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Original Research Paper

Pathology

RETROSPECTIVE STUDY OF FINE NEEDLE ASPIRATION CYTOLOGY (FNAC) IN BREAST LESION

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ABSTRACT

Background/Introduction: Given the rising prevalence of breast cancer, it may be necessary to use fine needle aspiration cytology (FNAC) for a minimally invasive, timely, economical, and definitive preoperative evaluation of breast abnormalities, particularly in developing nations. The goal of the study was to categorize a wide range of breast lesions identified by FNAC, ascertain their frequency, and demonstrate the effectiveness of FNAC in the diagnosis of breast lesions **Materials and Methods:** For this study, 125 patients who visited ASMC Auraiya's Histopathology department between April 2025 and March 2026 were used. The hospital records and laboratory report registry were used to get patient data and investigation report **Results:** Five men (4%) and 120 females (96%) with a mean age of 44.4 years showed up throughout the research period. 52% (52) and 47% (47) of the overall group had benign and malignant lesions, respectively, whereas 16% (20) had inflammatory lesions, ductal carcinoma, lymphadenitis, chronic abscess, and fibroadenoma. The category of inadequate cells for cytological examination (C1) included four instances (4%). Ten patients (8%) had lumps on both breasts, forty-five patients (36%) had lumps on their left breast, and seventy patients (56%) had tumors on their right breast. Malignant cases were more common in patients between the ages of 51 and 60. Additionally, several clinical manifestations of the lumps were noted. **Conclusions and Suggestions:** Using FNAC to definitively diagnose malignant breast lesions may indicate the technique's effectiveness, dependability, and acceptance for early and definitive diagnosis of breast lesions. Therefore, FNAC—a less intrusive, patient-acceptable diagnostic method—is recommended to improve early and definite identification of breast lesions, which is crucial for therapy and event-free survival rate.

KEYWORDS : FNAC- Breast- Lesions- Diagnosis

INTRODUCTION

For the best possible treatment planning, a breast tumor must be accurately diagnosed prior to surgery. A definitive diagnosis must be made quickly and with few biopsies in order to prevent needless patient suffering. Therefore, economical methods of diagnosing breast cancer are essential [1]. Currently the most prevalent cancer in India, breast cancer is the most frequent cancer among women worldwide [2]. Breast lumps are a prevalent issue in many hospitals' surgical units, and the capacity to distinguish between benign and malignant lesions is a key worry for both surgeons and surgical pathologists [3]. Fine needle aspiration cytology (FNAC) of breast lumps is a crucial component of the triple evaluation of palpable breast lumps, even if histological diagnosis is a widely recognized confirming modality of diagnosis and follow-up. Patients who appear with breast lumps at the outpatient clinic require a means of conclusive diagnosis since it can occasionally be challenging to discern from a straightforward clinical examination whether a suspicious lump is benign or malignant [4]. FNAC is straightforward, easy to execute, repeatable, patient-acceptable, can be done in a busy clinic setting, doesn't require expensive equipment or extensive preparation, is inexpensive, causes little to no physical or psychological harm, and has few or no consequences [5].Even though open surgical biopsy is the "gold standard" for diagnosing palpable breast lesions, fine needle aspiration cytology (FNAC) is readily beneficial due to its clear advantages in resource-poor countries like Nigeria with distinct sociocultural and economic idiosyncrasies. Therefore, the purpose of this study was to evaluate FNAC's efficacy in the detection of benign and malignant breast illnesses.

MATERIALS AND METHODS

This was a one-year retrospective review of all breast tumors identified between April 2025 and March 2026 at ASMC Auraiya's Pathology Department.

Records of individuals with benign and malignant breast tumors were obtained via request forms and pathology registries. From the patient records, details including age, sex, lump location, clinical, and FNAC diagnosis were obtained. Microsoft Excel 2016 was used to examine the study's data. For the research, 125 pieces of data were successfully recovered. According to the guidelines of the National Health Services Breast Screening Programme (NHSBSP) in the United Kingdom, the reported cytological findings were classified into one of five diagnostic groups.

The cases were reported using a modification of the NHB reporting criteria as reported by Ibikunle et al., [6] as follows: C 1 - Insufficient cells for cytological analysis, i.e. fewer than five epithelial cell groups C2 - Cells present all benign; no suspicious features C3 - Cells suspicious but probably benign C4 - Cells suspicious but probably malignant and C5 – Definitely malignant.

RESULTS

The male to female ratio was 1:19, with 5 (4%) of the 125 cases analyzed being male and 120 (96%) being female. These patients were between the ages of 18 and 84, with a mean age of 44.4. Male patients ranged in age from 28 to 80, while female patients ranged from 18 to 84, with mean ages of 50 and 44, respectively. The majority of the female patients were in their third and fifth decades of life (31–40 and 51–60 years, respectively). Ten patients (8%) had lumps on both the right and left breasts, forty-five patients (36%) had lumps on the left breast, and seventy patients (56%) had lumps on the right breast. (Table 1).

Table 1. Demographic Characteristics of the Subjects (n = 125)

	patient	percentage
<20	5	4
21-30	20	16
31-40	30	24
41-50	18	14.4
51-60	25	20
61-70	20	16
>70	7	5.6
Male	5	4
Female	120	96

Right	70	56
Left	45	36
Both	10	8

Inflammatory lesions, ductal carcinoma, lymphadenitis, chronic abscess, and fibroadenoma accounted for (16%) 20 of cases, whereas 47 (47%) and 52 (52%) had C5 (malignant) and C2 (benign) diagnoses, respectively . The category of inadequate cells for cytological examination (C1) included four instances (4%). Malignant cases were most common in the age range of 51–60 years, with 12 cases (12%) (Table 2).

Table 2. Frequency of Classification of Breast Lesion in Relation to Age Group (n = 100)

Age-group (years)	NHB Classification (%)				
	C1	C2	C3	C4	C5
<20	1	4	1	0	0
21-30	0	7	2	0	4
31-40	0	13	1	1	7
41-50	0	5	1	4	1
51-60	0	6	0	3	12
61-70	0	6	3	0	7
>70	0	3	0	3	5
TOTAL	1	44	8	11	36

According to clinical data, 25 (20%) of the patients reported having a variety of masses, including hard, movable, recurring, painful, and palpable masses. Of the twenty-five patients who had different types of breast tumors, eleven were on the right side and fourteen were on the left. Twenty (80%) of the tumors were found to be malignant, four (16%) to be benign, and one (4%) to be lymphadenitis. According to reports, eight patients arrived to the hospital with various types of breast discharge, five of which were bloody; four were diagnosed with benign lesions (two as C3 and three as C2), while the other patients were diagnosed with inflammatory lesions. In addition, 19 people (14.5%) had breast edema (36% on the left breast and 56% on the right). Malignant and benign lesions were identified in 28.8% and 52.2% of the patients with breast edema, respectively, using FNAC; the remaining 20 patients were diagnosed with inflammation (15%) and chronic abscess (5%).

DISCUSSION

According to Ssemmanda et al. [7] and other research, breast disorders are primarily diagnosed in females and infrequently in men, as evidenced by the greater frequency of females in the total records of breast diseases in our study. The findings of Anderson et al. [8] are likewise consistent with the greater mean age of male individuals compared to female subjects, suggesting that male breast illness manifests later in life.Contrary to the findings of Elmadhoun et al. [4], who identified more breast lesions appearing on the left breast, the majority of breast lesions presenting on the right breast is consistent with the findings of Dauda et al. [9]. This implies that either breast may be equally affected by breast illness. These variations may not have any clinical relevance and have been reported by several studies. According to Elmadhoun et al. [4], the prevalence of malignant breast lesions identified by FNAC was higher in this sample than in earlier research. Changes in lifestyle and greater urbanization might account for this trend. With a mean age of 52, the majority of patients with malignant breast lesions were between the ages of 31 and 60.They were found to be older than those reported in other nations, including 48 years in Saudi Arabia [10] and 49 years in Israel [11]. The older age of presentation of malignant breast disease in this research may be attributed to inadequate breast cancer awareness and screening programs. The numerous breast lesions in this research presented in a variety of ways, including firm, movable, recurring, painful, palpable mass, nipple discharge, and breast breast swelling, which did not predict the lesion's final diagnosis. Because of the increase in the diagnosis of malignant breast lesions using FNAC and the late presentation of patients with malignant breast lesions to the hospital, FNAC is a useful tool that can be used in a resource-limited setting for quick diagnosis of breast lesions in a busy hospital clinic to improve timely intervention.

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