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A Prospective Study of Incidence of Carcinoma Breast in Case of Breast Lump-Triple Assessment as a Tool

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Abstract: ***Breast cancer, a malignancy originating in breast tissue, arises from a complex interaction of genetic predisposition and environmental factors. Clinical presentation often includes a sudden increase in breast size, palpable lumps, alterations in breast shape, skin dimpling, nipple discharge, nipple retraction, or the appearance of a red, scaly skin patch. This study aims to determine the incidence of carcinoma breast among patients presenting with breast lumps and to evaluate the effectiveness of triple assessment in diagnosing breast malignancy.***

Keywords: AJCC- American Joint Committee on Cancer, AUC- Area under the curve, BIRADS- Breast Imaging Reporting and Data System**,** CNB-Core Needle Biopsy**,** DCIS- Ductal Carcinoma in Situ**,** ER- Estrogen Receptor**,** ICMR- Indian Council of Medical Research**,** IHC-Immunohistochemistry**,** SBI- Society of Breast Imaging

1. Introduction

India is undergoing rapid industrialisation and urbanisation, leading to significant societal modernisation. This transformation has shifted lifestyles and living practices, mirroring those of developed economies. As dietary habits and health patterns evolve, there has been a noticeable increase in the incidence of breast cancer. Risk factors for breast cancer include being female, obesity, lack of physical exercise, alcohol consumption, hormone replacement therapy during menopause, exposure to ionising radiation, early menstruation, late or no childbirth, and advancing age. Breast cancer typically starts in the inner lining of milk ducts or the lobules that supply milk to the ducts. Depending on where it starts, it is categorised as either ductal carcinoma or lobular carcinoma. Normally, human cells grow, divide, and replace old or damaged cells in a regulated manner. In cancer, this process goes awry: abnormal cells can evade programmed cell death and proliferate excessively, forming tumours [2].

Treatment plans are tailored based on various factors, including tumour size, stage, growth rate, and specific characteristics of the cancer. Worldwide, breast cancer is the most frequent cancer among women. At an anticipated 2.3 million new cases, or 11.7% of all cancer cases, it has already overtaken lung cancer as the primary cause of cancer incidence worldwide in 2020. According to epidemiological research, by 2030, the number of people affected by breast cancer worldwide is predicted to approach 2 million. Between 1965 and 1985, the incidence in India has increased by over fifty percent [3]. With 98.1% of the cases being female, the predicted number of incident cases in India in 2016 was 118000 (95% uncertainty zone, 107000 to 130000), with 526000 (474000 to 574000) being the most common cases. Every state in the US has seen a rise in the age-standardised incidence rate of breast cancer in females over the past 26 years, which is 39.1% (95% uncertainty interval, 5.1 to 85.5) higher from 1990 to 2016[4]. According to Globocan statistics for 2020, breast cancer had a cumulative risk of 2.81 and was responsible for 13.5% (178361) of all cancer cases and 10.6% (90408) of all deaths in India [5]. Compared to women in the West, current statistics indicate that a greater percentage of the disease is striking Indian women at a younger age. To track changes in the incidence of cancer, the National Cancer Registry Program analysed data from cancer registries for the years 1988 to 2013. Every population-based cancer registry indicates that the trend for breast cancer has significantly increased. In India in 1990, cervix was the most common location of cancer, followed by breast cancer in the registries of Delhi (21.6% vs. 20.3%), Bangalore (23.0% vs. 15.9%), Bhopal (23.2% vs. 21.4%), Chennai (28.9% vs. 17.7%), and Mumbai (24.1% vs. 16.0%).

2. Triple Assessment Includes-

1) Breast examination

Both breasts should be examined in different positions, with the arm abducted, extended, and externally rotated. During palpation, changes in the overlying skin, discharging of the nipples, edema, peaud'orange, and ulceration must be taken into account. ACOG recommends that women aged 25 to 39 have a screening breast examination every 1 to 3 years, and once in a year for women over 40. Nevertheless, a clinical breast exam is essential for women who are at high risk or exhibit symptoms.

2) Imaging

Imaging modalities such as mammography and ultrasound play a vital role in the early detection of breast cancer. The Breast Imaging Reporting and Data System (BI-RADS) was

established to address this challenge. It serves as a standardized method for classifying breast lesions identified on imaging. BI-RADS assigns a score based on specific imaging features (shape, size & margins) and the presence of microcalcifications. Each score category corresponds to a different level of suspicion for malignancy, ranging from 0 (incomplete information) to 6 (highly suggestive of malignancy).

BI-RADS has become a cornerstone of breast cancer diagnosis. It helps guide management decisions, including the need for further workup through a biopsy or other procedures. A high BI-RADS score typically prompts a biopsy to obtain tissue samples for a definitive diagnosis through histopathological examination.

Mammography is one of the most common and a highly recommended method for screening and diagnosing breast cancer. Abnormal mammography findings can consist of mass lesions, calcifications, or any architectural distortion. If such abnormalities are found on a screening mammogram, diagnostic mammography, which provides multiple angles or views, is often recommended [6]. Mammography may not be as impactful when it comes to diagnosing breast cancer in people who have more dense breast tissue and younger individuals.

3) Histopathology

Histopathological examination remains the gold standard for diagnosing breast cancer. Through a biopsy procedure, a tissue sample is extracted from the suspicious lesion. This sample is then processed and examined under a microscope by a pathologist, who identifies the presence and type of any abnormal cells. Based on the histological features, a definitive diagnosis of benign or malignant disease is established. The tissue taken from the breast needs to be forwarded for pathological testing, which includes tests for hormone and Herceptin receptors [7].

While both methods are indispensable, their roles and limitations differ. BI-RADS/MAMMOGRAPHY offers a non-invasive, objective assessment, facilitating risk stratification and guiding clinical decision-making regarding biopsies. However, its accuracy relies on the radiologist's interpretation of imaging findings. On the other hand, histopathology provides a definitive diagnosis but requires an invasive procedure and carries the risk of sampling errors.

3. Material and Methods

Study settings: The study will be conducted in Department of Surgery, Baba RaghavDas Medical College, Gorakhpur

Study duration: One year

Study design: Prospective study

Sample Size: The sample size are calculated on a previous study that reported that the overall diagnosis accuracy of FNAC will be 93.75% [25], 95% level of confidence and Error rate, usually set at 0.05 level is 4. Total 90 patients will be included in this study.

$n=Z2P(1-P)/d2$

In this study total 90 patients will be enrolled on the basis of inclusion and exclusion criteria. Inclusion Criteria: Patient presented to surgical outpatient department with complaints related to breast lump will be examined and admitted in department of surgery.

Exclusion criteria-

- Patients previously operated for breast surgery
- Recurrent cases
- Patients with skin disorders
- Patients not giving consent for examination and surgery.

A complete examination will be performed using standard techniques, taking into account the patient's medical history in general and in relation to the lump in the breast, as already mentioned. The abdomen and other parts of the body will be examined and the results recorded on the examination form. Each patient will be examined using the same method. The patients will be then referred to the radiology department for a mammogram. Mammography will be performed using conventional methods. Standard mediolateral and craniocaudal views will be used, and a radiologist reviewed the mammography plates and prepared a report. FNACs will be then obtained from all patients using the conventional method described below. After preparation and staining, the slides will be sent to the pathology department for analysis. Depending on the disease detected, patients then underwent either a modified radical mastectomy or an excisional biopsy. After reviewing each patient's histology report, the results of the clinical assessment, FNAC and mammography will be combined and compared with the results of the histopathology examination. All these conclusions will be recorded in the study protocol. The diagnostic assessments in this study will be categorized into four groups:

1) A single assessment consisting only of a clinical breast examination (CBE).
2) A double assessment that combines a clinical breast examination (CBE) with breast ultrasound (USG).
3) A double assessment that pairs a clinical breast examination (CBE) with fine needle aspiration cytology (FNAC).
4) A triple assessment that includes a clinical breast examination (CBE), breast ultrasound (USG), and fine needle aspiration cytology (FNAC).

Statistical Analysis-The mean and standard deviation (SD) will be used for continuous data, while categorical data will be expressed as frequencies. These metrics will describe the baseline characteristics of patients and the performance of the diagnostic tests. The sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV), and overall diagnostic accuracy for each diagnostic method will be

calculated and compared to histopathological results. To evaluate factors associated with repeated procedures, diagnostic errors, and the application of diagnostic tests, the chi-square test will be employed. A p-value of less than 0.05 will be considered statistically significant. Statistical analysis will be performed using SPSS 25.0.

4. Result

Table 1: Distribution of patients according to age

		n	%
Age	≤20 years	12	13.33
	21-30 years	22	24.44
	31-40 years	13	14.44
	41-50 years	20	22.22
	51-60 years	9	10.00
	>60 years	14	15.56

Table 1 shows the distribution of patients according to age, showing the number and percentage of cases across different age groups. The majority of patients fall within the 21-30 years age group (24.44%), followed by the 41-50 years group (22.22%). The lowest incidence is observed in the 51-60 years group (10.00%), while other age categories have varying distributions.

Table 2: Distribution of patients according to their chief complaints

		n	%
Chief Complaints	Firm Mass	4	4.44
	Hard Mass	49	54.44
	Mobile Mass	34	37.78
	Painful Mass	3	3.33

Table 2 presents the distribution of patients according to their chief complaints. The most common complaint was a hard mass (54.44%), followed by a mobile mass (37.78%). A smaller proportion of patients reported a firm mass (4.44%), while the least common complaint was a painful mass (3.33%). These findings highlight that most breast lumps in the study were hard and mobile, with pain being a less frequent symptom.

Table 3: Distribution of patients according to nipple discharge characteristics

		n	%
NIPPLE D/S	Y-Red	11	12.22
	Y-Black	3	3.33
	Y-Milk	2	2.22
	Y-Yellow	1	1.11
	No	73	81.11

Table 3 presents the distribution of patients according to the presence and type of nipple discharge (NIPPLE D/S). The majority of patients (81.11%) reported no nipple discharge, while 12.22% had red-colored discharge, making it the most common type among those with discharge. Other types of discharge were less frequent, with black-colored discharge in 3.33%, milky discharge in 2.22%, and yellow discharge in 1.11% of cases

Table 4: Distribution of patients based on skin changes associated with breast lumps

		n	%
Skin Changes	No	55	61.11
	Ulcerartion	6	6.67
	Peau d' orange	8	8.89
	Dimpling	6	6.67
	Skin thickening	10	11.11
	Redness	4	4.44
	Fungating growth	1	1.11

Table 4 presents the distribution of patients based on skin changes associated with breast lumps. The majority of patients, 55 (61.11%), did not exhibit any skin changes. Among those with skin manifestations, skin thickening was the most common, observed in 10 (11.11%) of cases. Peaud'orange was noted in 8 (8.89%) of patients, while ulceration and dimpling were each seen in 6 (6.67%) cases. Less frequently, redness was reported in 4 (4.44%), and fungating growth, indicative of more advanced disease, was present in only 1 (1.11%) case.

Table 5: Distribution of patients based on nipple-areolar complex (NAC) involvement

		n	%
NAC Involvement	No	54	60.00
	Inverted Nipples	10	11.11
	Retracted Nipples	8	8.89
	Crusted Nipples	6	6.67
	Destroyed Nipple	3	3.33
	Prominent Nipple	3	3.33
	Flat Nipples	2	2.22
	Ulcer Over NAC	2	2.22
	Redness Over Nipples	2	2.22

Table 5 presents the distribution of patients based on nipple-areolar complex (NAC) involvement. The majority of patients, 54 (60.00%), did not exhibit any NAC involvement. Among those with NAC changes, inverted nipples were the most common finding, observed in 10 (11.11%) of cases. Retracted nipples were noted in 8 (8.89%) of patients, followed by crusted nipples in 6 (6.67%) cases. Less frequently, destroyed nipples and prominent nipples were each seen in 3 (3.33%) of cases. Flat nipples, ulcers over the NAC, and redness over the nipples were the least common, with 2 (2.22%) cases each.

Table 6: Distribution of patients based on the location of the breast lump within different quadrants

		n	%
Lump Situation (Quadrant)	R-LI	12	13.33
	R-LO	8	8.89
	R-UI	14	15.56
	R-UO	11	12.22
	L-LI	6	6.67
	L-LO	5	5.56
	L- UO	19	21.11
	L-LU	2	2.22
	L-UI	2	2.22
	R-3' O CLOCK	2	2.22
	B/L UPPER INNER	1	1.11
	R-UO,L-UO	5	5.56
	R-UO L-UI	1	1.11
	R-UO+UI	1	1.11

Table 6 presents the distribution of patients based on the location of the breast lump within different quadrants. The most common location was the left upper outer (L-UO) quadrant, observed in 19 (21.11%) of patients. This was followed by the right upper inner (R-UI) quadrant, with 14 (15.56%) of cases, and the right lower inner (R-LI) quadrant, seen in 12 (13.33%) of patients. The right upper outer (R-UO) quadrant accounted for 11 (12.22%) of cases, while the right lower outer (R-LO) quadrant and left lower inner (L-LI) quadrant were noted in 8 (8.89%) and 6 (6.67%) of patients, respectively.

Less commonly, lumps were found in bilateral upper inner quadrants (1.11%), right 3 o'clock position (2.22%), and multiple quadrant involvement, such as R-UO & L-UO (5.56%) and R-UO + UI (1.11%).

Table 7: Distribution of patients based on supraclavicular lymph node involvement, mammography findings, and the presence of microcalcifications

		n	%
Supraclavicular	Yes	8	8.89
	No	82	91.11
Mammography	No	69	76.67
	Lesion with spiculated margins and axillary lymph	17	18.89
	Lesion with spiculated margins	3	3.33
	Calcified mass with axillary lymphadenopathy	1	1.11
Microcalcifications	Yes	33	36.67
	No	57	63.33

Table 7 presents the distribution of patients based on supraclavicular lymph node involvement, mammography findings, and the presence of microcalcifications. The majority of patients, 82 (91.11%), had no supraclavicular lymph node involvement, while 8 (8.89%) had palpable supraclavicular nodes. Regarding mammography findings, most patients, 69 (76.67%), showed no detectable lesions. Among those with abnormalities, 17 (18.89%) had a lesion with spiculated margins and axillary lymph node involvement, while 3 (3.33%) had a lesion with spiculated margins only. A calcified mass with axillary lymphadenopathy was observed in 1 (1.11%) case. In terms of microcalcifications, 33 (36.67%) of patients had detectable microcalcifications, whereas 57 (63.33%) did not exhibit any microcalcifications.

Table 8: Distribution of patients according to the Breast Imaging Reporting and Data System (BIRADS) classification based on mammography findings

		n	%
BIRADS Category	1	1	1.11
	2	42	46.67
	3	12	13.33
	4A	10	11.11
	4B	3	3.33
	4C	3	3.33
	5	6	6.67
	6	12	13.33

Table 8 presents the distribution of patients according to the Breast Imaging Reporting and Data System (BIRADS) classification based on mammography findings. The majority of patients, 42 (46.67%), were classified as BIRADS category 2, indicating benign findings. BIRADS category 3, representing probably benign lesions, was observed in 12 (13.33%) of patients. BIRADS category 4, which suggests a suspicious abnormality, was subdivided into 4A (10, 11.11%), 4B (3, 3.33%), and 4C (3, 3.33%), with increasing likelihood of malignancy. BIRADS category 5, highly suggestive of malignancy, was noted in 6 (6.67%) of cases, while BIRADS category 6, indicating biopsy-proven malignancy, was observed in 12 (13.33%) of patients. BIRADS category 1, representing a negative finding, was the least common, seen in only 1 (1.11%) case.

Table 9: Distribution of patients based on Fine Needle Aspiration Cytology (FNAC) findings

FNAC	n	%
Ductal Epithelial Cells in Clusters- Fibroadenoma	19	21.11
Homogenous Cluster of Cells- Fibroadenoma	14	15.56
Atypical Ductal Hyperplasia	5	5.56
Macrophages, Reticulocytes and Plasma Cells Without Atypia	5	5.56
Monolayered Sheet Of Ductal Cells-Fibroadenoma	3	3.33
Stromal Cells In Fibromyxoid Background-Fibroadenoma	1	1.11
Gynaecomastia Left Breast	1	1.11
Dyscohesive Cells-Invasive Ductal Ca	12	13.33
Invasive Ca Breast Cat 5	8	8.89
Infilterating Ductal Ca Breast	6	6.67
Benign Breast Ds-Ectasia	2	2.22
Cystic Lesion	2	2.22
Infiltrating Ca Breast	1	1.11
Infiltrating Ca Breast Cat.5	1	1.11
Invasive Ca Breast	1	1.11
No	9	10.00

Table 9 presents the distribution of patients based on Fine Needle Aspiration Cytology (FNAC) findings. The most common diagnosis was fibroadenoma, with ductal epithelial cells in clusters observed in 19 (21.11%) of cases, followed by a homogeneous cluster of cells in 14 (15.56%) cases. Dyscohesive cells indicative of invasive ductal carcinoma were present in 12 (13.33%) of patients, while invasive carcinoma breast (Category 5) was found in 8 (8.89%) of cases.

Other notable findings included atypical ductal hyperplasia and macrophages, reticulocytes, and plasma cells without atypia, each detected in 5 (5.56%) of cases. Infiltrating ductal carcinoma was diagnosed in 6 (6.67%) of cases, while benign breast disease with ectasia and cystic lesions were each noted in 2 (2.22%) of cases. Less frequently, gynaecomastia, infiltrating carcinoma (Category 5), invasive carcinoma, and stromal cells in a fibromyxoid background were observed, each in 1 (1.11%) of patients. Additionally, 9 (10.00%) of cases had no FNAC findings.

Table 10: Distribution of patients based on Tru-Cut or Excisional Biopsy findings

TRUCUT/EXCISIONAL	n	%
No	65	72.22
FIBRO-GLANDULAR TISSUE WITH COMPRESSED DUCTS	5	5.56
INVASIVE LEFT CA BREAST (MOD. BLOOM RICHARD-GR2)	4	4.44
INVASIVE R CA BREAST GRADE 2(BLOOM RICHA)	4	4.44
INVASIVE RIGHT CA BREAST (MOD.BLOOM RICHARDSON-GR2)	3	3.33
STROMAL ATYPIA WITH 2* INFLAMM	3	3.33
DCIS with ER, PR and HER2 +	2	2.22
INFILTRATING CA BREAST WITH LVI	2	2.22
INFILTRATING CA BREAST WITH ER-, PR-, HER2+	1	1.11
POSITIVE FOR MALIGNANT CELLS	1	1.11

Table 10 presents the distribution of patients based on Tru-Cut or Excisional Biopsy findings. A significant proportion of cases (72.22%) did not undergo biopsy. Among those who did, the most common benign finding was fibro-glandular tissue with compressed ducts (5.56%), suggesting a non-malignant pathology.

Among the malignant cases, 4.44% were diagnosed with invasive carcinoma of the left breast (Modified Bloom Richardson Grade 2), and 4.44% had invasive carcinoma of the right breast (Bloom Richardson Grade 2). Additionally, 3.33% had invasive right breast carcinoma (Modified Bloom Richardson Grade 2), while 2.22% had infiltrating carcinoma of the breast with lymphovascular invasion (LVI). A triple-negative case (ER-, PR-, HER2+) was found in 1.11% of patients, and another 1.11% tested positive for malignant cells. Ductal carcinoma in situ (DCIS) with ER, PR, and HER2 positivity was observed in 2.22% of cases, and 3.33% had stromal atypia with secondary inflammation.

Table 11: Final diagnosis distribution among patients with breast lumps

		n	%
Fibroadenoma	L	20	22.22
	R	17	18.89
	B/L	7	7.78
Ca Breast	L	14	15.56
	R	20	22.22
Breast Cyst	L	1	1.11
	R	2	2.22
Infective Mastitis	L	1	1.11
	R	1	1.11
Duct Ectasia	L	1	1.11
Phyllodes Breast	R	1	1.11
Breast Galactocele	R	3	3.33
R-Duct Ectasia With L- Fibroadenoma	-	1	1.11

Table 11 presents the final diagnosis distribution among patients with breast lumps. The most common diagnosis was fibroadenoma, observed in 20 (22.22%) cases on the left breast, 17 (18.89%) cases on the right breast, and 7 (7.78%) cases bilaterally. Carcinoma breast was also a frequent diagnosis, with 14 (15.56%) cases affecting the left breast and 20 (22.22%) cases affecting the right breast.

Other less common diagnoses included breast cysts, noted in 1 (1.11%) case on the left breast and 2 (2.22%) cases on the right breast. Infective mastitis was diagnosed in 1 (1.11%) case each for the left and right breasts. Duct ectasia was found in 1 (1.11%) case on the left breast, while phyllodes tumor was diagnosed in 1 (1.11%) case on the right breast. Breast galactocele was observed in 3 (3.33%) cases on the right breast. Additionally, 1 (1.11%) case was diagnosed with right duct ectasia along with left fibroadenoma.

5. Discussion

The study shows a comprehensive examination of the incidence, demographic distribution, clinical manifestations, and diagnostic results associated with breast lumps, highlighting the significance of the triple assessment method in breast cancer diagnosis.

Clinical Presentation of Breast Lumps—Breast lump is the most frequent presentation in carcinoma breast patients. The most common symptom was a hard mass (54.44%), followed by mobile lumps (37.78%), while painful lumps were rare (3.33%). This finding supports the clinical understanding that painless lumps are more likely to be malignant.

Hard, irregularly shaped lumps that are fixed to surrounding tissues are concerning for malignancy. While many lumps are painless, some may cause discomfort or tenderness, especially if associated with infection or cysts.

Most patients (52.22%) reported symptoms lasting between 3–6 months, emphasizing the tendency for delayed presentation, which could contribute to late-stage diagnoses.

The presence of non-healing ulcers over the breast may indicate advanced breast cancer. Regular self-breast examinations aid in the early detection of abnormalities. Triple Assessment Findings

(A) Imaging and Mammography (BI-RADS Classification)-
Birads classification is as follows-

- Category 0: Incomplete assessment, requiring additional imaging.
- Category 1: Negative, indicating normal findings and a low risk of cancer.
- Category 2: Benign findings, indicating a non-cancerous abnormality like a cyst or fibroadenoma.
- Category 3: Probably benign, suggesting a low probability of malignancy, with a short-interval follow-up recommended.
- Category 4: Suspicious abnormality, indicating a moderate to high risk of cancer, requiring further evaluation, such as a biopsy.
- Category 4 is further subdivided into 4a, 4b, and 4c: 4a (low suspicion), 4b (moderate suspicion), 4c (high suspicion).

- Category 5: Highly suggestive of malignancy, indicating a high probability of cancer, requiring immediate action, like biopsy and treatment.
- Category 6: Known biopsy-proven malignancy, meaning cancer has been confirmed.
- BI-RADS 2 (46.67%) was the most common category, indicating a majority of benign findings.

However, BI-RADS 4A-4C (17.77%) and BI-RADS 5 (6.67%) indicate cases with a high suspicion of malignancy.

Microcalcifications were present in 36.67% of cases, which is a concerning sign often associated with ductal carcinoma insitu (DCIS) or invasive cancer.

Microcalcifications in breast are tiny deposits of calcium that appear as fine white specks on mammogram. Benign microcalcifications are usually coarse and scattered. Microcalcifications which are fine, irregular and clustered are usually suggestive of malignant etiology. Fine Needle Aspiration Cytology (FNAC)- FNAC is a procedure where a thin (21-25) gauge needle is inserted into the breast lump. The plunger is withdrawn without exiting the lesion and without releasing the plunger the needle is moved in and out in different directions. The needle is withdrawn and material aspirated smeared on the slide, stained and examined. FNAC has become a popular tool as it shows high accuracy, sensitivity and specificity. The International Academy of Cytology (IAC) Yokohama System is a standardized reporting system for breast fine-needle aspiration biopsy (FNAB) cytopathology, classifying results into five categories: insufficient, benign, atypical, suspicious for malignancy, and malignant [8]

The Yokohama system aims to improve the accuracy and standardization of breast cytology reporting, enhance communication between cytopathologists and breast clinicians, and facilitate better patient management and the same is being used in BRD MEDICAL COLLEGE. Tru-Cut/Excisional Biopsy-trucut biopsy is a minimally invasive procedure used to obtain a tissue from breast for histopathological examination. It is more accurate than FNAC because it provides tissue architecture, helping in diagnosis of benign, atypical and malignant lesions [9]. It uses a trucut biopsy needle near the target tissue, inner stylet is advanced into the target tissue and fine pieces of tissues are obtained and sent for histopathological examination. Multiple samples are taken for accuracy [10].

In my study 72.22% of patients did not undergo biopsy, which is a limitation of the study, as histopathology remains the gold standard. Among the biopsied cases, invasive breast carcinoma (right breast: 22.22%, left breast: 15.56%) was a significant finding.

Final Diagnosis and Breast Cancer Burden

Fibroadenoma (22.22%) was the most common diagnosis. Right-sided breast cancer (22.22%) was slightly more common than left-sided (15.56%). Less common findings included breast cysts, infective mastitis, and phyllodes tumors, which should be distinguished from malignancy to avoid overtreatment.

6. Conclusion

This study has been conducted in the Department of General Surgery BRD medical college with a period of one year, to assess the incidence of carcinoma breast in case of breast lump using triple assessment. The study underscores the increasing incidence of breast cancer in India and critical role of triple assessment in improving diagnostic precision. Integrating this method into routine clinical practice can lead to earlier diagnoses, improved treatment outcomes, and reduced healthcare costs.

Early detection using this method can significantly improve breast cancer survival rates in India, aligning with global best practices. India still faces delayed detection and late-stage presentations, leading to lower survival rates compared to Western countries. Since most lumps were diagnosed at 1-2 cm, mammography and regular self-examinations should be promoted to catch cancers before they become symptomatic. A majority of lumps were hard and painless, reinforcing the need for early clinical evaluation of any detected lump. Implementing triple assessment as a routine screening tool can help bridge this gap by ensuring early-stage detection and better patient outcomes.

The study presents compelling evidence that triple assessment (clinical breast examination, imaging, and histopathology) is a highly reliable and cost-effective diagnostic tool for breast cancer. The findings suggest that when all three components are concordant, the test has near-perfect sensitivity and specificity (97-100%), making it an excellent alternative to more invasive diagnostic methods.

On the basis of this study following inferences can be drawn-

Majority of study population falls within the 21-30 years age group (24.44%) followed by 41-50 years (22.22%). Majority of the study population were females 86 (95.56%). Occupation data shows a dominance of housewives (52.22%) followed by students (34.44%) making up the next largest group. The present study included 90 cases of breast lumps, out of which 34 patients have been diagnosed as cases of Carcinoma Breast –left 14 patients (15.56%) and right 20 patients (22.22%). Out of 90 cases, majority of the patients 44, had a benign breast lump -fibroadenoma.

Majority of the patients 54 patients were in the benign category of breast lump according to the ultrasonographic findings that is BIRADS 2 & 3. About 22 patients had BIRADS 4&5 lesions which were suggestive of malignancy.

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