



# International Journal of Surgery Science

E-ISSN: 2616-3470

P-ISSN: 2616-3462

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2021; 5(2): 331-334

Received: 08-02-2021

Accepted: 11-03-2021

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## A prospective observational study of the clinical presentation and treatment modalities in locally advanced breast carcinoma

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DOI: <https://doi.org/10.33545/surgery.2021.v5.i2f.717>

### Abstract

Breast cancer is the most common site specific cancer in women and is the leading cause of death from cancer for women aged 20 – 59 years. This study aimed at profiling cases of locally advanced breast carcinoma (LABC) with respect to incidence, age at presentation, most common presentation, histologic type and various modalities in management of locally advanced breast carcinoma (LABC). This prospective study followed 45 cases of Locally advanced breast carcinoma over 2 years. It showed almost 100 percent of females presented with palpable lump with other associated complaints. Peak incidence was noted in 4<sup>th</sup> to 6<sup>th</sup> decade. Major clinical presentation was lump in breast with most common involvement of upper outer quadrant of either breast. Diagnosis was with fine needle aspiration cytology with common histology of invasive carcinoma no special type (NST) followed by invasive ductal carcinoma. Most common treatment sequence used was Modified radical mastectomy followed by adjuvant chemotherapy followed by adjuvant radiotherapy.

**Keywords:** LABC – locally advanced breast cancer, NACT – neoadjuvant chemotherapy, MRM – modified radical mastectomy, AJCC – American joint committee on cancer

### 1. Introduction

Breast cancer is the most common site specific cancer in women and is the leading cause of death from cancer for women aged 20 – 59 years. It accounts for 26% of all newly diagnosed cancers in females and is responsible for 15% of the cancer-related deaths in women<sup>[1]</sup>. Signs of breast cancer may include a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, a newly inverted nipple, or a red or scaly patch of skin. In those with distant spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin<sup>[2]</sup>.

Risk factors for developing breast cancer include being female, obesity, lack of physical exercise, drinking alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or not at all, older age, prior history of breast cancer, and family history<sup>[3]</sup>.

Locally advanced breast cancer is a descriptive term which encompasses a group of heterogeneous tumors with wide range of clinical and biological behavior. According to American Joint Committee of Cancer Staging (AJCC) 2010 it includes stage IIB (Tumor >2cm i.e. T2 to >5cm i.e. T3 in greatest dimension with or without metastases in ipsilateral level I, II axillary lymph nodes i.e. N1), stage IIIA (T0, N2 i.e. no primary tumor with metastases in ipsilateral level I, II axillary lymph nodes clinically fixed or matted or in clinically detected ipsilateral Internal mammary nodes in absence of metastases to axillary lymph nodes, T1N2 i.e. tumor <2cm with metastases, T2N2 i.e. tumor >2 cm with foresaid metastases, T3N1 AND T3N2), stage IIIB (T4N0, T4N1 and T4N2 i.e. tumor of any size with extension to chest wall and/or ulceration or ipsilateral satellite skin nodules or edema (peau d'orange) of skin and inflammatory carcinoma breast<sup>[4]</sup>).

The patients who fit into the clinical definition of locally advanced breast cancer were included in the study. A proper history and careful examination of clinical features were done.

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Investigations that aid the diagnosis were also undertaken. Patients were subjected to various modalities of treatment available.

**Material and methods**

The case material for the present study was taken from our tertiary care hospital. Patients with various breast lesions who were admitted to our hospital were screened by subjecting them to USG of Bilateral Breast and FNAC of lesion.

Total 45 patients presented with stage IIB, IIIA and IIIB carcinoma of breast were included in the study and treated with surgery followed by chemotherapy and/or radiotherapy. Clinical and pathological responses to different chemotherapy regimens were assessed according to World Health Organization criteria.

**Inclusion Criteria**

Nearly 100 patients were screened out of which 45 cases were selected for the present study as they were fitting well to the definition of locally advanced Breast Carcinoma i.e.

All breast carcinoma patients presenting at Tertiary Hospital of 18 yrs and above Females with

1. Large primary tumor (>5 cm, T3)
2. Chest wall extension (T4a)
3. Skin ulceration and satellite nodules (T4b)
4. Inflammatory carcinoma (T4d)
5. Fixed axillary lymph nodes (N2a)
6. Clinically apparent internal mammary nodes (N2b)
7. Periclavicular nodes (N3)

Such cases span Stage IIIA and Stage IIIB of AJCC Classification of breast carcinoma.

**Exclusion Criteria**

1. Patients with carcinoma breast with primary tumor <5 cm (T0, T1, T2) with N0 and primary tumor <2 cm with N1 i.e. stage I and stage IIA.
2. Patients who have undergone any modality of treatment from other Hospitals prior to admission.
3. Patients with Secondary Breast Carcinoma
4. Patients declining Valid Written Informed Consent.

The patients were subjected to investigations like:

Routine:

1. Blood Hemoglobin, Total count, Differential count
2. Blood sugar, Blood Urea, serum creatinine
3. Liver function tests.
4. X-ray chest PA view.
5. Ultrasonogram.
6. FNAC The pathologic diagnosis was confirmed by fine needle aspiration cytology.

Some special investigations like ER/PR status and bone scan could not be done due to unavailability of facilities in our institution. After the investigations the patients were planned for Neoadjuvant Chemotherapy or Surgery depending upon clinical staging.

**5. Results and discussion**

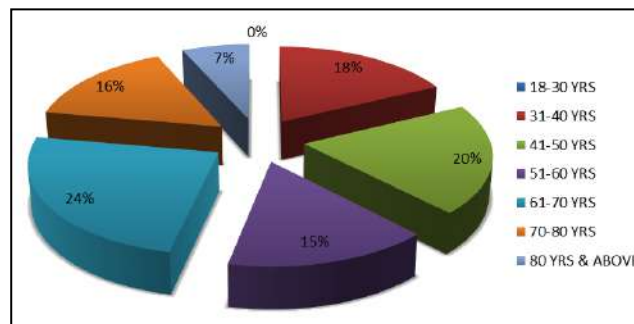
**Table 1:** Number of labc in surgical female admissions

Period	Total no of surgical admission	No of cases of LABC	Percentage
January 2018 to August 2019	2500	45	1.8%

The incidence of LABC in total number of surgical admissions is 1.8%

**Table 2:** Age Incidence

Age in years	No of cases	Percentage
18-30	0	0
31-40	8	17.8%
41-50	9	20%
51-60	7	15.5%
61-70	11	24.4%
71-80	7	15.5%
80 & Above	3	6.7%



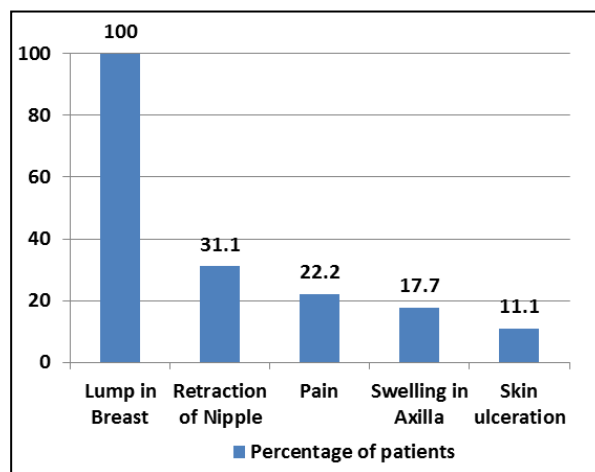
**Fig 1:** Age Incidence

**Table 3:** Presentation to the hospital with complaints (time frame).

Duration (months)	No. of patients with complaints
<3	6 (13.3%)
3-6	24 (53.3%)
7-12	5 (11.1%)
13-24	7 (15.5%)
>24	3 (6.7%)

**Table 4:** Symptoms at presentation.

Symptoms	No. of patients
Lump	45 (100%)
Retraction of nipple	14 (31.1%)
Pain	10 (22.2%)
Swelling in axilla	8 (17.7%)
Skin ulceration	5 (11.1%)



**Fig 2:** Distribution of Symptoms

**Table 5:** Location of Lump

Location(Quadrant)	Number of patients	Percentage
Upper outer quadrant	29	65
Upper inner quadrant	9	20
Central involving NAC	6	13
Lower outer quadrant	11	25
Lower inner quadrant	2	4

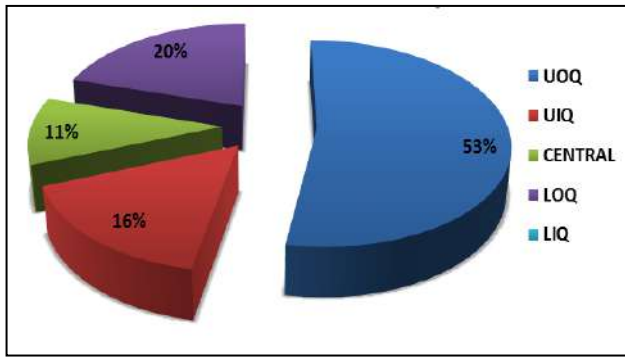


Fig 3: Location of Lump

Lump was the most consistent symptom in all the cases and distortion of nipple (retraction) was the next most common symptom (31.1%), (Table 4). The upper outer quadrant was the commonest quadrant involved in 65% cases (Table 5). Majority of the patients (55.6%) had Post-menopausal status. Most of the patients had duration of symptoms from 3 to 6 months (53.3%).

Table 6: Nipple Involvement

Nipple pathology	Number of patients	Percentage
Retracted	14	31.1%
Paget's Disease	4	8.89%

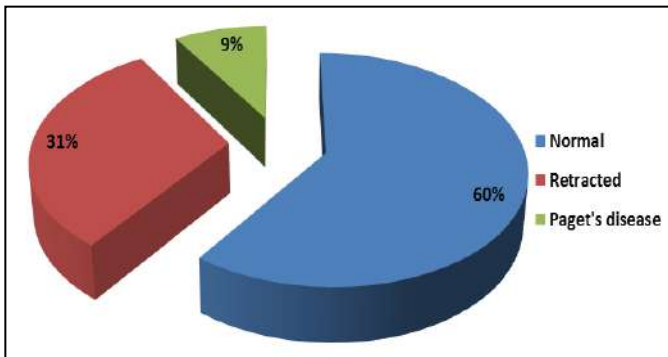


Fig 4: Nipple Involvement

Table 7: Skin Changes in LABC

Skin lesion	Number of patients	Percentage
Redness	0	0
Edema (Peau d'orange) appearance	6	13.3%
Ulceration	3	6.67%

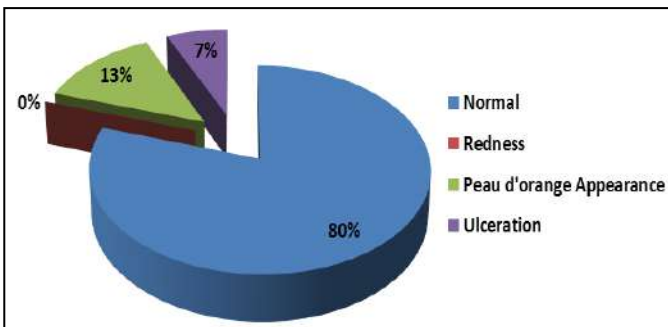


Fig 5: Skin Changes

Table 8: Staging of Malignant lesion

Stage	Number of patients	Percentage
III A	35	77.8%
III B	10	22.2%
III C	0	0

In the current study, after following the inclusion and exclusion criteria, 45 patients were enrolled, all these patients were having locally advanced breast cancer. Based on the TNM stage grouping, the patients were categorized into 3 groups under stage III. Out of 45 patients 35 patients (77.8%) were categorized under stage IIIA. 10 patients (55%) were categorized under stage IIIB, There were no patients under stage IIIC.

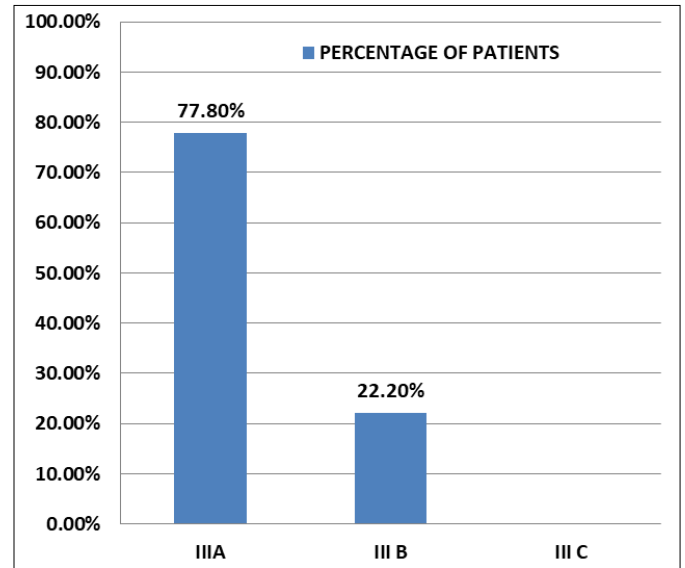
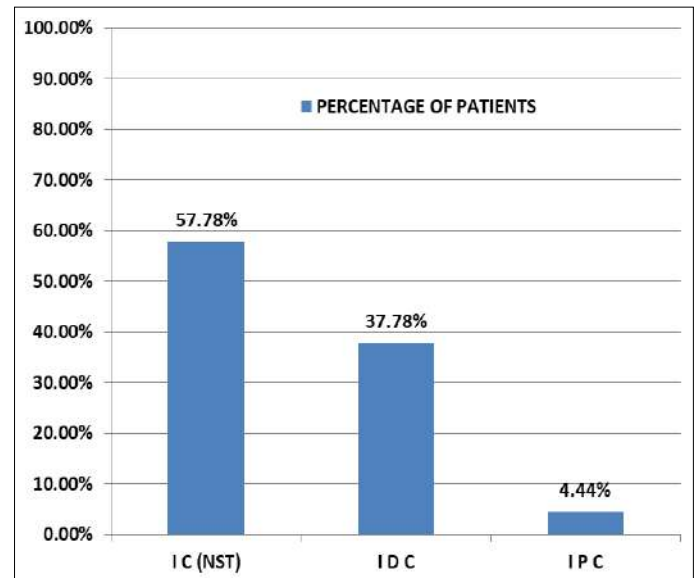


Fig 6: Staging of Lesion

Table 9: Histological type

Histologic type	Number of patients	Percentage
Invasive Carcinoma(NST)	26	57.78%
Invasive Ductal Carcinoma	17	37.78%
Invasive Papillary Carcinoma	2	4.44%



IC NST: Invasive carcinoma (No Special Type) IDC: Invasive Ductal Carcinoma  
IPC: Invasive Papillary Carcinoma

Fig 7: Histologic type of malignant lesion

In the present study on Histopathological Examination the most common Histologic type was Invasive Carcinoma (No Special type) 57.7%, followed by Invasive Ductal Carcinoma 37.7%.

The tumour size ranged from 3 to 12 cm with a mean size of 7.02 cm and majority of patients (77.78%) had tumour size of 5 to 8 cm. Axillary lymphadenopathy was seen in all the cases, but 66.67% cases had N1, 33.3% had N2 and no cases had N3 lymphnodal status.

relapse in locally advanced breast cancer treated with neoadjuvant chemotherapy followed by surgery and radiotherapy. *J Can Res Ther* 2007;3:75-80.

**Table 10:** Sequencing of Treatment

Sequencing	No. of patients	Percentage
S+C	10	22.22%
NC+S+C+R	1	2.22%
S+C+R	22	48.89%
NC+S+C	5	11.11%
NC+S+R	1	2.22%
S+R	6	13.33%

S: Modified Radical Mastectomy; C: Adjuvant chemotherapy; NC: Neoadjuvant Chemotherapy; R: Adjuvant Radiotherapy

Out of total cases of LABC, 35(77.8%) were of stage IIIA, 17(22.2%) were stage IIIB, None were stage IIIC or inflammatory carcinoma. Even though the cases were of LABC, 77.8% cases were considered operable at presentation. Inoperable cases (15.56%) were subjected to neoadjuvant chemotherapy. The sequencing of treatments was shown in Table 10.

## 7. Conclusion

### As per our study we conclude that

- Locally Advanced Breast Carcinoma indeed poses a significant health problem in our institute in Females in their 4<sup>th</sup> to 6<sup>th</sup> decade of life.
- The study revealed that low educational status, health awareness and ignorance are the causes of LABC.
- The treatment of LABC is multimodal and neoadjuvant chemotherapy converts inoperable cases to operable cases and improves longevity of life of the patient.
- Despite of this surgery form the mainstay of treatment for LABC in rural setup considering the patients poor follow-up and defaulting Neoadjuvant regimen thereby complicating the previously treatable malignancy with resistant advanced metastasized disease.
- FNAC of primary lesion along with axillary lymph node has reduced the limitation of differentiation of insitu lesion from invasive one.
- FNAC and Sonomammography were effective in rapid confirmation of diagnosis helping prompt management of locally advanced breast carcinoma.

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