

Study of Accuracy of Triple Assessment as A Clinical Tool for the Diagnosis of A Palpable Breast Lump

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Received: 27-04-2023 / Revised: 30-05-2023 / Accepted: 17-06-2023

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Conflict of interest: Nil

Abstract:

Background: The prevalence of breast-related diseases is highest in both this country and the rest of the world. Breasts may be affected by a variety of lesions, including inflammation and cancer. Some lesions are more prevalent in young females than older women. In cases of non-neoplastic illnesses, early presentation and rapid diagnosis are crucial to reducing worry; in cases of carcinoma, they can prevent metastasis. In this study, the effectiveness of the Triple Assessment as a clinical tool for the identification of a palpable breast lump (physical examination, mammography, and fine needle aspiration cytology) was assessed.

Methods: This prospective study was conducted in January 2022 to December 2022 in indoor and outdoor patients at the Upgraded Department of Surgery, DMCH, Laheriasarai, Bihar. Each patient was thoroughly examined, including the pertinent clinical history, physical exam, mammogram, histological results, and management. The study included a total of 50 breast cancer patients who had undergone various treatments.

Results: An inflammatory condition was found in 20.0% of the study's total 10 cases, fibrocystic lesion in 36%, fibroadenoma in 24%, gynecomastia in 2%, and cancer in 12%. In 50 women ranging in age from 18 to 60, this comparative study revealed data from clinical evaluations, mammography, and histological findings. 10% of cases of malignant carcinoma are discovered, compared to 90% of cases of benign breast disease and other conditions.

Conclusion: The most prevalent lesion in this study was fibrocystic disease, with an average age of presentation of 30 years. Malignancy was discovered in people older than 47. In contrast to 10 malignant lumps, 90 patients with breast lumps diagnosed as benign by Triple Assessment correlated with the histological findings. As a result, Triple Assessment's overall accuracy in our study is 100%.

Keywords: Fibro Adenoma; Fibrocystic Disease; Gynecomastia; Breast Cancer; Triple Assessment.

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Introduction

When all cancer kinds are taken into account, one in four women will develop breast cancer. It is the most typical cause of cancer death in women and the most typical

cancer to be diagnosed globally. The age-standard incidence rate of breast cancer in India ranges from 9 to 32 per one lakh women.[1] Clinicians from various

disciplines must work together when there is a suspicion of a malignant tumour. Breast surgeons, pathologists, and accurate breast imaging all work together to identify breast cancer effectively and rapidly while minimising the need for unneeded tissue biopsies. The triple assessment test, which combines clinical examination, radiological imaging (mammography, ultrasonography), and pathology, is currently used to diagnose all breast masses. It is straightforward, less upsetting, and economical. Diagnostic accuracy can even reach 100% when all three tests are carried out correctly and yield results that agree. It is preferable to image the breast first, as alterations brought on by tissue sampling may confound, alter, or obfuscate the imaging data. Breast cystic and solid masses can be distinguished using ultrasonography. When it comes to capturing images of the dense breasts, ultrasonography is thought to be superior to mammography.[2]

Since its initial review, the triple assessment has become a commonly used procedure in the industrialised world. When not used in conjunction with other diagnostic modalities, the clinical diagnosis of breast cancer has a significant diagnostic error rate. As the name suggests, a triple assessment consists of a physical examination, imaging (mammography or ultrasound), and biopsy (FNAC and core biopsy). When these various investigative techniques are utilised alone, the results are less dependable, but when they are combined, accuracy and the likelihood of a correct diagnosis increase. A fantastic example of a multistep or multidisciplinary strategy is the triple assessment cumulative approach, which includes surgeons/physicians as the first point of contact, clinical pathologists, radiologists, and sonographers as the core team. To get at the most likely diagnosis in a situation like this, where all three investigations are available under one roof, inter-professional

collaboration must be encouraged and practised.[3]

The triple test score (TTS) was created to assist doctors in interpreting ambiguous or inconclusive triple test results. Each element of the triple test is graded on a three-point scale (1 = benign, 2 = suspicious, 3 = cancer). A TTS of 3 or 4 indicates a benign lesion, while a TTS of 6 or greater increases the likelihood that the lesion is cancerous and may need to be surgically removed. Patients having a TTS of 5 are encouraged to undergo tissue diagnostics in order to make a final diagnosis. Excisional biopsy is necessary for a correct diagnosis in cases where the results are inconsistent or cannot be analysed.[4] Triple assessment is now considered the gold standard method for treating any patient with breast mass. A timely examination of the breast with the lump by a surgeon or doctor can stop further delays in making the diagnosis. Any type of breast condition or lesion is psychologically upsetting because the majority of patients are cancer-phobic and because breast-related illnesses also change the woman's perception of her body, contributing to the psychological trauma.[5] Therefore, prompt inspection and counselling can lessen trauma, and triple assessment in the event of any worrisome lumps can result in prompt treatment. To avoid missing the most dreaded cause, breast cancer, a patient with a breast lump is required to have three assessments. Therefore, a proper response to any breast lump or other breast complaint that points to the likelihood of breast cancer is required. The pathology findings should be compared by the clinician to the patient's clinical and imaging findings. These tests often reveal no symptoms of cancer in the majority of women, but those who have a positive result for one or more tests should be encouraged to have additional research done. Usually, it is recommended to take complete responsibility of triple assessment.

Material and Methods

All of them had been diagnosed with various breast illnesses and were indoor and outdoor patients. Each patient was thoroughly examined with regard to their clinical history, examination, lab tests, and management. The study included 100 individuals who were all treated using different modalities. The patient was chosen based on four criteria: (1) complaints of breast pain; (2) breast swelling during examination; (3) mammography findings; and (4) post-operative findings. The chosen patients were then treated using a variety of techniques, including (a) basic analgesics (b) excision biopsies (c), and (d) modified radical mastectomy.

Mammography is a relatively safe test that can be performed more than once and is

used as a triple check. The accurate diagnosis test is FNAC, however a conformation biopsy is required. In our investigation, a biopsy is required for confirmation in cases with granulomatous inflammation and duct ectasia. FNAC is unable to distinguish between in situ and invasive carcinoma in cases of carcinoma.

Results: In clinical practise, age is a practical risk factor that is used frequently (Table 1). Breast cancer is uncommon in women under the age of 30 and extremely prevalent in those over the age of 60. The most frequent benign tumour that needs to be removed is a fibro adenoma. All study participants had better classification accuracy thanks to the use of previous mammograms and FNAC.

Table 1: Age group wise Prevalence of different Breast diseases

Age group	Diagnosis	No. of cases	Percentage
17-38	Fibroadenoma	12	24.0%
22-38	Fibrocystic disease	21	42.0%
40-60	Carcinoma	6	12.0%
25-35	Inflammatory condition	10	20.0%
20-40	Gynecomastia	2	2.0%

40 individuals were classified by mammography as having benign lesions (categories 1, 2, and 3), one patient was identified as having a worrisome abnormality (category 4), and four patients were classified as having malignant lesions (category 5) (Table 2). The majority of mammography cases fell into categories 1

and 2, which are suggestive of benign tumours and are verified by FNAC and excision biopsy.

Excision biopsy is used to treat all benign diseases, and histological analysis is used to confirm the results. Modified radical mastectomy was used to treat ten malignant tumours (Table 3).

Table 2: Mammography Findings of Breast Diseases

BIRADS Category	No. of cases	Percentage
1	6	12.0%
2	27	54.0%
3	2	4.0%
4	1	2.0%
5	4	8.0%

Table 3: Management of different breast diseases

Diagnosis	Treatment
Fibrocystic Disease	Conservative, symptomatic
Fibro Adenoma	Excision biopsy
Carcinoma	MRM
Gynecomastia	Excision
Inflammatory condition	Antibiotic, incision drainage, excision

Teenage women have a low incidence of primary breast cancer. However, our experience highlights the necessity of requiring the histological investigation of all breast tumours, including those in adolescents, and the requirement for the mandatory excision of all breast masses.

Discussion

Physical examinations in patients with breast illness help us decide whether to move forward with FNAC and mammography. The physical diagnosis of breast lumps has traditionally included fine-needle aspiration (FNA). However, invasive malignancy and carcinoma in situ cannot be differentiated by needle biopsy. There are several recommendations regarding mammographic results and subsequent management. The five forms of Breast Imaging Reporting and Data System (BIRADS) are listed : (i) Category-0: Incomplete assessment; need additional imaging evaluation; (ii) Category-1: Negative; routine mammogram in 1 year recommended; (iii) Category-2: Benign finding; routine mammogram in 1 year recommended; (iv) Category-3: Probably benign finding; short-term follow-up suggested; (v) Category-4: Suspicious abnormality; biopsy should be considered; (vi) Category-5: Highly suggestive of malignancy; appropriate action should be taken. Every year, screening mammography is advised for patients older than 60, who have atypical hyperplasia, in situ carcinoma, a positive personal history of breast and ovarian cancer, and patients with these risk factors.[1] Presently, radiologists can divide BIRADS 4 breast lesions into 3 subgroups: 4A (low suspicion for malignancy), 4B (intermediate

suspicion for malignancy), and 4C (moderate worry, although not necessarily indicative of malignancy).[6]

In Kumar R investigation of the clinicopathologic characteristics of breast lumps, inflammatory disorders (22.6%), fibrocystic change (41.2%), fibro adenoma (21.8%), other benign breast illness (4.5%), gynecomastia (2.5%), and cancer (7.4%) were found.[7] While in our study, which was very comparable, inflammatory disorders (20.0%), fibrocystic alteration (42.0%), fibro adenoma (24.0%), gynecomastia (2.0%), and cancer (12.0%) were all found. In a published study, fibrocystic change was the most prevalent lesion, with an average age of presentation of 33 years and the detection of malignancy occurring beyond the age of 40. In addition, the most frequent lesion in our study was fibrocystic disease, with an average age of presentation of 35 years and malignancy found after the age of 47. According to a study by Ghimire B, Khan MI, Bibhusal T et al., using the Triple Assessment method (physical examination, mammography, and fine needle aspiration cytology), patients were divided into benign, suspicious, and malignant groups.[8]

This was then linked to the histopathology results. The histological results of 31 breast lumps that were initially diagnosed as malignant turned out to be 30 malignant and one benign in 19 patients with breast lumps that were diagnosed as benign by triple examination. This results in an overall accuracy of triple assessment of 98% with 100% sensitivity, 95.2% specificity, and 96.7% positive predictive value. In our study, 40 patients received triple evaluation and histological findings were connected.

In our investigation, 10 malignant lumps turned out to be malignant, and 1 case was suspicious, which was later diagnosed by histopathologically as duct ectasia. In contrast, 40 patients were interpreted by triple evaluation as benign in accordance with the histological findings. With 100% sensitivity and 100% specificity in the published study and 100% in my study, the triple evaluation has an overall accuracy of 98%. In a published study, the mean age of diagnosis for benign and malignant diseases was 41.8 and 45.1 years, respectively,[9] whereas in my study, it was 40.5 and 55.6 years.

Conclusion

Although a thorough history and clinical examination are still the most effective ways to identify breast disease, there are a number of tests, including FNAC and mammography, that can help with diagnosis and follow-up of patients at high risk.

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