ORIGINAL ARTICLE

Clinical Profile and Treatment Outcome in locally advanced Carcinoma of the Breast: Our Experience

Kovvuri Ramananda Reddy[1], Bikkina Gopala Krishna[1]and Anant Arunrao Takalkar[2]
[1]Department of General Surgery, GSL Medical College, Rajahmundry-533296, Andhra Pradesh, [2]Department of Community Medicine, MIMSR Medical College and YCRH, Latur-413512, Maharashtra, India.

Abstract:
Background: Locally advanced breast cancer (LABC) is a term that encompasses breast cancer that is inoperable or is operable only by mastectomy at initial presentation. This includes T3 or T4 tumors and any N2 or N3 disease (Stage IIB-T3N0 to Stage III). Breast carcinoma is the most common site-specific cancer in females and is the common cause of cancer mortality for women aged 20-59 years. It accounts for 30% of all newly diagnosed cancers in women and is responsible for 14% of the cancer-related deaths in women. *Aim and Objective:* To study the clinical profile and the various treatment modalities with respect to Locally Advanced Breast Carcinoma (LABC). *Material and Methods:* Descriptive Observational Hospital-based study involving 60 patients with LABC as In-patients of the General Surgery Department of GSL General Hospital. *Results:* Majority of the patients i.e., 31.7% patients were in the 41–50-year age group. Left breast was predominantly involved in 51.7% cases. Nipple retraction was noticed in 13.3%and skin ulceration in 11.7% cases. TNM staging revealed Grade III A in 65% cases, IIIB in 31.7% cases and IIIC in 3.3% cases. Complete recovery was seen in majority 42(70%) of the cases. Incidence of seroma as complication was seen in 17 (28.4%) cases and surgical site infection in 11 (18.3%) cases. *Conclusion:* Complete recovery was seen in 70% cases. Incidence of complications in our study was 56.7%.

Keywords: CA breast, Clinical Profile, Management

Introduction:

Breast carcinoma is the most common site-specific cancer in females and is the common cause of cancer mortality in women aged 20 – 59 years. It accounts for 30% of all newly diagnosed cancers in women and is responsible for 14% of the cancer-related deaths in women [1]. Breast cancer caused 6,26,679 deaths in a year worldwide, of about 20,88,849 women are diagnosed each year as per WHO report in 2018 [2]. Over the past ten years or so, breast cancer, has been rising steadily, and for the first time in 2012, breast cancer was the most common cancer in women in India, way ahead of cervical cancer [3].

Higher incidences in developing countries are seen due to lack of active screening and early detection programmes, Ignorance, low awareness of breast cancer, poor access to health care due to poverty, cultural issues, and carcinoma breast patients presents at a later stage of the disease [4].

LABC is identified as a separate group of breast carcinomas. It has a high associated rate of locoregional and systemic failure (at presentation, there is an absence of distant metastasis). It may occur even after surgeons' best efforts to remove the tumour's entire locoregional spread.

Recent US National Comprehensive Cancer Network guidelines describe LABC as AJCC stage III breast cancer; by definition are tumours more than 5 cm size with regional lymphadenopathy (N1-3) or tumours of any size and with direct extension to the chest wall or skin or both (including ulcer/satellite nodules), regardless of regional lymphadenopathy or presence of regional lymphadenopathy irrespective of the stage and in the absence of distant metastasis [4].

Current treatment approaches emphasise the aggressive use of combined-modality treatment, including neoadjuvant chemotherapy, mastectomy, and adjuvant chemotherapy with or without radiation therapy, with hormonal therapy for ER- positive tumours and Trastuzumab for HER-2positive tumours [5].

Aim and Objective:

To Study the clinical profile and the various treatment modalities with respect to Locally Advanced Breast Carcinoma (LABC).

Material and Methods:

Study setting: Patients attending the Department of General Surgery at GSL Medical College & General Hospital and GSL Cancer trust, Rajahmundry.

Study Design: Descriptive Observational Hospital-based study. Study period: 1st October 2018 to 30th October 2019. Sample size: All 60 patients of LABC diagnosed during the period of 1st October 2018 to 30th October 2019 and fulfilling the eligibility criteria were included in our study. Follow-up Period: 6 months (up to 30th April 2020)

Patients were called for follow up at 3 months and 6 months after discharge. Study sample: All patients with locally advanced breast carcinoma (LABC) as Inpatients of the General Surgery Department of GSL General Hospital and those who satisfy Inclusion criteria.

All the patients admitted in GSL General Hospital and Medical College and GSL cancer trust, with locally advanced Breast carcinoma (LABC), i.e., Stage IIIA, IIIB, IIIC in General Surgery were included in the study.

Clinically diagnosed locally advanced breast carcinoma Stage IIIA, IIIB, IIIC Patients but on investigations found to have distant metastasis.

All patients who satisfy inclusion criteria were selected for the study. An informed and written consent was obtained from all study subjects. Institutional ethical review committee approval was obtained before the study's commencement. After detailed History and Clinical Examination, Neo-adjuvant chemotherapy given and the tumour were re-assessed for the feasibility of surgery. All Preoperative routine investigations and specific investigations required for the study were carried out in every study subject. Modified radical mastectomy was performed after which adjuvant chemotherapy/radiotherapy is given. The patients were followed up after 3 months and at 6 months of surgery. All Patients were assessed for postoperative complications like Seroma, surgical wound infections, lymphedema and also the involvement of the opposite breast.

Ethical Issues: Protocol approval from the institutional ethical committee. Informed-written consent was obtained from the study subjects.

All patients with Locally Advanced Breast Carcinoma satisfying the above criteria were included in the study after taking informed consent. All statistical analysis performed by using SPSS software version 20.0 and MS Excel -2010. Descriptive data was presented as Mean +/- Standard deviation (SD) and percentages (%), Tables and Graphs.

Chi-square test is done to assess the association among various categorical variables. Statistical analysis $P<0.05$ will be considered as statistically significant.

Results:

We included total 60 patients in our study. Majority i.e. 31.7% patients were from 41-50 years, followed by 30% from 51-60 years, 16.7% from 31-40 years, 13.3% from 61-70 years. The Mean Age Distribution of the patients in the study group is 51.01+/- 11.08 years. 59 were women and one was male patient.

In majority of the cases, the location of tumour is upper outer quadrant i.e. 53.3%, followed by upper inner in 21.7%, lower inner in 13.3% and lower outer in 11.7% cases.

Left breast was predominantly involved i.e. 51.7% cases. Nipple retraction was noticed in 13.3%, skin ulceration in 11.7% cases. TNM staging revealed Grade III A in 65% cases, IIIB in 31.7% cases and IIIC in 3.3% cases.

In our study, 65.7% of cases are Ductal Carcinoma on Histopathology while only 3.3% were Infiltrating Lobular Carcinoma, and 8.1% were Invasive breast carcinoma of No specific type. In majority of the cases i.e. 76.7% NACT+MRM+ADJ CT was done. In 18.3% cases NACT+MRM was treatment of choice.

Complete recovery was seen in majority of the cases i.e. 42(70%). 11.7% had loco regional recurrence and 11(18.3%) were lost to follow up in our study.

Incidence of complications in our study was 56.7%.

Incidence of seroma as complication was seen in 17

cases i.e. 28.4% and surgical site infection in 11 (18.3%) cases. Flap necrosis was present in 10% cases.

Table No.1: Distribution according to age group

Age group in years	Number	Percentage
< 30	1	1.6
31-40	10	16.7
41-50	19	31.7
51-60	18	30
61-70	8	13.3
>70	4	6.7
Total	60	100

Table No.2: Characteristics of tumour

	Number	Percentage
Side of the breast		
Left	31	51.7
Right	28	46.7
Bilateral	1	1.6
Nipple changes		
Discharge	1	1.7
Retraction	8	13.3
Skin changes		
Peau D Orange	2	3.3
Puckering	6	10
Ulceration	7	11.7
TNM staging		
IIIA	39	65
IIIB	19	31.7
IIIC	2	3.3

Table No.3: Distribution according to treatment strategy

Sequence of Treatment	No. of Patients	Percentage
NACT+MRM	11	18.3
NACT+MRM+ADJ CT	46	76.7
NACT+MRM+ADJ CT+RT	1	1.7
NACT+TM+CT	2	3.3

Table No.4: Distribution according to outcome

	Number of subjects	Percentage
Full Recovery	42	70
Loco Regional Recurrence	7	11.7
Lost to follow up	11	18.3
Total	60	100

Table No.5: Distribution according to complications

Complications	Number of patients	Percentage
No	26	43.3
Yes	34	56.7
Seroma	17	28.4
Surgical site infection	11	18.3
Flap necrosis	6	10
Oedema of arm	0	0

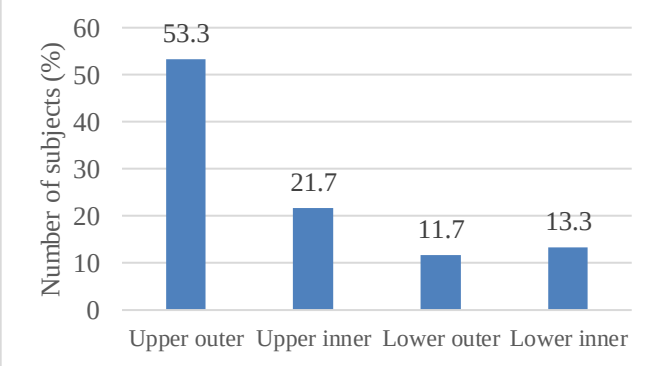

Figure No.1: Location of tumour

Discussion:

We included total 60 patients in our study. Majority i.e. 31.7% patients were from 41-50 years, followed by 30% from 51-60 years, 16.7% from 31-40 years, 13.3% from 61-70 years. The Mean Age Distribution of the patients in the study group is 51.01+/- 11.08 years. 59 were women and one was male patient (Table 1)

The incidence of carcinoma Breast increases with age with the peak incidence seen in the fifth and sixth decades. In contrast, it seems to occur a decade earlier in India because of shorter life expectancy in Indian

women (of about 65.3 years as per 2005 data in India) compared to their USA female counterparts [6].

Goel A et al had also published data of 30% in the same age group, similar to our study [7].

Haagensen et al found a fall in the incidence of carcinoma breast in the age group of 47-52 years which can be explained on the hormonal basis [8], whereas in India age incidence falls between 40-45 years.

A Khemka et al showed among 13 women who were detected with malignancy [9], the incidence of malignant lesions of carcinoma breast above the age of 40 years and the peak incidence is between 40- and 44-years age group.

In Our Study, breast cancer's peak incidence was between 41-50 years of 31.7% as suggested by the Indian Data.

In our study, in majority of the cases, the location of tumour is upper outer quadrant i.e. 53.3%, followed by upper inner in 21.7%, lower inner in 13.3% and lower outer in 11.7% cases (Figure 1).

The Upper Outer Quadrant of Breast is the most frequent site of cancer. Due to the reason that this Quadrant contains a greater bulk of breast tissue than the other quadrants.

Alema et al reported that out of total 85 cases, 49 cases had a lump in Upper outer Quadrant and out of which 6 patients (12.2%) were malignant [10]. In this study, malignancy was not found in other quadrants of the Breast. Goel A had 37% of the cases in the upper and outer Quadrant [7]. In Marshall et al reported that 60% of their patients had a tumour in the upper and outer Quadrant [11].

In our study, left breast was predominantly involved i.e. 51.7% cases. Nipple retraction was noticed in 13.3%, skin ulceration in 11.7% cases. TNM staging revealed Grade III A in 65% cases, IIIB in 31.7% cases and IIIC in 3.3% cases (Table 2).

Gedam et al showed 13.3% of the patients with skin ulceration in their study [12]. In comparison, many studies have shown skin involvement to be in only 10-15% of the cases, thus showing a later stage of presentation in the study. Only 35% of the cases had fixity to the Skin or the chest wall, while 65% had no fixity. Jain S et al showed 10.8% of their cases had nipple retraction [13]. Gedam et al showed 35.5% of their patients with Nipple Retraction [12]. In our study, 13.3% of the patients had nipple retraction.

Gedam et al showed 17.7% of their patients with Nipple Retraction [12]. Jain S et al suggested 10.8% of their cases had nipple discharge [13].

Gedam et al showed 55.6% were of stage IIIA 37.8% were staged IIIB, and 4.4% were stage IIIC [13].

In our study, 65.7% of cases are Ductal Carcinoma on Histopathology while only 3.3% were Infiltrating Lobular Carcinoma, and 8.1% were Invasive breast carcinoma of No specific type. In majority of the cases i.e. 76.7% NACT+MRM+ADJ CT was done. In 18.3% cases NACT+MRM was treatment of choice (Table 3).

Fischer et al study of breast cancer revealed 76.6% of cases to be Infiltrating Ductal Carcinoma while 6.2% of the patients were medullary and 4.9% were infiltrating lobular Carcinoma [14]. All the patients were subjected to two cycles of Neoadjuvant chemotherapy with FAC regimen with 5-fluorouracil at the dose of 600 mg/m2/d IV, Adriamycin at 60 mg/m2 IV and Cyclophosphamide at the dose of 600 mg/m2 IV and assessed for response to chemotherapy.

Yadav et al showed after NACT, surgery was possible in 95% patients, and Baldine et al also showed similar results [15, 16].

Incidence of complications in our study was 56.7%. Incidence of seroma as complication was seen in 17 cases i.e. 28.4% and surgical site infection in 11 (18.3%) cases. Flap necrosis was present in 10% cases (Table 5).

Two prospective clinical trials have randomly assigned patients who have breast cancer to undergo surgery with electrocautery or with scalpel only and have confirmed the lower incidence of seroma formation with the latter technique [17]. Gonzalez EA et al observed that Seroma formation is the most frequent postoperative complication seen after modified radical mastectomy in 19.9% of patients [18]. Gedam et al showed the overall rate of complications of surgery was less than 30% [12]. Flap necrosis was seen in 24.4% cases and was the most common complication. Incidence of Seroma was present in 15.9% of cases.

Wound dehiscence seen in 9.9% and Ipsilateral arm oedema noticed in 9.9%. Matsen C B et al showed out of 606 consecutive procedures, 85 (14 %) had some level of skin flap necrosis [19].

In our study, complete recovery was seen in majority of the cases i.e. 42(70%). 11.7% had loco regional recurrence and 11(18.3%) were lost to follow up in our study (Table 4).

Schaake-Koning C et al studied 118 patients with LABC treated by either of (i) radiotherapy alone [20], (ii) radiotherapy followed by CMF 12 cycles and observed local recurrence in 24, i.e., 28% of the 86 patients who had reached complete remission in a median follow-up period of 5 years.

Conclusion:

The highest incidence of locally advanced carcinoma breast is seen mostly between the fourth and fifth decade in the study. Upper outer Quadrant is the most common site of occurrence of breast cancer. Higher cases of Stage III disease reflect the poor education and negligence on the part of the patients. Complete recovery was seen in 70% cases. Incidence of complications in our study was 56.7%. Seroma is the most common complication followed by surgical site infection observed. Full recovery can be obtained if presented at an earlier stage of the disease.

Conflict of Interest - Nil
Sources of Support - Nil

References

1. Catherine C. Parker, Senthil Damodaran, Kirby I. Bland, Kelly K. Hunt. The Breast, Schwartz's Principles of Surgery, 11th ed. Newyork: Mc Graw-Hill Education; 2019; 561.
2. K. Park, Textbook of Preventive and Social Medicine, 25th ed. Jabalpur: Bansaridas Bhanot Publishers; 2019. Epidemiology of Chronic Non-Communicable Diseases and Conditions. P 412.
3. Asthana S, Chauhan S, Labani S. Breast and cervical cancer risk in India: An update. *Indian Journal of Public Health* 2014; 58: 5-10.
4. National Comprehensive Cancer Network NCCN Clinical Practice Guidelines in Oncology: Breast Cancer. Fort Washington PA: NCCN; 2015. Ver. 2.2015.
5. William L. Donegan, 'History of Breast Cancer', 2005:1 - 12.
6. Monica, Mishra R. An epidemiological study of cervical and breast screening in India: district-level analysis. *BMC Womens Health* 2020; 20(1):225.
7. Goel A, Bhan CM, Srivastava KN. Five year clinico pathological study of breast cancer. *Indian journal of medical sciences* 2003; 57(8):347-349.
8. Haagensen JR DE, Haagensen CD, Mazoujian G, Bodian C. Expression of GCDFP-15 in breast carcinomas. Relationship to pathologic and clinical factors. *Cancer* 1989 ; 63(11):2156-61.
9. Khemka A, Chakrabarti N, Shah S, Patel V. Palpable breast lumps: Fine-needle aspiration cytology versus histopathology: A correlation of diagnostic accuracy. *Internet Journal of Surgery* 2009;18:1-13.
10. O.N. Alema, A.M Gakwaya, D.Wamala. Comparison of Fine Needle Aspiration Cytology and Fine Needle Sampling without Aspiration in Diagnosis of Palpable Breast Lumps in Mulago Hospital. East and Central African Journal of Surgery. 2012;17(1), 104 -111.
11. Marshall MB, Moynihan JJ, Frost A, Evans SR. Ectopic breast cancer: case report and literature review. *Surgical oncology* 1994 ; 3(5):295-304.
12. Gedam MC, Shukla K, Ingale LY. Clinical presentation and management of locally advanced breast carcinoma. *International Surgery Journal* 2018; 5:3690-3694.
13. Jain S, KM GP, Songara MC. Clinico-pathological study of locally advanced breast cancer and their hormone receptor analysis. *International Surgery Journal* 2020;7(9):2951-2954.
14. Fisher B, Land S, Mamounas E, Dignam J, Fisher ER, Wolmark N. Prevention of invasive breast cancer in women with ductal carcinoma in situ: an update of the National Surgical Adjuvant Breast and Bowel Project experience. In Seminars in oncology 2001 Aug 1 (Vol. 28, No. 4, pp. 400-418). WB Saunders.
15. Yadav BS, Sharma SC, Singh R, Singh G. Patterns of relapse in locally advanced breast cancer treated with neoadjuvant chemotherapy followed by surgery and radiotherapy. *Journal of Cancer Research and Therapeutics* 2007; 3:75-80.
16. Baldini E, Gardin G, Giannessi PG, Evangelista G, Roncella M, Prochilo T, et al. Accelerated versus standard cyclophosphamide, epirubicin and 5-fluorouracil or cyclophosphamide, methotrexate and 5-fluorouracil: A randomized phase III trial in locally advanced breast cancer. *Annals Oncology* 2003; 14:227-232.
17. Porter KA, O'Connor S, Rimm E, et al. Electrocautery as a factor in seroma formation following mastectomy. *American Journal of Surgery* 1998;176 (1):8-11.
18. Gonzalez EA, Saltzstein EC, Riedner CS, Nelson BK. Seroma formation following breast cancer surgery. *The Breast Journal* 2003; 9(5):385-388.

19. Matsen CB, Mehrara B. et al. Skin flap necrosis after mastectomy with reconstruction: A Prospective Study. *Annals of Surgical Oncology* 2016; 23(1):257-264.

20. Schaake- Koning C, van der Linden EH, Hart G, Engelsman E. Adjuvant chemo- and hormonal therapy in locally advanced breast cancer: a randomized clinical study. *International Journal of Radiation Oncology, Biology, Physics* 1985;11(10): 1759-1763.

Address for correspondence: *Dr. Anant A.Takalkar, Professor, Department of Community Medicine, Maharashtra, Institute of Medical Sciences & Research, Medical College and Yashwantrao Chavan Rural Hospital, Latur-413512, Maharashtra, India.*
Email:ananttakalkarpsm@gmail.com,
Mobile: +91 8722920276.

How to cite this article: Kovvuri Ramananda Reddy, Bikkina Gopala Krishna, Anant Arunrao Takalkar. Clinical Profile and Treatment Outcome in locally advanced Carcinoma of the Breast: Our Experience. Walawalkar International Medical Journal 2022; 9(1):18-23. http://www.wimjournal.com.

Received date: 15/03/2022 Revised date: 25/04/2022 Accepted date: 26/04/2022