



ORIGINAL RESEARCH PAPER

Pathology

CORRELATION OF CASES OF CARCINOMA BREAST ON FINE NEEDLE ASPIRATION CYTOLOGY AND HISTOPATHOLOGY IN HADOTI REGION, RAJASTHAN

KEY WORDS: FNAC, Breast cancer, Malignancy, Screening

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ABSTRACT
Introduction: Breast carcinoma is one of the most common malignancies affecting women worldwide. Fine needle aspiration cytology (FNAC) has emerged as a valuable diagnostic tool in the evaluation of breast lesions. **Materials and Methods:** The study included fine needle aspirates from the palpable breast lesions of 69 cases in Government Medical College, Kota which were found to be malignant. **Results:** The age group with the highest prevalence of lesions was in the age group of 41 to 50 years. The location distribution was similar in left and right breast. The comparison with other published work shows concurrence that the incidence of carcinoma breast is now higher in the younger age group. **Conclusions:** This study demonstrates a clear shift in the age trends of carcinoma breast over the past five decades. Understanding these age trends is crucial for healthcare providers, policymakers, and researchers to effectively address the evolving challenges posed by carcinoma breast in different age cohorts.

INTRODUCTION
 Breast carcinoma is one of the most common malignancies affecting women worldwide, accounting for a significant proportion of cancer-related deaths.¹ Early detection and accurate diagnosis are crucial for optimal patient management and improved outcomes. Fine needle aspiration cytology (FNAC) has emerged as a valuable diagnostic tool in the evaluation of breast lesions. FNAC is a minimally invasive technique that offers rapid and cost-effective diagnosis, guiding subsequent therapeutic decisions.

Importance of Early Detection: Breast carcinoma is characterized by uncontrolled growth of malignant cells in the breast tissue. Early detection is vital to initiate timely treatment interventions, resulting in improved survival rates and quality of life for patients. Clinical breast examination, mammography, and ultrasound are commonly used screening tools. However, FNAC has gained prominence as a reliable adjunctive technique, facilitating early detection and prompt management.²

FNAC involves the aspiration of cells or tissue fragments using a thin needle attached to a syringe. The technique primarily relies on the principles of morphology and cytomorphology to differentiate benign from malignant lesions. Under imaging guidance, such as ultrasound or stereotactic mammography, the needle is precisely inserted into the breast mass, and a gentle negative pressure is applied to aspirate cells for examination.

Advantages of FNAC in Carcinoma Breast Diagnosis: FNAC is a minimally invasive technique, causing minimal discomfort and pain to patients. It can be performed on an outpatient basis, reducing hospitalization time and cost burden. FNAC provides immediate on-site evaluation, enabling the reporting of results during the same patient visit. This rapid turnaround time facilitates prompt decision-making, especially in cases where a definitive diagnosis is required urgently. FNAC is a cost-effective diagnostic tool compared to more invasive procedures like core needle biopsy or surgical excisional biopsy.³ It minimizes healthcare expenses,

especially in resource-limited settings, without compromising diagnostic accuracy. FNAC has high sensitivity and specificity in diagnosing breast carcinoma. Well-trained cytopathologists can accurately identify malignancy based on cellular features, including nuclear morphology, chromatin pattern, and presence of mitotic figures. However, false-negative results may occur due to inadequate sampling or overlapping features with benign lesions. FNAC has certain limitations, including the inability to assess architectural features, such as tumour invasion or lymphovascular invasion. It may not provide the histological subtype or tumour grade, which are important prognostic factors. In cases of limited sample material or cystic lesions, additional diagnostic procedures, such as core needle biopsy or excisional biopsy, may be required for comprehensive evaluation.

FNAC plays a crucial role in preoperative diagnosis, enabling appropriate planning of surgical procedures. It helps determine the need for neo-adjuvant chemotherapy, allowing down-staging of tumours before surgery. **Guiding Treatment Decisions:** The accurate diagnosis provided by FNAC guides treatment decisions, including selection of appropriate surgical procedures, adjuvant therapy options, and targeted therapies based on the tumour subtype.^{4,5} It aids in personalizing patient management, leading to improved outcomes and reduced morbidity. **Surveillance and Follow-up:** FNAC can be utilized during post-treatment surveillance and follow-up to monitor for disease recurrence.

MATERIALS AND METHODS
 The study included fine needle aspirates from the palpable breast lesions of 69 cases in Government Medical College, Kota which were found to be malignant. All samples were first tested by FNAC and then the diagnosis was confirmed using histopathology.

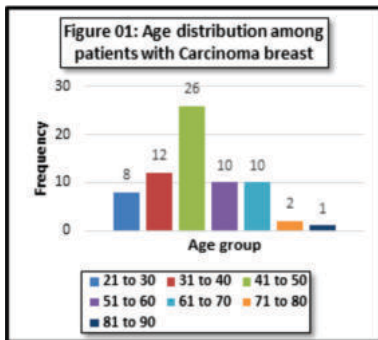
Statistical Analysis
 Qualitative data were presented as number and percent. The age of cases in years was grouped into intervals of 10, comparison of the proportion of cases was done. The site of lesion was also compared.

RESULTS

The present study included fine needle aspirates from the palpable breast lesions of 69 cases which were found to be malignant. Among these 69 malignant cases, majority of cases were in the age group of 41 to 50 years followed by 31 to 40 years. Only one case was found to be in age group of 81 to 90 years. (Table 1).

Table 1: Age Distribution Among Patients With Carcinoma Breast

Age	No. of patients	Percentage
21 to 30	8	11.6%
31 to 40	12	17.4%
41 to 50	26	37.7%
51 to 60	10	14.5%
61 to 70	10	14.5%
71 to 80	2	2.9%
81 to 90	1	1.4%
Total	69	100.0%



There was a similar distribution of lesions, where 35 lumps were located on left side of breast (50.7%) while 34 lumps were located on right side (49.3%). In the present study, no patient was found with bilateral positive carcinoma breast. (Table 2).

Table 2: Site Distribution Among Patients With Carcinoma Breast

Site	No. of patients	Percentage
Left	35	50.7%
Right	34	49.3%
Bilateral	0	0.0%
Total	69	100.0%

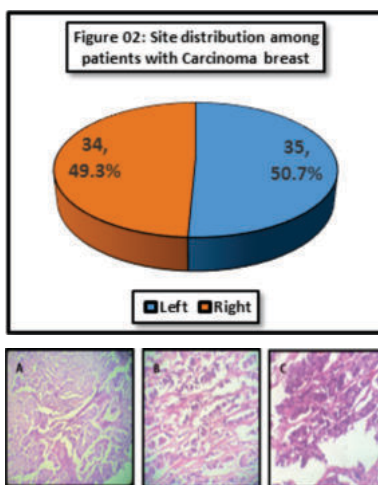


Figure 03: H E Stain.

- A. Low power view showing ductal cell infiltrating into stroma
- B. High power view showing marked tumour infiltration
- C. High power view showing marked pleomorphism of ductal epithelial cells

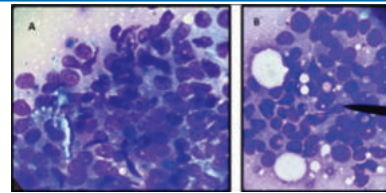


Figure 04: Giemsa Stain.

- A. FNAC smear 100x showing marked anisokaryosis and irregular nuclear membrane
- B. FNAC smear 100x loss of cohesiveness of ductal cell and no myoepithelial cell seen

DISCUSSION

From 1971 to 1980, breast cancer predominantly affected women over the age of 50, with a peak incidence in the sixth and seventh decades of life.^{6,7} However, subsequent studies have indicated a shift towards an increased incidence among younger women.^{8,9} A significant rise in breast cancer incidence among women aged 40-49 has been observed since the 1980s, prompting concerns and debates over optimal screening strategies for this age group.¹⁰

Furthermore, studies from the 1990s onwards have reported an alarming increase in breast cancer incidence among premenopausal women, particularly those in their thirties and forties.^{11,12,13} This changing age distribution has sparked investigations into potential risk factors, including lifestyle changes, reproductive factors, and genetic predisposition. Additionally, studies have explored the impact of hormone replacement therapy (HRT) and the influence of mammographic screening on age-specific incidence rates.^{14,15}

CONCLUSION

This study demonstrates a clear shift in the age trends of carcinoma breast over the past five decades. While the disease historically affected postmenopausal women predominantly, there has been an observed increase in breast cancer incidence among younger age groups. The changing age distribution necessitates further research into potential etiological factors, screening guidelines, and tailored treatment approaches. Understanding these age trends is crucial for healthcare providers, policymakers, and researchers to effectively address the evolving challenges posed by carcinoma breast in different age cohorts.

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