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TO CORRELATE THE MODIFIED TRIPLE TEST (MTT) FOR PALPABLE BREAST MASS WITH HISTOPATHOLOGY.

General Surgery

Dr. Madhu Lata Rana Associate Professor , General Surgery SGRRIM AND HS, Patel Nagar, Dehradun Uttarakhand

Dr. Subhash Chandra Sharma* Associate Professor , General Surgery SGRRIM AND HS, Patel Nagar, Dehradun Uttarakhand *Corresponding Author

ABSTRACT

Discrete breast mass in young women are common cause of anxiety though majority of these lesion are benign.It is frightful experience for the patient to undergo invasive procedure i.e. biopsy of breast mass. So there is obvious need of such diagnostic tool which is noninvasive or minimally invasive, quick , reliable , equivalent or nearly equivalent to current existing diagnostic procedure to avoid unnecessary biopsy, reduce patients anxiety and cost effective.**Aims and objective**–To study the role of modified triple test in the diagnosis of palpable breast mass.**Material and method-** The study was a prospective study done in tertiary care center Dehradun from June 2017 to June 2018. It was carried out in the department of surgery in SGRRIM and HS and included 148 patients who presented with palpable breast mass. Patients who were already diagnosed case of carcinoma breast were excluded from the study. Thorough clinical examination of breast was done. All the patients were investigated firstly by sonomammography then FNAC.Either core biopsy or excisional biopsy of breast mass was done in all the cases. Findings were recorded and data analysis was done. Sonomammography report was recorded according BIRADS protocol besides giving probable diagnosis. Breast mass histopathology (HPE) report was considered to be gold standard and all the results were compared with HPE of the same breast mass.**Result:** results of MTT is comparable with histopathology of the same breast mass. **Conclusion:** modified triple test is sufficient and reliable investigation for diagnosing palpable breast mass and biopsy of breast mass should be reserved only for doubtful cases.

KEYWORDS

Breast Lump, Modified Triple Test, Histopathology.

INTRODUCTION – Discrete breast mass in young women are common cause of anxiety though majority of these lesion are benign. Breast cancer is one of the most common cancer in female in urban India and is the leading cause of morbidity and mortality worldwide. (1) An important diagnostic tool for palpable breast mass is its biopsy and histopathology as approximately 15% of such lesions can be mammographically occult.(2) To distinguish benign breast mass from malignant one can be difficult by clinical examination only. To miss a palpable carcinoma may lead to medical and potential legal consequences more over a great desire not to miss malignant lesion at early stage of disease as significant number of cases are reported to be false negative on mammography leads to aggressive biopsy. But the biopsy taken for palpable breast mass revealed that only 10 – 30 % of the masses are malignant which indicate that approximately 70% - 90 % of takenbiopsy are for benign lesions.(10)(11) It is frightful experience for the patient to undergo such invasive procedure i.e. biopsy of breast mass.So there is obvious need of such diagnostic tool which is non-invasive or minimally invasive, quick , reliable , equivalent or nearly equivalent to current existing diagnostic procedure to avoid unnecessary biopsy, reduce patients anxiety and cost effective.

Modified Triple Test (MTT) consists of clinical examination, sonomammography of breast and fine needle aspiration cytology (FNAC) and is considered as an important tool of investigation for diagnosing breast mass. (17). Recent development of ultrasonic equipment hasled to one of the best tool in breast imaging which can identify27% of breast mass especially in women younger than 50 years of age that can be occult on mammography.(3)(4) In order to standardize the characteristic of breast lesion ACR has developed a BIRAD lexicon for breast sonomammography.(5)(6)(7). BIRAD lexicon is quite helpful in differentiating between benign and malignant breast lesions(8)(9). Our study thus aim to compare the result of modified triple test , i.e., clinical examination , sonomammography of breast and FNAC of breast mass with that of histopathology of same mass in the same population.

AIMS AND OBJECTIVE–To study the role of modified triple test in the diagnosis of palpable breast mass

MATERIAL AND METHOD- The study was a prospectivestudy done in tertiary care center Dehradun from June 2017 to June 2018. It was carried out in the department of surgery in SGRRIM and HS and included 148 patients who presented with palpable breast mass. Patients who were already diagnosed case of carcinoma breast were excluded from the study. Thorough clinical examination of breast was done. All the patients were investigated firstly by sonomammography then FNAC.Either core biopsy or excisional biopsy of breast mass was done in all the cases. Findings were recorded and data analysis was done. Sonomammography report was recorded according BIRADS protocol besides giving probable diagnosis. Breast mass histopathology (HPE) report was considered to be gold standard and all the results were compared with HPE of the same breast mass. The values concerning the diagnostic accuracy was calculated as

Sensitivity: The possibility of positive USG result that the patient had cancer
Specificity: the possibility of negative USG result that the patient had benign lesion
Positive predictive value: possibility of having carcinoma when the result of USG is positive
Negative predictive value: possibility that a tumor is benign when the result of USG is negative
False positive fraction: benign lesion reported as positive by USG
False negative fraction: carcinoma reported as negative on USG
Accuracy – the proportion of true result (true positive + true negative) amongall result

OBSERVATION AND RESULT:There were 148 cases with palpable breast mass who were included in the study. Out of which 147 cases were female and were in the age group of 31- 40. only one case was male who was diagnosed as physiological gynaecomastia. The median age of presentation of breast mass was 30 years.

TABLE 1

Age group	Female	Male
<20	7	0
20-30	22	1
31-40	68	
41-50	34	
51-60	9	
>60	8	

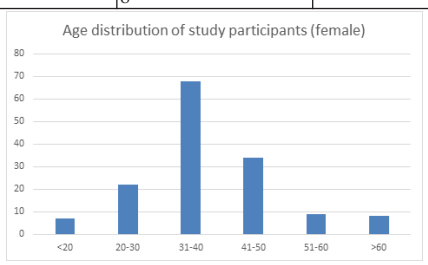
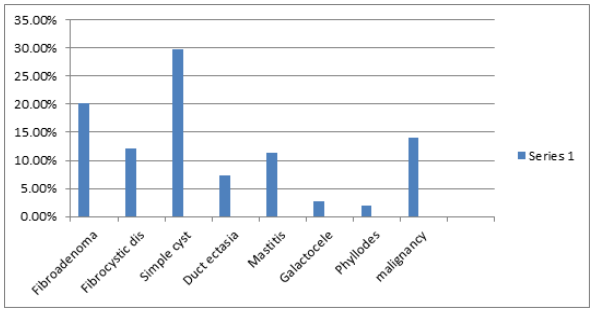


FIG 1



Sonomammograhicdiagnosis of breast lump

Diagnosis made on the basis of sonomammographysuggest that most of the breast masses were benign where simple cysts and fibroadenomas predominated. Out of all cases fibroadenomas were 30, simple cyst 44,fibrocystic disease 18, simple cyst 44,malignany21 ,duct ectasia11, mastitis 17, galactocele 4 and phyllodes were 3 in number.

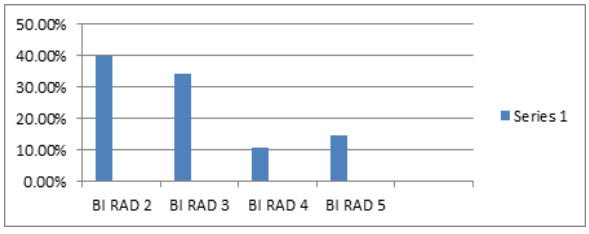


FIG 2 BIRAD category on sonomammography

BIRAD category on sonomammographic evaluation of breast mass suggests that most of the patients fall in the category of BIRAD 2 and 3. Out of 148 patients , 59 patients were in category 2 , 51 in category 3, 16 in category 4 and 22 in category 5.

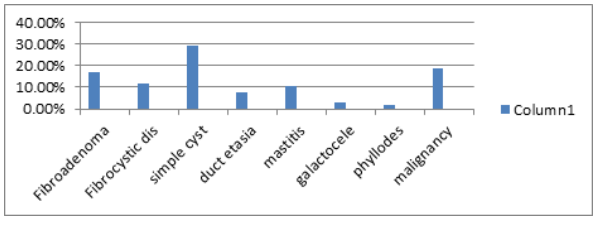


FIG 3 Cytological diagnosis of breast mass

There was some variations in cytological results of the same patients .Most of the breast masses were benign. Only 28 patients(18.9%) out of 148 were clear cut malignant. 5 patients (3.37%) were doubtful malignant and atypical cells were seen in cytology.25 patients were fibroadenoma, 18 were fibrocystic disease, 3 phyllodes, 16 mastitis , 4 galactocele, 43 simple cyst, 11 duct ectasia and 28 were malignant.

TABLE 2

Sl. no.	Disease	Sonomammography		FNAC		HPE	
		n	%	n	%	n	%
1	fibroadenoma	30	20.2	25	16.8	24	16.2
2	Fibrocystic disease	18	12.1	18	12.1	18	12.1
3	phyllodes	3	2	3	2	2	1.3
4	malignancy	21	14.1	28	18.9	30	20.2
5	Simple cyst	44	29.7	43	29	41	27.7
6	Duct ectasia	11	7.4	11	7.4	13	8.7
7	mastitis	17	11.4	16	10.8	15	10.1
8	galactocele	4	2.7	4	2.7	5	3.37
	Total	148	99.6	148	99.7	148	99.67

Comparison of results of various investigations

Either core biopsy or excisional biopsy taken of breast mass of same patient shows only slight variation in histopathology report as compared to FNAC.

Sonomammography

Sonomammography test	Malignancy	
	Yes	No
Positive	19 (TP)	2 (FP)
Negative	11 (FN)	117 (TN)

Sensitivity of Sonomammography= TP/(TP+FN) = 19/(20+10) = 63.33%

Specificity of Sonomammography= TN/(TN+FP) = 117/(117+2) = 98.31%

PPV= TP/(TP+FP) = 19/(20+1) =90.47%
NPV= TN/(TN+FN) = 117/(117+10) = 92.12%
False positive rate = FP/(TN+FP) = 2/(2+117) = 1.68%
False negative fraction = FN/(TP+FN) = 11/(19+11) = 36.66%
Accuracy = (TP+TN)/Total number of cases = (19+117)/148 = 91.89%

FNAC test	Malignancy	
	Yes	No
Positive	26 (TP)	2 (FP)
Negative	4 (FN)	116 (TN)

Sensitivity of FNAC= TP/(TP+FN) = 26/(26+4) = 86.66%
Specificity of FNAC= TN/(TN+FP) = 116/(116+2) = 98.31%
PPV= TP/(TP+FP) = 26/(26+2) =92.85%
NPV= TN/(TN+FN) = 116/(116+4) = 96.66%
False positive fraction = FP/(TN+FP) = 2/(116+2) = 1.69%
False negative fraction = FN/(TP+FN) = 4/(26+4) = 13.33%
Accuracy = (TP+TN)/Total number of cases = (26+116)/148 = 95.94%

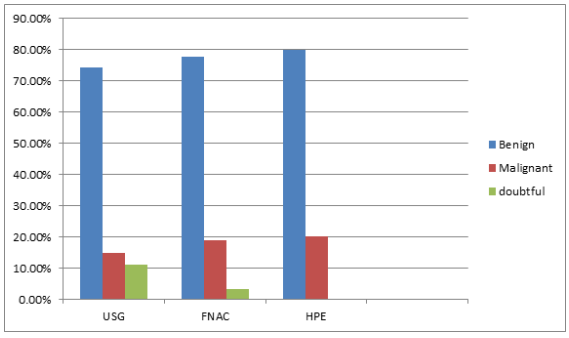


FIG4

TAB 3

	USG		FNAC		HPE		P Value
	n	%	n	%	n	%	p> 0.05
Benign	110	74.3%	115	77.7%	118	79.7%	
Malignant	21	14.2%	28	18.9%	30	20.2	

Discussion: Breast cancer is one of the most common cancer in women worldwide (11). It usually present with breast mass or nipple discharge. Discrete lump of breast causes genuine anxiety to patient and it should be evaluated to rule out malignancy. Evaluation of breast mass includes detailed history , clinical examination , imaging modalities and tissue diagnosis. Histopathology of breast mass biopsy(core biopsy/ excisional / incisional biopsy) is the gold standard and is the final diagnosis. But the thought of biopsy is scary to the patient as it is painful, invasive procedure. Moreover approximately 80% of breast masses are benign (12) therefore there is need for such diagnostic criteria which is less invasive , quick, cost effective as well as reliable. Modified triple assessment consist of detailed clinical history and examination, sonomammography of breast and fine needle aspiration cytology. Our study has compared the result of modified triple test with the histopathology of breast mass biopsy of same patient. Sonomammo graphy of breast is very useful investigation and is useful in differentiating malignant masses from benign solid mass. (13)(14) .BI RADS classification in sonomammography revealed that obtained rate of malignancy in our study is in line with other study. (15) Fine needle aspiration cytology (FNAC)is an efficient tool for diagnosing breast lesion .Since sensitivity and specificity rate of FNAC is not 100%, there is ofcourse limitation of this investigation. (16)(22) Thus, these unavoidable limitations can further be reduced if we consider clinical examination and radiological findings to make it more reliable ,a modified triple test (MTT). Many studies suggest that MTT is 100% accurate in diagnosing breast mass , however FNAC is the most important and reliable element of MTT .(17) Like other studies , mean age of presentation of palpable breast mass is 30 years . (18) and like other studies sensitivity of clinical examination is approximately 85%. (19). in our study also benign breast mass is more common and

fibroadenoma and simple cyst predominates.(20)followed by palpable breast mass in 4th decayed where carcinoma breast is more common .(21)

In terms of BI RADS category , category 2 followed by category 3 is more common . (23) Taking considering the overall result , there is only slight variation in the result of modified triple test as compared to histopathology of palpable breast mass. (23)

CONCLUSION:modified triple test is sufficient and reliable investigation for diagnosing palpable breast mass and biopsy of breast mass should be reserved only for doubtful cases.

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