ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 03 | March - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY TO EVALUATE TRIPLE ASSESSMENT IN DIAGNOSING CARCINOMA BREAST

Oncology

Dr. Chandrashekhar prasad* Assistant professor. Bankura medical college department of surgery.wb. *Corresponding Author

Dr. Sudhanshu Sarkar Associate professor. Bankura medical college department of surgery.wb.

ABSTRACT

Introduction: Cancer breast accounts for 33% of all female cancers and is responsible for 20% of the cancer related deaths in women (Schwartz's). Out of large number of diseases affecting breast, neoplastic disorders are most common. The accuracy of diagnosis of breast cancer on physical examination is only 70%, in most experienced hands. (jerrom De Consse 1981) Unless a tumour attends the size of 1 cm it remains impalpable.
Materials and methods: The study was carried out on patients attending OPD as well as admitted in surgical indoor of Darbhanga Medical College & Hospital Laheriasarai, Darbhanga, with the complains related to breast. They were subjected to triple assessment comprising of clinical examination, Radiological evaluation (mammography or USG) and Pathological evaluation (FANC or Trucut biopsy) in order to diagnose carcinoma of breast.
Results: Out of 28 cases of histopathologicaly proven carcinoma only 21 cases (75%) were correctly diagnosed on clinical examination. aspiration cytology was correct in 24 cases out of 28 cases of carcinoma having accuracy rate of 85.71%. Trucut biopsy was correct in 26, out of 28 cases of carcinoma, having accuracy rate of 92.86%. Diagnostic accuracy of clinical diagnosis in diagnosing carcinoma breast was 75%.
Conclusion: The diagnostic value of Triple assessment is far superior to physical examination and any other individual investigation, so triple assessment is considered gold standard for pre operative diagnosis of breast malignancy.

KEYWORDS

Triple assessment, Carcinoma Breast.

INTRODUCTION

Cancer breast accounts for 33% of all female cancers and is responsible for 20% of the cancer related deaths in women (Schwartz's). Out of large number of diseases affecting breast, neoplastic disorders are most common. (world health statistics report, Logon, 1985). The commonest clinical presentation in majority of breast lesion is a lump in the breast. Boyd (1954) concluded that every lump in the breast should be regarded as a possible carcinoma until and unless proved otherwise.

Only on clinical examination breast lump cannot be diagnosed accurately. Benign lesions can mimic cancer breast and cancer breast can present as a benign lesion. The zone in between the innocent and a malignant lump is very narrow. The accuracy of diagnosis of breast cancer on physical examination is only 70%, in most experienced hands. (jerrom De Consse 1981) Unless a tumour attends the size of 1 cm it remains impalpable. It takes about 3 years to attend this size from the single cell stage. (Wilson 1981).

To come to a definite diagnosis clinical judgment requires the need of specialized investigation of all the breast lesions. These are as follows :

1. Mammograms
2. Ultrasonography
3. Fine needle aspiration cytology (FNAC)
4. Trucut biopsy

"Mammograms have been found to be valuable and accurate means of detecting breast cancer, particularly in early non palpable stage when treatment will improve cure rate." (Smart 1989).

Ultrasound is the most important non invasive method of investigation where beams of high speed ultrasound waves are directed through breast and its reflection is received by the transmitter and important information is obtained. It is particularly useful in younger patients where the breast is much dense.

Biopsy is the most trusted and widely used method for establishing the nature of the lump. Virchow (18th centruy) first advocated biopsy as a diagnostic aid. The different diagnostic methods currently used are :

1. Fine needle aspiration cytology (FNAC)
2. Trucut biopsy

FNAC was first introduced by Martin and Ellis in 1930. In FNAC 20G needle is passed into the breast lump in different direction keeping the negative pressure and the cellular material and tissue fluid obtained is smeared and examined under microscope. Various workers have obtained diagnostic accuracy of FNAC ranging from 80% - 97%.

Trucut biopsy is considered method of choice for the triple assessment of breast diseases as it can distinguish between benign and malignant tumours, between in situ and invasive cancers and also proved to be useful to assess estrogen receptor status.

In present study physical examination, radiological study such as USG and mammography, and histopathological study such as FNAC and Trucut biopsy has been done to calculate the diagnostic accuracy of Triple assessment in diagnosing carcinoma breast, among patients who presented with breast lump or any features suggestive of carcinoma breast.

MATERIAL AND METHODS:

The study was carried out on patients attending OPD as well as admitted in surgical indoor of Darbhanga Medical College & Hospital Laheriasarai, Darbhanga, with the complains related to breast.

They were subjected to triple assessment comprising of clinical examination, Radiological evaluation (mammography or USG) and Pathological evaluation (FANC or Trucut biopsy) in order to diagnose carcinoma of breast.

A detailed history was taken and salient features were noted such as Name, Age, Religion, Race, Date of admission, Registration Number, History of present illness, past history, Personal History (Married/ unmarried, Menstrual history, History of child birth, history of breast feeding, and Use of oral contraceptive pills). Family History, and Socio-economic history. Complains with duration were noted like lump, pain, discharge from nipple, nipple retraction, ulceration and any other complains.

General Examination of built, Pallor, jaundice, Cyanosis, edema, any lymph node enlargement particularly axillary and supraclavicular were looked for. Local examination of the body above waist was stripped naked and both breasts were exposed completely. The patient was examined in proper light.

Keeping the arms by the side of the body, with the arms raised straight above the head, with the arms on the hips, pressing or relieving as needed, and with the patient bending forward from the waist.

During inspection following points were noted :- Position of the nipple and its level compared with that of the contralateral side, size and shape whether prominent, flattened, retracted or eroded, surface-For any crack or fissure, and discharge-If any was noted. Areola was looked for any crack, fissure, ulcers or dimpling. Skin over the breast was inspected for any redness, dimpling, retraction, puckering, ulceration, fungating mass and peau d' orange. Breast position, size, shape, any puckering or dimpling lump or ulceration was inspected for. Arm was inspected for any edema. Axilla inspected for any lymph node enlargement. The opposite breast was also inspected.

The normal breast was palpated first. Local temperature and tenderness was looked for. Lump site, size, shape, surface, margin, consistency, or ulceration were noted. Fixity of the lump to skin, pectoral muscles or chest wall was noted. Lymph nodes Axillary lymph nodes were palpated and there consistency and mobility were noted also supraclavicular lymph nodes were also examined.

Systemic examination: The chest wall was examined and relation to the lump was noted. Any evidence of pleural effusion or consolidation due to metastasis was looked for. The liver was palpated for features of metastasis, presence or absence of ascites was noted. Examination of spine for tenderness or deformity due to metastasis was noted. Per vaginal and per rectal examination were done and any findings were noted. General Examination was done for any secondary metastasis.

USG – For ultrasound of the suspicious breast lesion ultrasound equipment with a linear-array broad band transducer with a center frequency of 10 MHz was used and supplemented with a linear-array transducer with a center frequency of 7.5 MHz as needed to penetrate larger breast, was used.

Mammography – All the patients with any breast lesion were subjected to mammographic examination of the both breast. Even if any breast lesion was known to malignant by clinical examination, the contralateral breast was subjected to mammographic examination because of the multicentric nature of lobular carcinoma of breast. Fine needle aspiration cytology was done after clinical examination and radiological evaluation each patient was subjected to fine needle aspiration of the breast lump.

After proper fixation and staining the slides were examined under light microscope for cytological diagnosis. At first the smears were examined to determine whether they belonged to Benign or Malignant breast lesions on the basis of cellular details.

On the basis of above cellular details, majority of smears were diagnosed as benign or malignant but in few instances no diagnosis could be made due to inadequacy or absence of cells, while in others the diagnosis of malignancy was not certain.

Trucut Biopsy – Trucut biopsy needle of 14G was used for this procedure.

Finally all the patients were subjected to appropriate surgical intervention and the specimen obtained was send for histopathological examination for definitive diagnosis. Its result was compared with the combined results of clinical examination, radiological examination and pathological examination so called triple assessment.

RESULTS AND OBSERVATION:

The observation of this series is based on clinical examination, Radiological diagnosis and cytopathological study of 50 cases, having any symptom related to breast, who were admitted in the department of surgery, Darbhanga Medical College & Hospital, Laheriasarai. The main symptom related to breast was lump, which was of diverse aetiological nature and patients were of different age group and belonged to both sexes. In our study 44% of total cases were benign and rests were malignant having 56%. maximum number of cancer breast occurs in the age group of 51-60 years which is 35.71%. 89.28% of cancer breast occurs in the age group of 31-60 years. The youngest age of carcinoma breast was 30 years. The left breast is more commonly involved (54%) than the right breast (44%). Bilateral involvement of breast is very rare i.e. (02%). The upper outer quadrant was the commonest site of origin (58.33%) of lump breast. Next followed by upper inner (20.83%), lower outer (10.42%) and then lower inner (6.25%). In the central part of breast below the nipple and areola only 4.17% was present. In 2 cases (4%) there was diffuse lump, so site of origin could not be determined. The majority of the patient ignored the presence of breast lump for a long period of time and reported after the period of 12 months (76%). Among the patients reported after the period of 12 months the majorities were of carcinoma. Only 12 cases (24%) reported early within the period of 6 months.

The painless lump was the usual presentation 89.58%. Out of which 70.83% were mobile but 29.17% were fixed. 2 cases (4%) were soft, 33 cases (66%) were firm, 13 cases (26%) were hard and 2 cases (4%) were of variegated consistency. Ulcer was present in 6 cases (12%). Peaud' orange was present in 7 cases (14%). Nipple discharge was present in 3 cases (6%) which was of either black or red in colour. In 10 cases (20%) there was retraction of nipple. Only axillary lymphadenopathy was present in 12 cases (24%) and only supraclavicular lymphadenopathy was present in 1 case (2%). While in 5 cases (10%) there was axillary as well as supraclavicular lymphadenopathy. Out of 50 cases 21 cases (42%) were diagnosed as carcinoma on clinical examination. Among the benign lesions 17 cases (34%) were Fibroadenoma, 5 cases (10%) were Fibroadenosis, 2 cases (4%) were Gynaecomastia No. of cases of sebaceous cyst and Haematoma each was 1 (2%). While in 3 cases (6%) no definite clinical diagnosis could be made.

Out of 50 cases of breast lump underwent USG examination 24 cases (48%) were diagnosed as benign. Out of which 2 cases (4%) of Gynaecomastia had normal USG finding. 1 cases (2%) of Haematoma was found cystic and 21 cases (42%) had solid benign lesion. Malignant lesions were found in 23 cases (46%), but in 3 cases (6%) no definite diagnosis could be made. They were put under intermediate category.

Out of 50 cases of breast lump on mammographic examination, 25 cases (50%) were diagnosed to be benign and 22 cases (44%) were diagnosed to be malignant. In 3 cases (6%) no definite diagnosis could be made. Out of these 3 cases 2 were malignant and 1 was benign.

In this series smears from 20 cases (40%) were reported as benign while smears from 24 cases (48%) were diagnosed as malignant. 4 smears (8%) were suspicious for malignancy, while 2 smears (4%) were unsatisfactory. Suspicious smears were having some of the character of malignant as well as of benign cells. Unsatisfactory smears were due to scanty aspirate, in which cellular details could not be made.

Out of 20 benign breast lump, 9 cases (18%) were Fibroadenoma, 5 cases (10%) were Fibroadenosis, 2 cases (4%) were of Gynaecomastia. Whereas no. of mastitis, Haematoma, reactive hyperplasia and Sebacious cyst were each 1 (2%).

On histopathological diagnosis of breast lump by Tru cut biopsy needle 26 cases (52%) were malignant. 13 cases (26%) were Fibroadenoma, 4 cases (8%) were fibroadenosis, 2 cases (4%) were Gynaecomastia, Mastitis, and Sebacious cyst were diagnosed in 1 case (2%) each. In 2 cases (4%) no definite diagnosis could be made, which were put in suspicious category. On paraffin section 2 suspicious cases (4%) were found to be malignant. So total no. of carcinoma increased to 28 (56%). In Haematoma paraffin section study was not done.

Table – 1 Table Showing Comparison Between Clinical Diagnosis And Final Histopatholoical Diagnosis And Its Accuracy.

Diseases	Clin. diagnosis no. of cases	Histopath. diagnosis no. of cases	Accuracy percentage
Carcinoma	21	28	75.00
Fibroadenoma	17	13	76.47
Fibroadenosis	05	04	80.00
Gynaecomastia	02	02	100.00
Sebaceous Cyst	01	01	100.00
Haematoma	01	01	100.00
Inconclusive	03	00	--

The above table shows that out of 28 cases of histopathologicaly proven carcinoma only 21 cases (75%) were correctly diagnosed on clinical examination. Out of 17 cases of Fibroadenoma, 13 cases (76.47%) were correctly diagnosed where as 4 cases (23.53%) were turned out to be malignant. Out of 5 cases of Fibroadenosis, 4 cases (80%) were correctly diagnosed, where as one case of Fibroadenosis was turned out to be malignant. Gynaecomastia, Sebacious cyst and

Haematoma were correctly diagnosed having accuracy rate of 100%. Out of 3 cases of inconclusive 2 cases (66.66%) were diagnosed as carcinoma whereas one cases (33.33%) was found to be a case of mastitis.

Table -2 Table Showing Diagnostic Accuracy Of Fnac On Diagnosing Breast Lump

Types of lesion	No. of cases	Histopath. Diagnosis	Accuracy Percentage
Carcinoma	24	28	85.71
Fibroadenoma	09	13	69.23
Fibroadenosis	05	04	80.00
Gynaecomastia	02	02	100.00
Sebaceous Cyst	01	01	100.00
Mastitis	01	01	100.00
Haematoma	01	01	100.00
Reactive hyperplasia	01	Fibroadenoma	00
Suspicious	04	Ca. –02, Fibroadenoma-02	--
Unsatisfactory	02	Ca. –01, Fibroadenoma-01	--

The above table shows that in the present series aspiration cytology was correct in 24 cases out of 28 cases of carcinoma having accuracy rate of 85.71%. In benign lesions Gynaecomastia, Sebacious cyst, mastitis and Haematoma were diagnosed with 100% accuracy rate.

Aspiration cytology was correct in 9 out of 13 cases of Fibroadenoma having 69.23% of accuracy rate, while Fibroadenosis was diagnosed with accuracy rate of 80%. One case of carcinoma was wrongly diagnosed as Fibroadenosis.

One case of reactive hyperplasia was turned out to be fibroadenoma. Out of 4 suspicious cases, 2 cases turned to be Fibroadenoma and 2 cases were diagnosed as carcinoma. Out of 2 unsatisfactory aspirates 1 was found to be Fibroadenoma and 1 was found to be malignant.

Table no. 3 Table showing diagnostic accuracy of Tru cut biopsy

Breast lump	No. of cases on Trucut biopsy	Histopathological diagnosis	Accuracy percentage
Carcinoma	26	28	92.86
Fibroadenoma	13	13	100.00
Fibroadenosis	04	04	100.00
Gynaecomastia	02	02	100.00
Mastitis	01	01	100.00
Sebaceous cyst	01	01	100.00
Suspicious	02	--	--

The above table shows that in the present series Trucut biopsy was correct in 26, out of 28 cases of carcinoma, having accuracy rate of 92.86%. In benign lesions Fibroadenoma, Fibroadenosis, Gynaecomastia, mastitis and Sebaceous cyst were diagnosed correctly with the accuracy rate of 100%. Out of 2 suspicious cases both were turned out to be malignant. Trucut biopsy was not done in the case of Haematoma. The diagnostic accuracy of Trucut biopsy was found to be 98.81% for detecting carcinoma breast.

Table no 4 Table Showing diagnostic accuracy of different methods in diagnosing carcinoma breast.

Methods of diagnosis	Out of 28 cases of Histopathologicaly diagnosed Ca., no. of cases of Ca.	Accuracy %
Clinical	21	75.00
USG	23	82.14
Mammography	22	78.57
FNAC	24	85.71
Tru cut biopsy	26	92.86
TRIPLE ASSESSMENT	27	96.43

The above table shows that the diagnostic accuracy of clinical diagnosis in diagnosing carcinoma breast was 75%. Diagnostic accuracy of USG was 82.14% and of mammography was 78.57%. But USG was more sensitive for dense breasts of young patients, whereas mammography was more sensitive for breasts of older patients. Among pathological diagnosis Trucut biopsy was more sensitive than FNAC, having diagnostic accuracy of 92.86% as compared to FNAC whose diagnostic accuracy was 85.71%. When clinical examination, radiological diagnosis (USG + mammography) and pathological diagnosis (FNAC + Trucut biopsy) were considered together so called Triple Assessment, the diagnostic accuracy increased to 96.43% for diagnosing carcinoma breast. Out of 50 cases of breast lump underwent USG examination 24 cases (48%) were diagnosed as benign. Out of which 2 cases (4%) of Gynaecomastia had normal USG finding. 1 cases (2%) of Haematoma was found cystic and 21 cases (42%) had solid benign lesion. Malignant lesions were found in 23 cases (46%), but in 3 cases (6%) no definite diagnosis could be made. They were put under intermediate category.

DISCUSSION:

In present study clinical examination, radiological imaging and pathological investigation was undertaken on 50 cases of breast lump or other symptoms suspicious of carcinoma to determine the diagnostic accuracy of Triple assessment. Out of 50 cases 48 cases (96%) presented with breast lump.

Out of 28 histologically proven malignancies the clinical diagnosis was correctly made in 21 cases (75%). Among the rest 7 proved cases of malignancy, 4 were clinically diagnosed as Fibroadenoma because of there firm consistency and free mobility. One case was wrongly diagnosed as Fibroadenosis because of presence of pain. In 3 cases no definite clinical diagnosis could be made. They were grouped under inconclusive category. Out of these three cases, 2 were finally diagnosed as malignant whereas one case was turned out to be mastitis. Out of 17 cases of Fibroadenoma 4 cases were wrongly diagnosed. They were found to be malignant on histopathological diagnosis. Out of 5 cases of Fibroadenosis, 4 were correctly diagnosed but 1 case was turned to be malignant. Gynaecomastia, Sebacious cyst, and Haematoma were correctly diagnosed on clinical examination. The overall diagnostic accuracy of clinical examination was found to be 88.58%, whereas it was 75% for malignant disease.

In a series of 613 cases Gupta et al (1975) carried out clinical diagnosis of the breast symptom. Physical diagnosis was correct in 76.3% cases of malignant lesion. Where as 88.8% of benign lesions were diagnosed correctly on clinical examination. The overall accuracy in this series was 85.8%. Furnival et al (1975) had also found 85% diagnostic accuracy of clinical examination in diagnosing breast lesions. The same percentage accuracy also found by Shabot (1982) for diagnosis of breast lumps by physical examination.

In all the 50 cases ultrasonographic examination was done. 23 cases (46%) were found to be malignant. There was no any case of false positive. Out of 21 cases of solid benign 3 cases were finally diagnosed as malignant. So diagnostic accuracy of USG for benign lesion was found to be less,. than the malignant lesion. Out of 3 cases of intermediate 2 cases were finally diagnosed as malignant whereas 1 case was histopathologicaly diagnosed as benign. All the 3 cases of malignancy having age 30 years were correctly diagnosed as malignant by USG, but only 1 case out of 3 was diagnosed by mammography. So diagnostic accuracy of USG for diagnosing carcinoma breast in young patient i.e. in dense breast was found to be more sensitive than that of mammography. The sensitivity of USG for diagnosing malignancy was found to be 82.14%.

According to Ghazala Malik et al (2002-2005) sensitivity of USG for benign breast lump was 92% and for malignant lesion it was 67%, but specificity was high for malignant lesion, 92.4%. Tejas S. Mehta et al (2003) concluded that USG is 96-100% accurate in diagnosing cyst. Hemant slinghel et al (2006) found that USG is 68-97% sensitive in diagnosing palpable breast lump and its specificity was found to be 74-94% for palpable breast lump. According to W. Steven Masslink National Breast screening programme overall sensitivity of mammography was found to be 75% and specificity 93%. Oestericher et al (1988-1991) found the sensitivity of mammography in diagnosing carcinoma was 83.6%. Hemant singhel et al (2006) concluded that mammography is 63-95% sensitive in diagnosing carcinoma breast.

In present series of study sensitivity of mammography was found 78.57% for diagnosing carcinoma breast, which was in accordance with the most of the worker. An attempt was made to reach a cytological diagnosis by FNAC in all the 50 cases of this series. 24 cases of malignancy were found. Out of 20 benign cases 1 case of Fibroadenosis was finally diagnosed as malignant. Out of 4 suspicious cases 2 cases were benign and 2 cases were malignant. Out of 2

unsatisfactory cases 1 was found malignant and 1 was diagnosed as benign. The sensitivity of FNAC in diagnosing carcinoma breast was found to be 85.71%. Two unsatisfactory results were due to scanty smear and 4 suspicious results were due to features of benign and malignant cellular detail in the same smear. It is just possible that these cases too could have been correctly diagnosed, if the aspiration would have been repeated.

Blamey R W et al (2000) reported 95% accuracy of FNAC in diagnosing carcinoma breast. A Z Mohammed (2001-2002) found that out of 32 histopathologicaly confirmed carcinoma breast 27 were correctly diagnosed as malignant, 2 were suspicious and 3 were benign. He reported diagnostic accuracy of FNAC in diagnosing carcinoma breast to be 90.6% and specificity of 100%. Agarwal et al (2002) found 51.3% of absolute sensitivity and 90.8% of complete sensitivity of FNAC for confirming cancer breast.

In present series of study all the cases of breast lump were subjected to Trucut biopsy. 26 cases of carcinoma were correctly diagnosed. There was no any case of false positive. So the diagnostic accuracy of Trucut biopsy was found to be 92.86%. It was the highest among different diagnostic method. Its specificity was found 100%. All the benign lesions were correctly diagnosed on trucut biopsy. Out of 2 suspicious cases they were subsequently diagnosed as malignant. The overall diagnostic accuracy of Trucut biopsy was found 98.81%. The two suspicious results were due to difficulty in positioning the needle in the lesion or due to difficulty in fixing the deep seated or small lesions.

T Agarwal et al (2002) reported 98.7% sensitivity rate of free hand core biopsy in diagnosing carcinoma breast and insufficiency rate was 0%. Shah VI et al (2003) found that the false negative result occurs to a lesser degree with image guided core biopsy. Hemant Singhel et al (2006) found Trucut biopsy to be 68-84% sensitive and 100% specific for diagnosing carcinoma breast. In present series of study sensitivity of Trucut biopsy in diagnosing carcinoma breast was found 92.86% and 100% specific. This result is similar to the findings of earlier worker.

In present series it was found that out of 28 cases of carcinoma breast, 27 cases were correctly diagnosed as carcinoma. In present series of Triple assessment there were 27 cases of true positive, 22 cases of true negative and 1 case of false negative. So sensitivity of Triple assessment in diagnosing carcinoma breast was found 96.43%, which is highest as compared to individual diagnostic method. So Triple assessment is considered the established diagnostic technique in diagnosing carcinoma breast. According to cancer link UK Triple assessment gives confident diagnosis in 95% of cases. Bailey and Love (2008) states that by Triple assessment confident diagnosis can be made in 99% of cases of cancer breast.

CONCLUSION:

Physical examination of the breast is not a reliable diagnostic criterion for deciding the definite treatment. No individual investigation has an accuracy rate more than 95% in diagnosing cancer breast. The diagnostic value of Triple assessment is far superior to physical examination and any other individual investigation, so triple assessment is considered gold standard for pre operative diagnosis of breast malignancy.