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A Clinico-pathological study of carcinoma of breast

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Abstract
Introduction: Finding the type and cause of cancer to treat patients appropriately is capturing the attention of clinicians. In this study, we tried to project incidence of various types of carcinoma of breasts in this region and its clinical presentation.
Materials and Methods: A total 64 patients presenting with breast lump with or without lymphadenopathy and confirmed as malignancy by Fine Needle Aspiration Cytology were included in this study conducted from February 2018 to November 2019.
Results: Majority of carcinoma of breast cases were noted in the age group of 41-60 years i.e., 57.8%. Out of 64 patients, 57 (89.06%) had invasive ductal cell carcinoma (IDCC) and 3 (10.9%) patients had lobular carcinoma.
Conclusion: Most of the patients in this study had stage III breast carcinoma. State health authorities need to focus in this community about creating breast cancer awareness and should conduct health campaigns and encourage early screening.

Keywords: Breast cancer, staging, histopathological findings

Introduction

The carcinoma of breast is one of the most common causes occurring in females and quite common encountered problem at surgical outpatient departments, which cause injury too physically as well as mentally. In India, breast carcinoma is next common malignancy after carcinoma of cervix; this is due to neglecting small lumps in breast and presenting to hospital late.

Worldwide, WHO estimates that there is an increasing rate of breast cancer and noted higher in developed regions. It is impacting 2.1 million women each year and also responsible for greatest number of cancer-related deaths among women. In 2018, it is estimated that 627,000 women died from breast cancer-that is approximately 15% of all cancer deaths among women [1].

Age adjusted incidence rate of breast cancer in India is 25.8 per 100,000 which is lower than UK (95 per 100,000). Mortality rate of breast cancer in India is 12.7 per 100,000 which is in par with United Kingdom (17.1 per 100,000) [2]. As estimated by few global and Indian studies, there is a significant increase in the incidence and cancer‑associated morbidity and mortality in Indian subcontinent [3, 4].

Various investigations are on use to detect carcinoma of breast such as USG, Mammography, CT, MRI, FNAC, Core needle biopsy, Excision Biopsy. Even though USG is a screening modality, combined mammography and USG can pick number of cancers than USG or alone. CT can be used to assess lymph nodes in axilla, mediastinum, and supraclavicular and can help in clinical staging cancers. MRI can be used in high risk women, women with breast implants, to differentiate scar from recurrence. FNAC is a rapid, less expensive, less invasive test and helps to distinguish benign or malignant lesion. Excisional biopsy is a confirmatory test and aid in the diagnosis of type of cancer. Further diagnosis can be evaluated by biomarkers investigations [5,6]. Treatment of carcinoma of breast depends on type of cancer and etiology behind that. Various management options available now are surgeries, chemotherapy, hormonal therapy, radiation therapy, endocrine manipulation. Combined assessment of clinical, radiological and pathological is an excellent approach and exceeds diagnostic accuracy to >99% [7].

Finding the type and cause of cancer to treat patients appropriately is capturing the attention of clinicians. Now-a-days, incidence of breast lumps also has been increasing; Hence in this study,

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we tried to project incidence of various types of carcinoma of breasts in this region and its clinical presentation.

Materials and Methods
A retrospective study was conducted on patients admitted in Department of General Surgery, Government General Hospital of Anantapuram from February 2018 to November 2019. A total 64 patients presenting with breast lump with or without lymphadenopathy and confirmed as malignancy by Fine Needle Aspiration Cytology were included in this study.

Inclusion Criteria: Patients aged above 20 years
All proven cases of breast carcinoma by FNAC

Exclusion criteria: Male patients with carcinoma of breast Study criteria and requirement has been explained to patient and informed consent took from all patients included in this study. Patients were assessed by clinical and physical examination; advised to undergo routine investigations like complete blood count, urine microscopy, renal function tests, blood glucose, liver function tests, ECG, chest x-ray, USG, FNAC to diagnose and confirm preoperatively and to plan for further management.
After confirmation by FNAC and other clinical findings, patients were treated by different types of mastectomies such as simple mastectomy, simple mastectomy with axillary clearance, modified radical mastectomy depending on type and stage of carcinoma. For chemotherapy, hormonal therapy and radiotherapy, patients were referred to multimodal cancer treatment department at our hospital. After surgery, specimen was sent in formalin for excisional biopsy testing to Department of Pathology.

Cases were followed up further for any recurrence of the tumour at the operated site, recurrence in axilla and post-operative complications. If the patient presented with features of metastasis, then they have been evaluated by to find the metastasis. All the data pertaining to clinical examination, biopsy and other investigations were entered in pre structured questionnaire. Results were plotted in excel sheet and analysed.

Results
A total of 64 female patients with proven carcinoma of breast by Fine Needle Aspiration Cytology were further managed and analysed. Majority of carcinoma of breast cases were noted in the age group of 41-60 years i.e., 57.8% followed by >60 years of age (23.4%) and 21-40 years (18.7%). Most of the patients presented with only lump, it was 76.5%, 14.06% patients had lump with skin changes like ulcer, peau d' orange etc., and 9.3% had lump with pain. Out of 64 studied population, 35 (54.6%) presented with Upper outer quadrant tumour location, 14 (21.8%) had upper inner quadrant tumour, 11 (17.1%) had lower inner quadrant, 4 (6.2%) had in central quadrant and remaining 2 (3.1%) patients had lower outer quadrant (Table 1).

Table 1: Clinical features of Carcinoma of breast

Parameters	No of patients	Percentage (%)
Age in years		
21-40	12	18.7
41-60	37	57.8
>60	15	23.4
Breast Lump		
Lump	49	76.5
Lump with Skin changes	9	14.06
Lump with Pain	6	9.3
Tumour location		
UOQ	35	54.6
UIQ	14	21.8
LOQ	2	3.1
LIQ	11	17.1
Central	4	6.2

*UOQ-Upper outer quadrant tumour location, UIQ-Upper inner quadrant tumour, LIQ-Lower inner quadrant central quadrant, LOQ-Lower outer quadrant

On Histopathological assessment by examining biopsy specimen, out of 64 patients, 57 (89.06%) had invasive ductal cell carcinoma (IDCC) and 3 (10.9%) patients had lobular carcinoma. Among IDCC types, 31 (48.4%) were IDCC medullary types, 9 (14.06%) papillary type, 13 (20.3%) were not otherwise specified type (NOS), 4 (6.2%) were cribriform (Fig 1, 2&3).
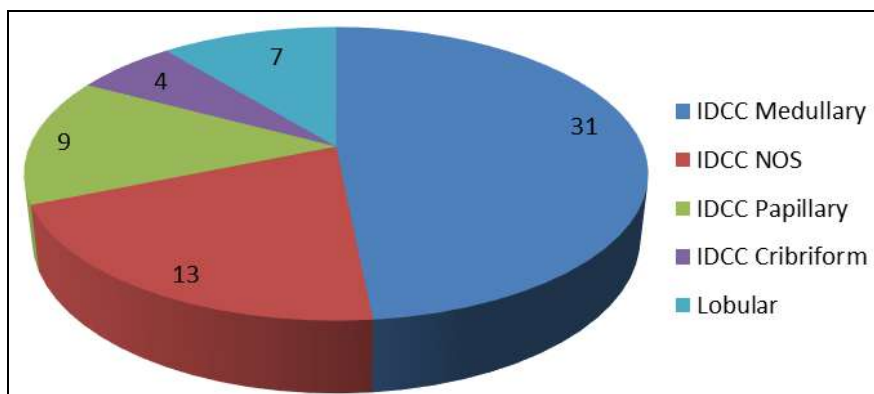

Fig 1: Graphical representation of various histopathological types of Breast carcinoma
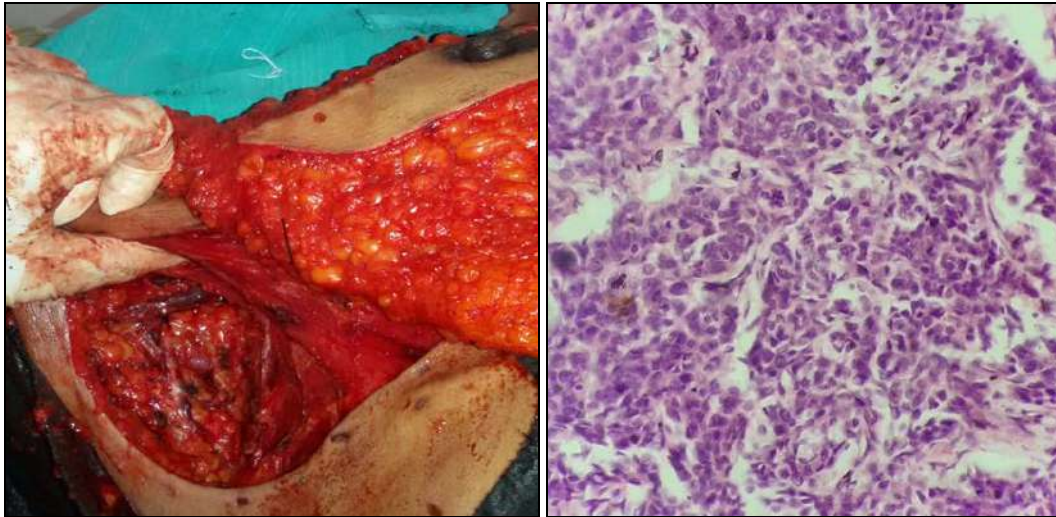
Fig 2: Showing mastectomy specimen of breast tumour **Fig 3:** Showing Histopathological finding of IDCC

On Assessment of TNM staging, majority were IIIA (53.1%) and IIIC (25%) followed by IIIB (9.3%), IIA (4.6%), IIB (4.6%) and IB (3.1%). We didn't observe stage 0, IA, IV by clinically and also by histopathological findings (Fig 2).
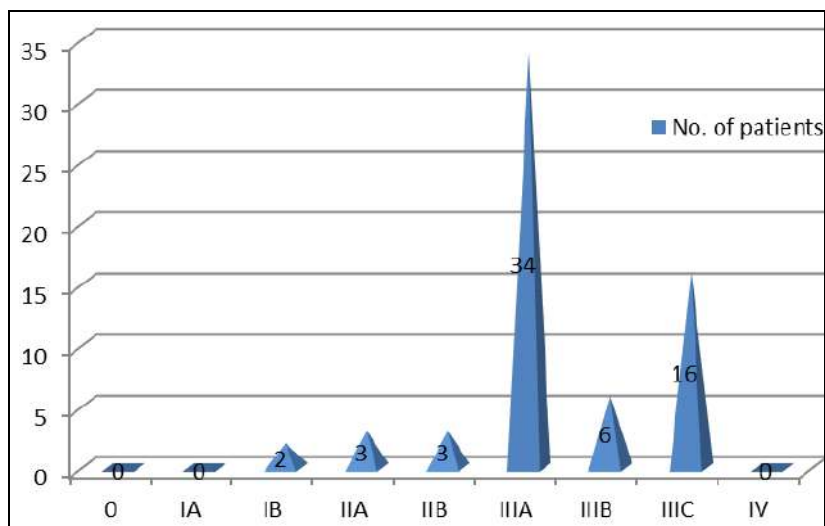

Fig 2: Showing staging of breast carcinoma patients

All types of breast carcinoma were observed predominantly in 40-60 years age group. 41-60 years of 37 women had medullary type (54.05%) predominantly. In 9 younger women of 21-40 years of age, medullary (33.3%), papillary (33.3%) and NOS (25%) types were observed almost equally. In Among 15 women of >60 years of age, medullary (46.6%) and NOS (26.6%) types were observed predominantly. Medullary type was predominantly noted in stage IIIA, IIIC, IIB and IB. Majority of papillary type was observed in stage III, whereas NOS type in stage IIIA and IIIC and lobular in IIIA and IIIC. Cribriform type was noted only in stage IIIA.

Table 2: Age and staging relation with different types of breast carcinoma

	IDCC Medullary (n=31)	IDCC Papillary (n=9)	IDCC NOS (n=13)	IDCC Cribriform (n=4)	Lobular carcinoma (n=7)	Total (n=64)
Age in Years						
21-40	4	4	3	0	1	12
41-60	20	3	6	3	5	37
>60	7	2	4	1	1	15
Staging of carcinoma of breast						
0	0	0	0	0	0	0
IA	0	0	0	0	0	0
IB	2	0	0	0	0	2
IIA	1	0	2	0	0	3
IIB	2	1	0	0	0	3
IIIA	17	3	5	4	5	34
IIIB	1	3	2	0	0	6
IIIC	8	2	4	0	2	16
IV	0	0	0	0	0	0

Discussion

In India, both benign and malignant breast lumps are quite common, malignancy of breast is second most common. Evaluation of breast lumps preoperatively is an essential component for management. Worldwide, for diagnosis of breast carcinoma most of the health care systems have been following triple assessment approach by clinical, radiological, and pathological. FNAC is a first line pathological investigation in both screening and symptomatic patients.

There are several types of tumours that may develop within different areas of the breast. Most tumours are the result of benign (non-cancerous) changes within the breast. For example, fibrocystic change is a non-cancerous condition in which women develop cysts (accumulated packets of fluid), fibrosis (formation of scar- like connective tissue), lumpiness, and areas of thickening, tenderness, or breast pain. Most breast cancers begin in the cells that line the ducts (ductal cancers). Some begin in the cells that line the lobules (lobular cancers), while a small number start in the other tissues [8].

A total of 64 female patients with proven carcinoma of breast by Fine Needle Aspiration Cytology were further managed and analysed. Majority of carcinoma of breast cases were noted in the age group of 41-60 years i.e., 57.8% followed by >60 years of age (23.4%) and 21-40 years (18.7%). Most of the patients presented with only lump, it was 76.5%, 14.06% patients had lump with skin changes like ulcer, peau d' orange etc., Out of 64 studied population, 35 (54.6%) presented with Upper outer quadrant tumour location, 14 (21.8%) had upper inner quadrant tumour, 11 (17.1%) had lower inner quadrant, 4 (6.2%) had in central quadrant and remaining 2 (3.1%) patients had lower outer quadrant.

Saha K *et al* [9] reported the mean age of the patient was 46.53±11.85 years. 65.8% of patients presented with only lump, 17.5% presented with lump and pain, 5% with lump and skin changes, 11.7% lump and skin changes. 45% of tumours had diffuse involvement of breast, 14.2% central, 15.8% of upper outer quadrant, 11.7% of upper inner quadrant, 5.8% of lower outer quadrant and 7.5% of lower inner quadrant. In Fletcher's textbook [10] it has mentioned that breast cancer can occur at any age. Incidence is high in the age group of 45-60 years and rarely reported in patients younger than 25 years and over 80 years. WHO estimated that symptoms of breast cancer presented as 60-70% had breast lump, 14-18% for pain, 7-9% for nipple problems, 1% for deformity, 1% for inflammation [11]. Raina *et al* [12] reported 96.5% presented with breast lump, 15.8% had pain and 4.9% had nipple discharge. Marsha II and Higginbotham's [13] detected 60% of breast cancer in UOQ, 12% in UIQ, 10% LOQ, 6% LIQ and 12% in central location. Bailey and Love's textbook [14] also stated that breast cancer involvement in upper outer quadrant of 60%, 12% in both central and upper inner quadrant, 10% in lower outer quadrant and 6% in lower inner quadrant. In Malaysia women especially Malay women presented with breast cancer in later ages and large tumours when compared to its western counterparts; the survival in Malay women is worse than Chinese and Indian population [15].

In the present study, microscopic features suggested out of 64 patients, 57 (89.06%) had invasive ductal cell carcinoma (IDCC) and 3 (10.9%) patients had lobular carcinoma. Among IDCC types, 31 (48.4%) were IDCC medullary type, 9 (14.06%) papillary type, 13 (20.3%) were no other specified type, 4 (6.2%) were cribriform.

In similar to our study, Raina *et al* [12] observed 92.8% invasive ductal carcinoma, 2.9% invasive lobular carcinoma and 1.4% medullary carcinoma. Fernandopulle SM *et al* [16] documented that 92.3% ductal carcinoma, 2.2% lobular, 2.2% mucinous, 2.2% atypical medullary and 1.1% with both ductal and lobular features. In contrast to this study Saha K *et al* [9] documented majority of histopathological findings was IDC NOS type i.e., 90.8%, 5% lobular carcinoma, 1.7% mucinous, 0.8% of medullary, tubular and invasive papillary carcinoma each. Few older studies have also documented IDC NOS is the most common type observed in breast cancers followed by invasive lobular carcinoma [17-19].

Infiltrating ductal carcinoma also called as invasive ductal carcinoma, a variety which is the first common pathology behind breast carcinoma. IDC begins in the milk ducts of the breast and penetrates the wall of the duct, invading the fatty tissue of the breast and possibly other regions of the body. IDC is the most common type of breast cancer, accounting for 80% of breast cancer diagnosis [20].

On Assessment of TNM staging, majority were IIIA (53.1%) and IIIC (25%) followed by IIIB (9.3%), IIA (4.6%), IIB (4.6%) and IB (3.1%) in this study. In contrast to Tae Sik Hwang *et al* [21] did a study in Korea on 976 breast carcinoma patients observed 32.1% were of stage I, 45.1% were of stage II, 20.3% were of stage III and 1.6% were of stage IV. Purva Sharma *et al* [22] did a study from 2009-2016 on 1250 breast cancer patients observed 48.8% were in stage IA. These variations in staging of breast cancer may be depending on population knowledge about awareness of breast carcinoma, early screening and alertness by health campaigns.

All types of breast carcinoma were observed predominantly in 40-60 years age group. Medullary type was predominantly noted in stage IIIA, IIIC, IIB and IB. Majority of papillary type was observed in stage III, whereas NOS type in stage IIIA and IIIC and lobular in IIIA and IIIC. Cribriform type was noted only in stage IIIA as per this study. As per Tae Sik Hwang *et al* reported in patients <35 and ≥35 years, the most common stage was stage 2 and incidences rates were similar, and stage and age were not found to be related.

Early detection and management is the best option in improving quality of life of breast cancers; but in low and middle income countries various challenges have been facing to attain this such as poor infrastructure, unavailability of resources, Globally, there is a wide variation of survival rate among breast carcinoma patients, with an estimated 5-year survival of 80% in high income countries to below 40% for low income countries [23].

Conclusion

Most of the patients in this study had stage III breast carcinoma. State health authorities need to focus in this community about creating breast cancer awareness and should conduct health campaigns and encourage early screening. Open surgical biopsy remains a gold standard and confirmatory diagnostic method for breast cancer; however it has limitations like expensive, invasive and associated with morbidity.

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