

TRIPLE ASSESSMENT OF A BREAST LUMP BY APPLYING TRIPLE TEST SCORING IN PATIENTS ATTENDING OPD IN HAMIDIA HOSPITAL, BHOPAL

Anuradha Chaudhary M. S¹, Yaspal Ramole M. S², M. C. Songra³, Vishal Rampuri M. S⁴, Vibhore Agarwal⁵

HOW TO CITE THIS ARTICLE:

Anuradha Chaudhary M. S, Yaspal Ramole M. S, M. C. Songra, Vishal Rampuri M. S, Vibhore Agarwal. "Triple Assessment of A Breast Lump by Applying Triple Test Scoring in Patients Attending OPD in Hamidia Hospital, Bhopal". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 36, May 04; Page: 6241-6247, DOI: 10.14260/jemds/2015/908

ABSTRACT: A comparative study: triple assessment of a breast lump by applying triple test scoring in patients attending OPD in hamidia hospital, Bhopal. 60 patients were enrolled in the study, for the period of one year. Age group ranged from 35 to 80 years. Oldest female enrolled was 77 years. Most of the patients were in the age group of 35-44 years of age. There were almost equal numbers of female in pre and post-menopausal age group. All cases presented with complaints of lump in the breast with duration of symptoms ranging from less than two months to six months. Most of the lumps were situated in upper and outer quadrant. Mammography and FNAC were carried out in all the patients and later triple assessment score was calculated for every case. The end result was correlated with histopathological result. Accuracy of triple assessment and its components were measured by comparing them with histopathological report. If applied alone all three components of triple assessment were having less accuracy, but combining them made them more accurate. Triple test was also found to lower the need for excision biopsy for diagnosis and helps in timely and accurate diagnosis of a breast lump with early intervention which can be lifesaving.

KEYWORDS: Breast Lump, Triple Assessment, Triple Test Score, Tts, Mammography, Fnac.

INTRODUCTION: Breast lump is the clinical presentation of numerous breast disorders ranging from innocent benign cysts to malignant neoplastic lesions .Distinction of benign from malignant is of paramount importance for patient care and proper management.

One fourth of women suffer from breast disease in their life time.^(1,2) Carcinoma of breast is the second most common cancer in the world.⁽³⁾ With the improvement in health care and increasing longevity, more and more females are being exposed to the risk of developing breast carcinoma. The lifetime risk of developing breast cancer is 1 in 8.⁽⁴⁾ Carcinoma of breast is known since ancient times. The commonest clinical presentation of breast carcinoma is a palpable lump. Lump in the breast has been viewed with skepticism resulting in delay in seeking treatment .Timely and accurate diagnosis of a breast lump with early intervention can be lifesaving.

There are various modalities for the diagnosis of a breast lump such as mammography, ultrasonography, MRI, FNAC etc. but all of them have their own limitations.

Imaging evaluation of the breast is established as an essential part of the modern multidisciplinary approach for effective investigation and management of breast lump. This includes: USG and Doppler scanning, conventional and digital mammography and recently MRI and contrast enhanced USG. To promote uniformity and standardization of mammographic interpretation, American College of Radiology and other international organizations, with mutual consensus, have Recently adopted and recommended universal implementation of breast imaging reporting and data system (BIRADS).^(5,6)

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Conventional open biopsy, considered as the gold standard for confirming the diagnosis, has significant morbidity, is costly and time consuming. To overcome these issues, various biopsy techniques have been evolved. These include tru-cut needle and its later core needle version vacuum-assisted biopsy (VAB) devices such as mammotome; image guided advance breast biopsy instrumentation (ABBI) and minimally invasive breast biopsy. All these systems aim at obtaining adequate tissue volume through the smallest possible skin incision. Now withstanding their cost and limited availability, all do inflict significant trauma to patients.

A definite diagnosis of breast lesion not only saves the patient from unnecessary physical, emotional and psychological trauma but also relieves the health services from undue burden. A definite preoperative diagnosis of malignant lesion provides ample opportunity for patient's counselling and planning of possible single stage surgical treatment.

So there is dire need for evolving a method for establishing the diagnosis preoperatively, which is cost effective and least invasive to the patient with accuracy comparable to open biopsy.

However, if employed alone, the reliability of mammography and FNAC is low. Thus the combination of physical examination, mammography and FNAC came in picture; which is known as TRIPPLE ASSESSMENT (or TRIPLE TEST) of breast lump. There are numerous reports that if the results of clinical assessment, mammography and FNAC are all combined, the accuracy of diagnosis reaches up to >90%.^(7,8)

Furthermore, these techniques provide information on tumor size, number, extent and grade pre operatively. Based upon this concept Triple Test has been formed, which is quick, least invasive and cost effective in terms of money and time.

MATERIALS AND METHODS: A Prospective study was performed in Department of General Surgery, Gandhi Medical College and Associated Hamidia Hospital, Bhopal. The sample size included 60 patients. Study duration was of one year.

Inclusion Criteria: All female patients, >35 years of age having palpable lump in breast.

Exclusion Criteria:

- Patients with fungating masses.
- Patients with acute inflammatory signs.
- Patient with cystic lesion (confirmed by USG).
- Pregnant ladies.
- Male patients.

Intervention: The Triple test was prospectively applied to each breast mass. Each component of the triple test was assigned 1, 2 or 3 points for benign, suspicious or malignant results, yielding a total triple test score. Lesion with a TSS greater than or equal to 5 were excised for histological confirmation, whereas lesions with scores less than or equal to 4 were either excised or followed clinically.

Main outcome measures: The TSS was correlated with subsequent histopathologic examination results.

Physical Assessment: Patient's history-Detailed history of present illness, family history and medication history were inquired about.

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Clinical examination: proper Inspection, Palpation and Bilateral lymph node examination of axillary group of lymph nodes and supraclavicular lymph nodes.

Mammography-two views –oblique and craniocaudal. With modern film screens a dose of less than 1.5mGy is standard. So low dose mammographic examination was done in all patients.^(9,10,11,12)

Fine Needle Aspiration Cytology (FNAC)-FNAC was performed and reported by Pathology Department of Gandhi Medical College, Bhopal. Patient was explained about procedure. The position was given to patient in such a way that the target site becomes more prominent and accessible. The skin over target area was painted with spirit. The target was fixed with one hand. The syringe and needle were poised over target. The needle was passed into the target after prior indication to the patients. A negative suction was created in the syringe and maintained by “Braced thumb technique”.^(13,14,15) The needle tip was oscillated within the target briefly, in one channel, maintaining the suction. The piston was then released to equalize the pressure and then the needle was completely withdrawn. Local pressure was given over the puncture site in order to achieve hemostasis. The needle was separated and air was drawn into the syringe. The needle was reattached and the material that contained entirely within the needle was expelled into a glass slide. Smear prepared and studied under microscope.

All the cases had undergone operation and histopathological examination subsequently.

Triple assessment was modified by assigning a score of 1, 2 or 3 points for a benign, suspicious, or malignant result respectively. Individual element scores were then added together to yield a total Triple test score (TTS) for each lesion. This system results in a minimum score of 3 for a concordant benign test result and a maximum score of 9 for a concordant malignant test result.

OBSERVATIONS AND RESULTS:

Age Distribution:

- Out of 60 patients 34 were in age group of 35 to 45 years i.e., 56.6 % of study population.
- Highest noted age in study group was 77 years.
- Mean age noted was 46.2 years.

Complaints of the patients:

- 46 patients presented with complaint of lump in breast.
- 13 patients had associated pain.
- Only 1 patient presented with complaints of pain with no associated lump.

Malignancy and menopause: In our study group, 32 patients were pre-menopausal and 28 were post-menopausal. Among the 32 pre-menopausal patient 30 were diagnosed as having benign lesion on triple test score while 2 had malignant lesion.

In post-menopausal group 7 were diagnosed as having malignant lesions and rest were benign. So prevalence of malignancy was more in post-menopausal group.

Lump distribution according to the side: Out of 60 cases 37(61.6%) of lumps were situated in the right breast whereas 23(38.3%) were situated in the left breasts.

Site distribution of lump: The most common site distribution of the lump was in the upper and outer quadrant 25 cases of total accounting for 41.7% followed by lower and outer quadrant 15 cases

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(25%), upper and inner quadrant 12 cases (20%) and least common in the lower and inner quadrant 8 cases (13%).

Clinical diagnosis of breast lump: Out of 60 patients 6 were diagnosed as having malignant breast lump while 16 were suspicious of being malignant and rest were diagnosed as benign lesions.

Mammographic diagnosis of breast lump: Mammography showed 45 of the breast lump to be benign, 3 to be malignant and 12 to be suspicious of malignancy.

FNAC diagnosis of the breast lump: After doing FNAC 6 lumps were diagnosed as malignant, 9 were suspicious of malignancy and 45 were diagnosed as benign.

Triple assessment result: Triple assessment revealed 51 benign cases, 8 to be malignant and 1 were suspicious of malignancy.

According to Triple Test Score, scores 3 and 4 are considered benign, score 5 considered to be suspicious and rest of the scores are considered to be malignant.

Histopathological report: 51 patients were diagnosed with benign lesion and 9 were with malignant lesion.

Comparison of results in components of triple test and histopathological examination.

	Clinical examination	Mammography	FNAC	Triple assessment	HPE
Benign	38	45	45	51	51
Malignant	6	3	6	8	9
Suspicious	16	12	9	1	0

Table 1

Comparison of accuracy in components of Triple test.

	SENSITIVITY	SPECIFICITY	PPV	NPV
Physical examination	68.8%	55.5%	87.5%	27.7%
Mammography	95.1%	44.4%	88.6%	66.6%
FNAC	92.6%	66.6%	92.6%	66.6%
Triple test	100	88.8%	97.6%	100

Table 2

DISCUSSION: On clinical examination only 6 were diagnosed as malignancy, 16 were suspicious for malignancy, and other were diagnosed as benign lesions. So the clinical suspicion for malignancy comprised of 10% of patients. Out of these most were having benign lesions. Also to be noted that on physical examination 2 cases were thought to be benign, which turned out to be malignant on investigation.

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Multiple studies have shown various rates of accuracy in FNAC was found to have sensitivity in 92.6% & specificity in 66.6% for differentiation of benign from malignancy. Overall accuracy of FNAC was 86% in our study. These rates were comparable to various studies.

In an award winning study done in university of Zambia, kasonde B et al studied 56 patient presented with breast lump by performing FNAC and open biopsy and the results compared, in order to determine the accuracy of FNAC. They reported FNAC to be 72% sensitive and 94% specific in detecting cancer which is close to our study.

This level of accuracy compares favorably with quality assurance criteria set for breast FNAC by the Royal College of pathologist in the British National Health Services (NHS).⁽¹⁶⁾

In a retrospective study of FNAC of breast done in Pathology Department of Nepal Medical College from January 2003 to December 2005 by Tiwari M. And correlated with data from histopathology record to determine the sensitivity and specificity of FNAC reported a sensitivity of 87% and overall accuracy of 90% which is comparable to over study.⁽¹⁷⁾

In a study conducted in surgical Department, Nishtar Hospital, Multan and Frontiier Medical College Abbottabad.100 female patients in the age group of 15-65 with complaints of lump in a breast where selected for the study and their Medical history recorded. All of the patients underwent FNAC of the lump followed by open biopsy for comparison. Study showed sensitivity of 87.5 % specificity of 82.4% and overall accuracy of 84% this is also comparable to our study.⁽¹⁸⁾

In a study of 2431 FNACs of breast lump Lioe T et al had described sensitivity of 90.8% and specificity of 63.7 %⁽¹⁹⁾.these results seem to be almost same as in our study.

On mammography sensitivity is 94%, specificity is 46%, positive predictive value (PPV) for malignancy is 87 % and negative predictive value (NPV) for malignancy is 91%.

In a study conducted by Karstan J. Peter C.in a 7 year meta-analysis from data of mammography for breast lump 52 % of patients were diagnosed positive for malignancy this was concluded as over diagnosis which was closely related to the introduction of breast screening⁽²⁰⁾, this also explains low specificity for detecting benign disease in our study.

In a retrospective study of 62,219 mammography reports, Jagpreet C et al found sensitivity of mammography to be 90%. This data is having similar result to our study.in our study triple assessment of breast lump has sensitivity of 100%, specificity of 88.8%, PPV for malignancy 97.6% and NPV for malignancy 100%, overall accuracy of 98% was noted in triple assessment.

In a study published “accuracy of triple test score in the diagnosis of palpable breast lump” in 2008 author’s examined 117 patients from the breast clinic over the period of 13 months and applied triple test score and categorized onto benign, suspicious and malignant and later was correlated with histo-pathological report.⁽⁷⁾

They concluded the overall accuracy of triple test to be 98% with sensitivity of 100%, specificity of 95.2% and PPV of 96.7%. This study is has results similar to our study.

In a recently reported study done at Kashmir, Masoda J et al studied 200 patients. they found triple assessment very accurate (99.3%).⁽²¹⁾ They reported triple assessment 100% sensitive and 99.3% specific these results are also supporting our study.

In a study of 479 patients Katherine et al reported that after triple assessment only 8% of patient requires excisional biopsy. In our study this rate was only 2%. The difference between two study groups was not statistically significant. So, triple assessment can be safely applied to reduce the number of excision biopsy⁽²²⁾ for diagnosis.

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AUTHORS:

- 1 Anuradha Chaudhary M. S.
- 2 Yaspal Ramole M. S.
- 3 M. C. Songra
- 4 Vishal Rampuri M. S.
- 5 Vibhore Agarwal

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of General Surgery, Gandhi Medical College.
2. Associate Professor, Department of General Surgery, Gandhi Medical College.
3. HOD, Department of General Surgery, Gandhi Medical College.
4. Resident, Department of General Surgery, Gandhi Medical College.

FINANCIAL OR OTHER

COMPETING INTERESTS: None

5. Resident, Department of General Surgery, Gandhi Medical College.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Anuradha Chaudhary,
F/3, Doctor's Quarters,
Idgah Hills, Bhopal- 462001.
E-mail: anuchaini@gmail.com

Date of Submission: 07/04/2015.
Date of Peer Review: 08/04/2015.
Date of Acceptance: 24/04/2015.
Date of Publishing: 02/05/2015.