

INCIDENCE OF BREAST CARCINOMA IN PREGNANT AND LACTATING WOMEN

Pathology

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ABSTRACT

INTRODUCTION: Breast lumps are a common problem encountered in pregnancy and lactation. These lumps are generally benign like fibroadenoma, lactating adenoma, mastitis and galactocele. Although rare the possibility of breast cancer (Pregnancy Associated Breast Cancer) should be considered, which is increasing in incidence nowadays. **MATERIAL AND METHOD:** A prospective study for 18 months was conducted on pregnant and lactating females for evaluating the role of cytology in interpretation of breast cancers. Clinical details, imaging findings and histopathological correlation (wherever available) was also analyzed. **RESULT:** 85 breast lumps were identified and benign lesions were the most common etiology seen. Three cases were identified as pregnancy associated breast carcinoma (PABC) constituting 3.5% of all breast lumps. **CONCLUSION:** Cytology was an effective tool with minimal surgical intervention in identifying the etiology of breast masses in pregnancy and lactation. However, the cytopathologists must be aware of the characteristic patterns seen in breast FNAC smears during pregnancy and lactation and the associated atypia seen in glandular epithelium during this period. Breast carcinoma is the most common malignancy associated with pregnancy. The incidence is low but increasing due to late childbirth. Breast cancer during pregnancy has a similar prognosis to that of breast cancer in young.

KEYWORDS

INTRODUCTION:

Most breast disorders during pregnancy and lactation are benign, but the incidence of malignancy is found to increase in these patients. Pregnancy-associated breast cancer (PABC) is defined as breast cancer occurring anytime during gestation, lactation, or within 1 year after delivery. It occurs in approximately 0.3/1,000 pregnancies [1]. Most women diagnosed with PABC present with a palpable lump [2]. As women delay childbirth and avoid lactation, the incidence of pregnancy-associated breast cancer is expected to increase. The most common presentation of a malignant tumor is a painless lump, usually discovered by the patient [3]. It appears that pregnancy and breast cancer are merely coincidental and that pregnancy or lactation does not directly contribute to the development or accelerated progression of breast cancer [4,5]

The management of PABC is challenging in many respects; breast undergoes multiple physiological changes during pregnancy making the diagnosis and the follow-up of a lump clinically difficult, the diagnostic and staging work up should not affect the development of the fetus or the offspring and yet be effective, and finally, the management should take into account the effects of therapy and timing of delivery on development of the fetus or offspring while ensuring the optimal growth and pulmonary maturity of the fetus. Thus, the diagnosis of cancer during pregnancy adds complexity to both the management of the pregnancy and cancer.

Mammography is widely employed to aid in the evaluation of a suspicious breast mass. With proper shielding, mammography poses little risk of radiation exposure to the fetus and the irradiation dose to fetus is minimal (less than 0.50 mrem) [6,7]. However, mammograms should only be used to evaluate dominant masses and to locate occult carcinomas in the presence of other suspicious physical findings[7]. A mammogram during pregnancy is not easy to read and has at least 25% false-negative rate because of the increased water content of the breast tissue and the loss of contrasting fatty tissue that usually defines a mass [6].

MATERIAL AND METHOD:

A prospective study on breast aspirates was done over a 18- month period from January 2019 to June 2020. All patients presenting with palpable breast lesions during pregnancy and lactation to the clinical OPD of Gajra Raja Medical College (GRMC) JA Hospital were

subjected to an FNAC procedure and histology wherever possible.

FNAC was performed using 21- or 23- gauge needle by palpation without radiological guidance. The procured material was used to make at least 4-5 smears. Two slides were fixed in 95% ethanol and stained by PAP stain and hematoxylin and eosin stain (H and E stain). Air dried smears were stained with Giemsa stain. Apart from re-evaluation of cytology smears, all available clinical and histopathological data was also retrieved and analyzed.

RESULTS:

During the particular study period, 85 cases of breast masses in pregnancy and lactation were identified. Patients ranged in age from 20-45 years with a mean age of 27 years. 29 FNAC's were taken from pregnant patients and 56 from patients in postpartum period. FNAC was performed at 15 weeks of gestation to 12 months post partum.

Table 1: Distribution of the Cases in Terms of Cytological Impression (n = 85)

Cytological Impression	Frequency	Percentage
Benign	80	94.1%
Pre-malignant	2	2.4%
Malignant	3	3.5%
Total	85	100.0%

94.1% of the cases had Cytological Impression: Benign. 2.4% of the cases had Cytological Impression: Pre-malignant. 3.5% of the cases had Cytological Impression: Malignant.

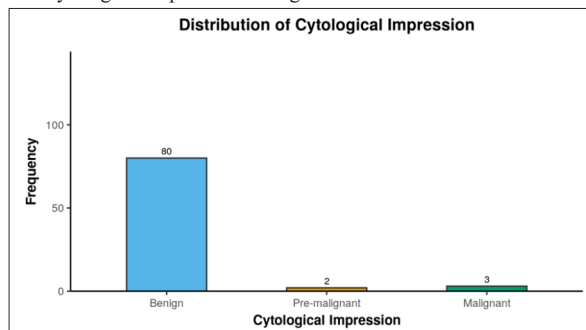
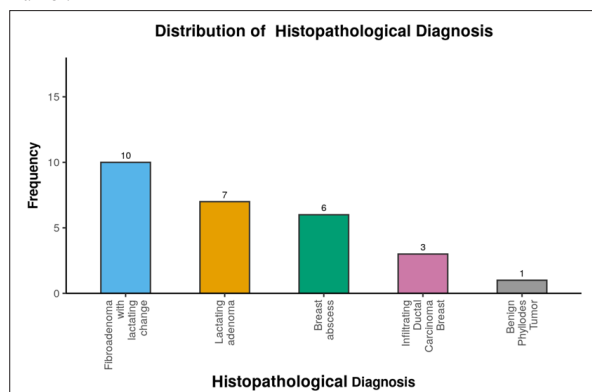


Table 2: Distribution of the Cases in Terms of Histopathological Diagnosis (n=27)

Histopathological Diagnosis	Frequency	Percentage
Fibroadenoma with lactating change	10	37.0%
Lactating adenoma	7	25.9%
Breast abscess	6	22.2%
Infiltrating Ductal Carcinoma Breast	3	11.1%
Benign Phyllodes Tumor	1	3.7%
Total	27	100.0%

37.0% of the cases had Histopathological Diagnosis: Fibroadenoma with lactating change. 25.9% of the cases had Histopathological Diagnosis: Lactating adenoma. 22.2% of the cases had Histopathological Diagnosis: Breast abscess. 11.1% of the cases had Histopathological Diagnosis: Infiltrating Ductal Carcinoma Breast. 3.7% of the cases had Histopathological Diagnosis: Benign Phyllodes Tumor.



Three cases were reported as duct cell carcinoma on cytology. All cases were identified in the postpartum period. Histopathology was done in all these cases to confirm the diagnosis. The age range of all carcinoma cases was between 28-35 years. None of the patients had any family history of carcinoma breast. Cytology smears revealed highly cellular smears with dispersed cell population, highly pleomorphic cells, high nuclear-cytoplasmic ratio, hyperchromasia and prominent nucleoli. On histo-pathological examination of mastectomy specimens, these cases were reported as infiltrating ductal carcinoma (IDC) grade 2, based on Modified Bloom Richardson Scoring system.

DISCUSSION:

In our study, benign lesions constituted the main etiology for breast masses in pregnancy and lactation (80/85; 94.1%) as reported in other studies [8;9]. Among benign lesions, abscess was the commonest etiology seen and fibroadenoma with lactating change was the commonest benign tumour in our study. 03 cases were reported as breast carcinoma constituting 3.5% of all breast masses in pregnancy and lactation, which is less as compared to the study of Sharma M, Gupta A and Kaul R et al where the incidence of breast malignancy was found to be as high as 8.8%.

This high number of PABC in our study may be attributed to increase in the child bearing age, as the incidence of breast carcinoma increases with age [10]. Cytology was effective in identifying all 3 cases as IDC and biopsy was done later for confirmation of the disease. The cytological features which helped to clinch the diagnosis were dispersed cell population, highly pleomorphic cells with high nuclear-cytoplasmic ratio, hyperchromasia and prominent nucleoli. Atypical mitosis was seen in some tumour cells in some cases. Lack of milky background in such cases is an important feature to clinch the diagnosis.

PABC are believed to be high grade, aggressive malignancies with lymph node and distant metastasis. These malignancies are associated with poor prognosis [11]. Previous studies report bone as the commonest site of metastasis in PABC. PABC reveal less frequent expression of ER and PR. The aggressive nature of PABC may be attributed to the late diagnosis of the tumours as these may be misinterpreted as physiological changes in breast and result in delayed diagnosis. Secondly, during this period there are marked changes in the breast micro environment in the form of vascular and ducto-lobular units' proliferation. This may be responsible for the rapid tumour growth and metastasis.

Imaging features are similar to nonpregnancy-associated malignancy and can be benign-appearing, typical of high-grade tumours, demonstrating posterior acoustic enhancement on ultrasound [12]. Mammography is performed as it depicts calcifications, present in up to 55% of cases [13], and may show multifocal or multicentric disease. Many times the surgery is deferred till delivery which may also be responsible for less survival [11].

CONCLUSION: The present study was undertaken to look at the cytomorphology of various breast lesions & to correlate it with histopathology wherever it was possible (mainly done in lactating patients), so as to establish FNAC as an accurate & reliable preoperative diagnostic tool for breast lesions in pregnant & lactating women. The study included 85 cases of breast lumps in the pregnant (29) & lactating (56) women. Hence majority of cases were of reproductive age group (maximum cases in 20-25 years age group). The mean age was found to be 26.36 years. The mean duration of lump was found to be 6.94 months.

It was noted that the incidence of breast carcinoma has increased in this age group & all the 03 (3.5%) cases of carcinoma were seen in lactating women & all of them were between 26-30 years age group. These cases were also followed up for pap's staining & histology and their diagnosis were confirmed.

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