



General Surgery

A STUDY ON MODIFIED TRIPLE ASSESSMENT (CLINICAL BREAST EXAMINATION, ULTRASONOGRAPHY, AND FINE-NEEDLE ASPIRATION CYTOLOGY) IN THE DIAGNOSIS OF PALPABLE BREAST LUMPS

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ABSTRACT Aims & Objectives:

1. To know the accuracy of the modified triple assessment in the diagnosis of palpable breast lumps
 2. To find out the performance characteristics of CBE, ultrasonography (USG), and FNAC in isolation and when combined.
Materials and Methods: This was a prospective study involving 50 female patients with palpable breast lumps attending the Surgical Out Patient Department of the Government General Hospital, Kurnool, between JULY 2021 to JUNE 2022, who underwent clinical breast examination (CBE), ultrasonography (USG), and fine-needle aspiration cytology (FNAC). All the cases irrespective of results underwent either excisional and or incisional biopsy for confirmation. The final histopathological report was considered the reference standard.
Results: A total of 50 patients were included. The age range was 18-60 years. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of CBE were 96.77%,93.75%,96.77%,93.75% and 97% respectively; those of USG 96%,91.66%,96.66%,84.61% and 96.5% respectively; and those of FNAC 100%, 93.75%, 97.14%, 100%, and 99%. Out of 50 patients, the three tests concurred in 43 (30 benign and 13 malignant) cases. When all the three tests concurred, there were no false positive or false negative cases, and sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were all 100%. **Conclusion:** The triple assessment is valid and reliable, with a high degree of accuracy for the diagnosis of breast lumps about 99.9%. Of all the three components of the triple test, FNAC is the most accurate. A patient with a concordant benign triple assessment report can be safely followed up without the need for biopsy.

KEYWORDS :

INTRODUCTION

The commonest mode of presentation of diseases of the breast is "lump."⁽¹⁾

The primary aim is to confirm or exclude cancer.

The aim of this study were to study the accuracy of triple assessment in the preoperative diagnosis of breast cancer and to find out the performance characteristics of CBE, ultrasonography (USG), and FNAC in isolation and when combined, keeping histopathological examination (HPE) as the reference standard.

METHODS & MATERIALS

A total of 50 patients of clinically palpable breast lump and age more than 18 years, attending the Surgical Out Patient Department of Government General Hospital, Kurnool, from January 2022 to July 2022, were included in the study. Patients with a diagnosed case of breast cancer, those with inflammatory conditions of breast, and those with a previous history of operation on the same side of breast were excluded.

CBE

Each case was first subjected to CBE, including a systemic search for lymphadenopathy in the axilla and supraclavicular fossa on both sides in the OPD.

USG

USG evaluation of breast was done using 7.5-10 MHz probe (SIEMENS, Sonoline Versa Plus, Department of Radio-Diagnosis, Department of Radiology, GGH, Kurnool.) Scanning of breast was done systemically by obtaining vertical and horizontal scans¹.

FNAC

Aspiration was done using a 21-22 gauge needle attached to a 20 mL syringe. Slides prepared and sent to the pathology department for cytological examination.

HPE

All the cases irrespective of results underwent either excisional and or incisional biopsy. The final HPE report was considered as the reference

standard and reports were then grouped into "benign" and "malignant" for analysis.

Statistical analysis

Data were entered in a pro forma. Variables were cross-tabulated against the HPE report, the reference standard. Sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were determined for each modality separately and when combined.

RESULTS

A total of 50 female patients were included for study.

The age range was 18-60 years and the mean age was 38 years. The mean age of patients with breast cancer was 37 years. Of 50 patients, 12 (24%) were nulliparous and the remaining 38 (76%) were multiparous.

On CBE, the lumps in 31 (62%) patients had benign and 16 (32%) had malignant features. However, 3 (6%) patients were found to be in the "suspicious" category. Of the 31 benign findings on CBE, 30 were benign and 1 had malignant reports confirmed on HPE. Of the 16 malignant findings on CBE, 15 were confirmed to be malignant & 1 was found to be benign on the final HPE reports.

3 suspicious cases on CBE one was found to have malignancy and one was chronic non specific mastitis and one was duct ectasia on HPE.

CBE when compared with histopathology had the sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of 96.77%,93.75%,96.77%,93.75% and 97% respectively.

On USG examination, out of 50 patients, 30 (60%) had benign findings, 13 (26%) had malignant findings, and 7 (14%) had intermediate study results, which included birads4(5), breast abscess(2). Of the 30 benign, 29 were confirmed to be benign and one was found to be invasive ductal carcinoma on HPE. Out of 13 cases of malignant findings on USG 11 were confirmed to be malignant on HPE, 2 were found to be benign. However, 7 cases of intermediate study result on USG was found to be Malignant (4 cases), benign(3 cases) on HPE, and this case was excluded from the final calculation.

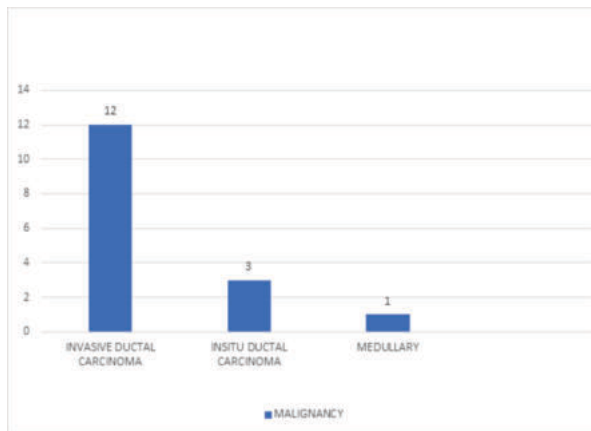
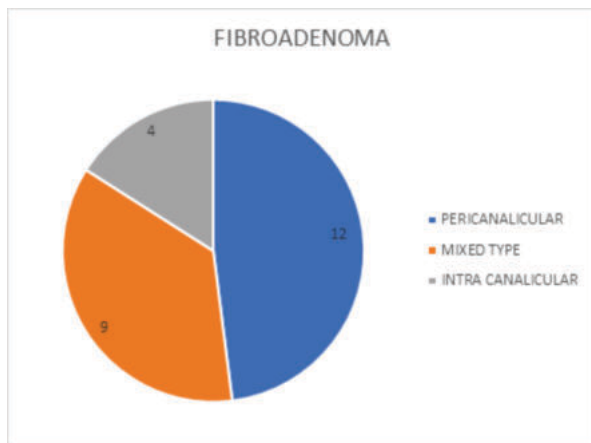
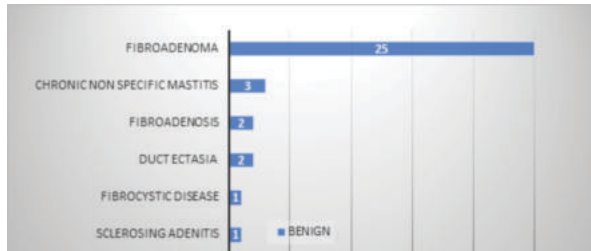
USG when compared with HPE had the sensitivity, specificity, positive

predictive value, negative predictive value, and accuracy of 96%,91.66%,96.66%,84.61% and 96.5%, respectively.

Out of 50 patients examined by FNAC, 35 (70%) had benign and 15 (30%) had malignant findings. However, One patient was found to be in the BENIGN category on FNAC which was confirmed to be MALIGNANT on HPE. Of the 16 malignant findings on FNAC, all were confirmed to be malignant on the final HPE.

FNAC when compared with histopathology had the sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of 100%, 93.75%, 97.14%, 100%, and 99% respectively.

On HPE, out of 50 breast lumps, 34 were benign, 16 were malignant.



Degree of concurrence of triple assessment.

When the combined results of CBE, FNAC, and USG were analysed together, concurrence was observed in 30(60%) benign and 13 (26%) malignant cases. Therefore, out of 50 patients, the three tests concurred in 43 (84%) patients. The triple test had 100% sensitivity, specificity, positive predictive value, negative predictive value, and accuracy.

DISCUSSION

Breast cancer is the most common cancer in women worldwide. The employment of multimodality tests preoperatively for diagnosis helps in differentiating benign from malignant lesions. The primary goal of the triple test is to avoid open biopsy in case of a benign breast lump. The present study tries to evaluate the accuracy of multimodality tests, that is, CBE, USG, and FNAC together, keeping HPE of breast lump as the reference standard.

On CBE, the lumps in 31 (62%) patients had benign and 16 (32%) had malignant features. However, 3 (6%) patients were found to be in the "suspicious" category. Of the 31 benign findings on CBE, 30 were benign and 1 had malignant reports confirmed on HPE. Of the 16 malignant findings on CBE, 15 were confirmed to be malignant & 1 was found to be benign on the final HPE reports

On physical examination, of 50 patients, in 31 (62%) the lump was benign, in 16 (32%) the lump was malignant, and 3 (6%) patients were placed in the "suspicious" category, out of them one is confirmed malignancy other 2 cases turned out to be benign by HPE. The sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of the CBE were 96.77%,93.75%,96.77%,93.75% and 97% respectively.

In our study, USG favored malignant diagnosis in 13 patients, all of which 11 cases turned out to be malignant on histopathology, 2 were benign. Out of 30 benign cases, 1 turned out to be malignant on histopathology. Thus, USG when compared with histopathology had the sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of 96%,91.66%,96.66%,84.61% and 96.5%, respectively. Pande et al. had found that sensitivity, specificity, positive predictive value, and negative predictive value were 95%, 94.1%, 95.5%, and 93.7%, respectively.^[5]

A specificity of 91.66% and a positive predictive value of 96.66% means that a USG report cannot be relied upon for treatment decisions when a malignant result is reported

On FNAC examination, out of 39 benign diagnoses, 35 were confirmed benign and one malignant on HPE. All the 15 malignant cases were confirmed on HPE. FNAC when compared with histopathology had the sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of 100%, 93.75%, 97.14%, 100%, and 99% respectively. Khemka et al. found that FNAC had the sensitivity, specificity, positive predictive value, and negative predictive value of 96%, 100%, 100%, and 95.12%, respectively.^[2]

When triple assessment was compared with the results of histopathology, we found that the three tests concurred in 30 benign and 13 malignant cases, i.e., 43 (86%) patients. Sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were all 100%. Ghafouri et al. found that when suspicious results were excluded, the diagnostic accuracy of the modified triple test was 100%.^[8] Similar findings were noted by Vaithianathan et al. in their study.^[9]

In another study by Jan et al., the sensitivity and specificity of triple assessment was 100% and 99.3%, respectively. [6]

CONCLUSION

The modified triple test is valid and reliable, with a high degree of accuracy for the diagnosis of breast lumps. Of all the three, FNAC is the most accurate. A patient with a concordant benign triple test report can be safely followed up without the need for biopsy. The aim of the modified triple test is to allow the clinician to avoid unnecessary open biopsy and to proceed to definitive therapy if a malignant breast lump is present.

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