lt Breast	29	58%
Total	50	100%

**Number of Lumps in breast:-**

No. of Lump	Patient	Percentage
Only one lump	47	94%
Two or more lump	3	6%
Total	50	100%

**Consistency of lump:-**

Consistency	No. of Patient	Percentage
Firm	43	86%
Soft cystic	4	8%
Hard	3	6%
Total	50	100%

**Commonly involved Quadrant of breast:-**

Quadrants	Number	Percentage
Lt upper & outer	13	26%
Lt upper & inner	10	10%
Lt Lower & outer	6	12%
Lt Lower & inner	4	8%
Rt upper & outer	5	10%
Rt upper & inner	6	12%
Rt Lower & outer	3	6%
Rt Lower & inner	2	4%
Central Rt	0	2%
Total	50	100%

**Size of breast mass:-**

Type	Number	Percentage
Less than 5cm	45	90%
More than 5cm	5	20%
Total	50	100%

**Radiological (USG) examination of mass:-**

Type	Number of patient	Percentage
Benign	46	92%
Malignant	3	6%
Suspicious	1	2%
Total	50	100%

**Histopathological examination of mass:-**

Type	Number of patient	Percentage
Benign	47	94%
Malignant	3	6%
Total	50	100%

**Modified triple test score:-**

Score	No. of cases	Predictive diagnoses
4 or less	46	Benign
5	1	Suspicious
6 or more	3	malignant

**Mobility of breast mass:-**

Type	No. of cases	Percentage
Mobile	47	94%
Fixed to Deeper structure	3	6%
Total	50	100%

**FNAC finding of breast masses:-**

	Number	Percentage(%)
Number of patients having benign lesions	45	90%
Number of patients having malignant lesions	3	6%
Number of patients having suspicious lesions	1	2%

From the above study, it is found that breast masses are common in younger age group i.e. 30 to 40 years of age. Mean age 35 years.

Duration of mass is less than 6 months in most of the cases.

Breast masses are most common in upper & outer quadrant of left breast. It is rarely found in center part of breast. In most cases masses firm in consistency. Mass is generally less than 5 cm.

Multiple masses in one breast are rare, only in one case two masses were found in one breast.

Most of the breast masses are mobile and only 3 cases (6%) were fixed to deeper structures.

Fixity to skin was not present in 47 (94%) cases. Only 3 cases were having fixity with skin.

All patients with modified triple test score less than 4 were benign on histopathological examination and also on FNAC examination.

One patient with MTTs of 5, was found to be benign on histopathological examination.

Three patients with MTTs of 7 and more, were found to be malignant on histopathological examination.

So, according to the present study we recommend that biopsy should be done only in those cases who had modified triple test score 5 & 6 and more.

Age of first menstruation in females included in this study is 10 to 14 yrs.

Age of 1st gestation in female included in this study is 22 to 25 yrs.

Total breast feeding time varies from 12 months to 24 months.

No relation was found with duration of breast feeding and malignancy of breast.

### Discussion

From the above results and observations it was concluded that MTTs is as good as TTS.

Gobbler (1) in a study concluded that preliminary biopsy and frozen section may be unnecessary when the diagnostic triple test unequivocally demonstrate malignancy. When all three tests gave the same result, whether positive or negative the probability of correct diagnosis was about 99%.

Crone (2) in a study conclude that even after all the three tests, few cases are missed so he advised biopsy in every breast lump.

Duration of breast feeding, time of first gestation, and time of menarche do not have any relation with breast cancer.

All the patients included in our study are of low and medium socioeconomic status. Majority of patients are vegetarian. In Dr. A ghafouri (10) at al. study it was observed

that dimension of breast mass were of no importance as in previous studies, In most cases, breast masses less than 5 cm are benign.

A ghafories (10) at al also concluded that MTTs is as effective, sensitive and specific as TTS.

According to necessity, evaluation of breast mass in woman under 40, MTTs can provide valuable information as follows.

Score 3 and 4 could be followed up unless abnormal changes occurs during the period of time.

In score 7,8, & 9 operation seems mandatory.

In score 5 & 6 due to possible malignant nature excisional biopsy seems more appropriate.

So it seems by this study that modified triple test score provides equivalent diagnostic effectiveness and substantially lower cost than traditional management.

### Conclusion

1. In the management of breast lump in elderly females, it can be diagnosed by clinical breast examination, radiological examination i.e. mammography or ultrasonography, and fine needle aspiration cytology or core needle biopsy.
2. Modified triple test involve CBE, USG, FNAC.
3. Modified triple test is almost 100% accurate in diagnosis of breast cancer.
4. MTTs can done on outdoor basis and does not require admission in the hospital.
5. MTTs cannot be used in cases with strong family history of breast cancer due to inherited additional risk factor.

In conclusion we see that MTTs of 3 and 4 are benign and do not require biopsy. Score 5 to 6 is inconclusive and need open excisional biopsy. While score 7 to 9 seems to be malignant and need definitive management surgery. (9)

As observed in this study age, size of breast mass, age of menarche and age of first gestation does not have any relation with malignancy of breast.

We conclude from our study that MTTs is cost effective, easily accessible and an outdoor procedure to rule out malignancy in breast lump cases in elderly females.

### BIBLIOGRAPHY

- (1)- Grobler SP, du toit RS, Brink C, Divall PD, Middlecote BD, Nel CJ: Pre-operative evaluation of palpable breast tumours. S Afr J Surgery 28 (4): 128-32, 1990 (Dec).
- (2)- Crone P, Hertz J, Nilsson T, Junge J, Hoier-Madsen K, Kennedy M, Bøjsen-Møller J, et al: The predictive value of three diagnostic procedures in the evaluation of palpable breast tumours. Ann Chir Gynaecol 73 (5): 273-6, 1984.
- (3)- Mansoor I ; Analysis of inconclusive breast FNA by triple test. J Pak Med Assoc 52 (1): 25-9, 2002.
- (4)- Dennis M; breast biopsy avoidance; the value of normal mammography and ultrasonography in detecting the palpable breast lump. Radiology 121 (1): 186-191, 2002.
- (5)- Ashley S, Royle GT, Corder A, Herbert A, Guyer PB, Rubin CM, et al. Clinical, radiological and cytological diagnosis of breast cancer in young woman. Br J Surgery 1989; 76: 835-7.
- (6)- Leis HP Jr, Gross breast cysts; significance and management. Contemp Surgery 1991; 39: 13-20.

- (7)- Donegan WL: evaluation of a palpable breast mass. N. England J. Med, 1992, 24; 327 (13): 937-42.
- (8)- Chandawarkar RY, shinde SR. preoperative diagnosis of carcinoma of the breast. J. SurgeryOncol 1997; 64: 153-8.
- (9)- AGhafouri, sh. Attarian, M. tavangar, N. sedighi; MODIFIED TRIPLE TEST SCORE (MTTS) FOR EVALUATIONOF PALPABLE BREAST MASSES IS WOMEN UNDER AGE 40. MJIRI; 2006: 20(3): 115-118.
- (10)- Katherine T. Morris, John T. Vetto, J.K. Petty, Sharon S. Lum, Waldemar A. Schmidt, SuEllentoth – Fejel et al. a new score for the evaluation of palpable breast masses in woman under age 40. The American journal of surgery 2002; 184; 346-347.
- (11)- Morris A, Pommier RF, Schmidt WA, Shih RL, Alexander PW, Vetto JT, Accurate evaluation of palpable breast masses by the triple test score. Archives surgery 1998;133;930-934.
- (12)- John A. Butler, Hernan. vargas, Nancy worthen, Samuel. Wilson. Accuracy of combined clinical- mammographic- cytologic diagnosis of dominant breast masses. A prospective study. Archives surgery. July 1990;125;893-896.
- (13)- Johansen C. A clinical study with special reference to diagnostic procedures. Acta Clin Scand, 1975 45(suppl.); 1-70
- (14)- Bassett LW, Ysrael M, Gold RH, Ysrael C. usefulness of mammography and sonography in women less than 35 years of age, radiology, sep 1991;180(3);831-5.
- (15)- American college of radiology, breast imaging reporting and data system (BI-RADS). 4<sup>th</sup> ed. Reston, VA; American college of radiology; 2003.
- (16)- kim EK, oh KK, Ko KH. Clinical application of BI-RADS assessment to breast ultrasound, presented at the annual meeting of the radiological society of north America; December 2003; Chicago, IL.
- (17)- Shetty MK, shah YP, Sharman RS, prospective evaluation of the value of combined mammographic and sonographic assessment in patients with palpable abnormalities of the breast. J Ultrasound Med 2003; 22; 263-268.
- (18)- John T. Vetto, Rodney F. Pommier, Waldemar AS: Diagnosis of Palpable Breast Lesions in Younger Women by the Modified Triple Test Is Accurate and Cost-effective, archives of surgery, sep, 1993; 131; 967-974.
- (19)- Crystal P. Strano DD, Shcharynski S, koretz MJ; using sonography to screen women with mammography dense breast, Am. J Roentgenol 181(1); 177-82, 2003.
- (20)- Klob T; comparison of the screening mammography, Ph.E breast ultrasonography and evaluation of the factors that influence them /an analysis of the 27825 patients evaluation. Radiology 225(1); 165-174, 2002.
- (21)- Rosenberg AI, Schwarz Gf, FeigSa, patchefsky As, clinically occult breast lesion localization and significance. Radiology 1987;162;167-70.
- (22)- Katherine T. Morris, Rodney F. Pommier, Arden Morris, Waldemar A Schemid, Gregory beagle, Priscilla W. Alexander et al, usefulness of triple test score for palpable breast masses, archives of surgery 2001;136(9); 1008-1013.