Modified Triple Assessment in the Diagnosis of Breast Lump

Ved Rajan Arya[1], Saurabh Kumar[2]

[1]MBBS (HONS.) MS (Surgery), Associate Professor, Department of Surgery, M.G.M. Medical College & L.S.K. Hospital Kishanganj (Bihar)

[2]Associate Professor, A1 New Dr Quarter, M.G.M. Medical College and LSK Hospital Kishanganj, Bihar

Abstract

Background: Women frequently complain about breast lumps to doctors. Since the majority of them are benign, a thorough examination, accurate diagnosis, and conclusive treatment are all required to exclude cancer. Clinical examination leads to the suggestion of a breast cancer diagnosis. To reliably diagnose all palpable breast masses, a combination of three procedures, including a clinical examination, radiological imaging (mammography, ultrasonography), and pathology, is now used. Together, they provide 100% sensitivity. If any one of the three components is positive or if there is a positive FNAC report, the triple assessment is deemed positive; it is only considered negative if all of its components are malignancy-negative.

Methods: For six months, a descriptive cross-sectional study was carried out in the Department of Surgery at the M.G.M. Medical College, Bihar, India. This study comprised 300 patients with breast lumps in total. The patients were screened using a thorough history, focused clinical examination, radiographic imaging, and FNAC as diagnostic techniques.

Results: The final histopathological examination was compared to the individual component results as a whole (M.T.T.). The physical examination's findings indicated a 92.67 percent sensitivity and 96.67 percent specificity for identifying malignant breast lesions. The results of the ultrasonography showed a sensitivity and specificity of 91.33 and 98.66 percent, respectively. 96.25 percent sensitivity and 99.57 percent specificity were also revealed by FNAC.

Conclusion: Therefore, the triple evaluation is a quick, painless, inexpensive, quick, and patient-acceptable diagnostic method for the diagnosis of breast lumps.

Keywords: Modified triple assessment, Clinical examination, Mammography, Ultrasonography, Fine-needle aspiration

Introduction

At a general surgical out-patients clinic, patients with breast issues make up a sizable portion of the patient population. Each year, a significant number of young women with palpable breast lumps are sent to general surgeons as a result of growing public and professional awareness. Breast issues can manifest in a variety of ways, including breast soreness, nipple discharge, cystic lesions, and—most frequently—a lump. Although the majority of them turn out to be benign, cancer cannot be ruled out

as a possibility. Therefore, for any form of breast lump, meticulous inspection, an accurate diagnosis, and a firm therapy are essential.

Prior to a few years ago, the consensus was that the preoperative physical examination alone was linked with too much uncertainty and that a breast tumour should be removed and histologically analysed to ascertain its nature with certainty. Eventually, with the development of mammography, a radiological tool that allowed surgeons to accurately diagnose breast conditions prior to surgery became accessible. However, the development of fine needle aspiration cytology (FNAC) completely altered how people saw the situation. When assessing breast lumps, the combination of physical examination, mammography, and FNAC became known as the "triple test" and is currently the gold standard in the work-up of the same.

The diagnosis of breast cancer is made using the Modified triple assessment in accordance with National Institute for Health and Clinical Excellence (NICE) recommendations for individuals who exhibit symptoms that may be related to the disease. The "Modified Triple Test" is a combination of a physical examination, sono mammography, and FNAC. The purpose of our study was to determine the sensitivity and specificity of modified triple evaluation in relation to histology, as well as its significance in the identification of breast lumps. In their study, Chandak NS et al. took 50 patients with ages ranging from 11 to 70, with a mean of 38.54 years. [1] In their study, Khoda L. et al. recruited 50 female patients with clinically palpable breast lump(s) who were visiting the surgical Outpatient department (OPD). The mean age was 32 years, while the age range was 18 to 56. [2]

Methods

After receiving the consent of the protocol review committee and institutional ethics committee, a descriptive cross-sectional study was carried out in the Department of Surgery at the M.G.M. Medical College, Bihar, India, for six months. The investigation was conducted in the Medical Hospital's professorial surgical unit. The final histology report for each of the 300 patients who had had surgery (lumpectomy, broad excision, or mastectomy), and was included in this study. The study excluded patients who did not have a final histology report. The final histological examination was compared to the results of the separate components.

Results and Discussion

Table 1: Age group with the clinical diagnosis and ultrasonographic findings

Age group	Clinical diagnosis		Total	Percentage of malignant lesion
	Benign	**Malignant**		
Below 20 yrs	25	_	25	0%
20-30 yrs	51	01	52	1.92%
30-40yrs	49	15	64	23.43%
40-50 yrs	43	48	91	52.74%
50-60 yrs	22	25	47	53.19%
Above 60 yrs	10	11	21	52.38%
Total	200	100	300	33.33%

Age group	Ultrasonographic findings		Total	Percentage of malignant lesion
	Benign	**Malignant**		
Below 20 yrs	25	_	25	0%
20-30 yrs	64	2	66	3.03%

30-40yrs	41	23	64	35.93%
40-50 yrs	46	34	80	42.5%
50-60 yrs	20	24	44	54.54%
Above 60 yrs	10	11	21	52.38%
Total	206	94	300	31.33%

Table 2: Benign lesions- Ultrasonographic findings, FNAC/CORE biopsy and histopathological confirmation

Lesion	Number of diagnoses	Percentage among all lesions	Percentage among overall lesions	FMAC/CORE biopsy	Histopathological confirmation
Fibro adenoma/Giant fibroadenoma	106	51.45%	35.33%	95	97
Fibrocystic disease	65	31.55%	21.67%	70	64
Inflammatory lesion	21	10.19%	7%	21	26
Cystic lesion	14	6.79 %	4.66%	16	10
Carcinoma	-	-	-	96	103

The most frequent kind of cancer in women and the main reason for cancer-related deaths globally is breast cancer. Mammography is a crucial part of the evaluation of breast cancer. It is used to describe the mass, ascertain its size, and assess the breast for concealed lesions. [3-5] Most studies have indicated that diagnostic mammography has a sensitivity of about 90% and a specificity of about 8%. [3,7] Between 8% and 10% of mammograms are known to result in false negative results. [6] Ultrasonography has replaced mammography in the modified triple test. In addition to mammography, breast ultrasonography has been demonstrated to be useful for breast inspection. [8,9] The sensitivity, specificity, and positive predictive value of ultrasound are 93,1 percent, 95,1 percent, and 93,1 percent, respectively. [10] Yang et al. (1996) revealed that the sensitivity, specificity, and positive predictive value for clinical examination were 88 percent, 92 percent, and 67 percent, respectively. [11] The most recent study showed improved clinical examination sensitivity and specificity. However, the outcomes are based on the surgeon conducting the examination's experience. A skilled eye will be able to diagnose breast cancer just from the clinical examination.

For the purpose of diagnosing palpable breast lumps in 50 patients, Bhavinder et al. conducted a prospective study to assess the diagnostic efficacy of clinical examination, ultrasonography, and FNAC separately and in combination. When compared to histology, the clinical assessment had a sensitivity of 99%, specificity of 100%, the positive predictive value of 100%, and negative predictive value of 80%. [12] In 28 individuals, sonomammography supported a malignant diagnosis, and all of these diagnoses were confirmed by histopathology. Out of 100 individuals, 13 cases (72 of which were benign on sonomammography) were later determined by histology to be malignant. As a result, the specificity was 100 percent, the positive predictive value was 100 percent, and the negative predictive value was 95.83 percent. The sensitivity was 90.32 percent. P value was noteworthy (0.000). [13,14]

Based on the histological findings, which classified 103 breast lesions as malignant lesions, the final diagnosis was made. One

of them was the only one to get negative findings for every MDT component (percent). It shows that MDT can be utilised in a clinical context to diagnose breast cancer.

Conclusion

The modified triple test has been shown in our investigations and other studies to be valid, trustworthy, and highly accurate for the diagnosis of breast lumps. The modified triple test's purpose is to move toward definitive therapy without doing an unnecessary invasive biopsy. In the modified triple test, high frequency, high-quality sonography has made substantial technical advancements. The modified triple test is a reliable tool for diagnosing and treating breast lumps.

References

1. Chandak NS, Dhande R. Evaluation of Breast Masses by Sonomammography and X-ray Mammography in Correlation with Histopathological Findings. Int J Recent Surg Med Sci. 2017;3(1):3-6.
2. Khoda L. Evaluation of modified triple test in the diagnosis of palpable breast lumps. Journal of Medical Society. 2015;29(1):27-30.
3. NCCN guideline version 3.2013 (ref no 143)
4. Adequacy of Axillary lymph node dissection in the management of breast cancer at Kenyatta national hospital Dr Gichere Raphael Nderitu, h 58/ 7516/2006 – university of Nairobi
5. Ahmed I, Nazir R, Chaudhary MY, Kundi S. Triple assessment of breast lump. J Coll Physicians Surg Pak. 2007;17(9):535-8.
6. The Edinburg randomized trial of axillary sampling or clearance after mastectomy sir A.P.M Forrest 2. D everington, CC Mc Donaldl R.J.C. Steele 2,u chelty2 and J swirl British Journal of surgery1995; 82(2):1504-1508.
7. How accurate is ultrasound in evaluating palpable breast masses, Radiology dept school of health sciences, Makerere university Afr. med. J. 2010 7.1 2010 SEPT 2
8. Yufeng Zhou, Ultrasound diagnoses of breast cancer J. Med. Imaging Health Inf. 2013;3(2).
9. biopsy with routine axillary dissection in breast cancer Umberto veronica MD, Giovanni spangle MD Gluseppe Viale FRC path the new England journal of medicine, 2005.
10. Gokhale S. Ultrasound characterization of breast masses. Indian Journal Radiology and Imaging 2009; 19:242-7
11. Yang WT, Mok CO, King W, Tang A, Metreweli C. Role of high-frequency ultrasonography in the evaluation of palpable breast masses in Chinese women: an alternative to a mammography? J Ultrasound Med. 1996;15(9):637–44.
12. Winchester DP, Sener S, Immerman S, Blum M: A systematic approach to the evaluation and management of breast masses. Cancer 15; 51(12 Suppl): 2535 -9, 1983.
13. Vetto JT, Petty JK, Dunn N, Prouser NC, Austin DF: Structured clinical breast examination (CBE) training results in an objective improvement in CBE skills. J Cancer Educ. 2002; 17 (3):124-7.
14. Balde A. K., A, T. J., MD, S., TM, B., A, M., K, B. A., & S, D. Hyperopia in young people: risk factors and prognosis at the CADES/O of the Donka National Hospital Guinea. Journal of Medical Research and Health Sciences, 2022;5(8):2135–2144.