

# Study of Breast Cancer- A Critical Audit of a Surgeon and Pathologist at a Rural Cancer Centre

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## ABSTRACT

**Introduction:** The burden of cancer is huge in this country. Poor screening facilities and poor paying capacity of population has added to the complexity of Cancer health care. Availability of relevant human resources is another challenge. A new health facility also has to ensure patronage from the local populace which is heavily influenced by proximity to other major cancer care facilities in adjacent metros and the media branding of other organizations. This study is an attempt to audit the breast cancer work at this centre and use it as a benchmark for the quality of care in this institution by comparing it with the national data.

**Material and Methods:** We used clinical care – Care of breast disease as a surrogate marker for performance assessment of the institution viz., Administration, Planning, prioritization and standardization of clinical care.

This is a cross sectional retrospective study of all patients with symptoms related to breast who presented to this institution between 2006 and 2012. Data was analysed in terms of demographics, clinical features, histopathology and operative findings.

**Results:** Demographics, clinical presentation, treatment options offered were comparable to national data. In spite of pre operative counselling, we found low acceptance for conservative breast surgery and post surgical reconstruction.

**Conclusion:** Apart from the mindset of the administration and vision of the leaders it is the finances that play a crucial role. Support from State is necessary to sustain and it could be in the form of grants or insurance. Such insurance will allow completion of treatment by BPL. Treating physicians in such centers need to be focused not only on clinical care but should play an active role in guiding and administering the hospital to ensure appropriate investments.

**Keywords:** Breast Cancer, Rural Cancer Centre, Clinical Audit

## INTRODUCTION

It is well known fact, that establishing a cancer centre in a rural setup is fraught with lot of troubles. This ecosystem is beseeched with want of qualified doctors, trained paramedical staff and skilled nursing with orientation to cancer care. In addition to shortcomings in human resources, sustaining the organization in a charity setting and providing exhaustive cancer care is a huge burden.<sup>(1)</sup>

Finally a new institution has an additional challenge to establish its credibility for a good patronage. Audit of the work done at an institution is the stepping stone for improvement and a mode of insight into the quality of service provided to the patients.

In an institution compromised by access to trained staff, infrastructure facilities, an imbalance between the viable costing of treatment and affordability of the patient and an administration bereft of guidance, setting and achieving reasonable goals in patient care is an accomplishment.

Red Cross Cancer Hospital, Nellore started as a small

rudimentary Cancer Detection centre in the hope of providing screening facilities, grew into a treatment facility in the face of inexorable demand for cancer care.

The shortcomings of finances, trained personnel, most importantly lack of established credibility and necessary facilities to ensure safe surgery were omnipresent as are the needs for care for various and complex cancer surgeries.

Conviction in stated goals, belief in abilities and resourcefulness allowed us to plan our strategy at the institution. Breast Cancer has been the first disease we chose to tackle. The reasons being, a high incidence, relatively easy surgery with minimum post operative care, easy to counsel and achieves higher social impact.

In this study we attempted to review our work, understand disease presentation and compare it with established and published data and analysed our journey in establishing the surgical oncology department at the institution.

## MATERIAL AND METHODS

Cross sectional studies are easy to perform and we chose this medium to audit our work due to obvious and stated limitations of this institution.

The specific period of this study was from 2006 to 2012 – a time frame the institution stabilized as a surgical centre and a stable cohesive service was being provided consistently by the same surgeon and pathologist.

All patients both male and female who presented to the outpatient department with complaints related to breast were included in this study. A total of 420 patients presented to our hospital with complaints related to breast were included in the study. We collected data by reviewing the case sheets from Medical records division. The aims and method of study were cleared by the concerned in the administration of this cancer centre.

Data was collected and analysed in terms of Demographics, clinical presentation, operative findings, Histopathology and follow up. Data was collected and compared with national data.

## STATISTICAL ANALYSIS

Microsoft office 2007 was used to make tables and graphs. Descriptive statistics like mean and percentages were used to

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interpret results.

**RESULTS**

A total of 420 patients presented with breast lesions/ complaints of which 79.7% turned out to be malignant. The peak age of incidence of malignant lesions was between 41 – 50 years (97 cases, 28.95%), followed by the age group of 31 – 40 years (81 cases, 24.17%) and 51 – 60 years (73 cases, 21.79%).

The earliest age of presentation was 18 years and the oldest being 78 years (Figure-1). An examination of disease in the males showed that Male breast carcinoma accounted for 0.89% of all breast malignancies in our study. Two patients had involvement of right breast and one had left sided involvement. All three cases were retroareolar in location and had no lymphatic metastases at presentation. One patient had T1 disease while two others had T2 stage. We found a significant left-sided lateralization for breast cancer in the present study which was consistent with analyses performed in previous studies.<sup>4,5</sup> Bilaterality was noted in only one female aged 65 years with advanced disease in T3N3Mx stage.

Highest number of tumors were detected in the T2 stage i.e with size varying between 2 – 5 cms (66.95%). In decreasing frequency T3 > T1 > T4 stage tumours were observed.

Among the histological variants, the common presentation was that of invasive duct cell carcinoma (270 cases) accounting for 80.59%. The next common was lobular carcinoma which accounted for 4.47%. Significant number of poorly differentiated carcinomas were noted in the current study (13 cases, 3.88%). Paget’s disease of the nipple was seen in 6 cases all of which were associated with invasive duct cell carcinoma (Figure-2, table-1)

Histopathological analysis revealed maximum number of patients had no lymphatic metastasis (44.49%) in a study where T2 is the most common form of presentation of the primary. N1 status with 1-3 axillary lymph node involvement was the next in frequency followed by N2 and N3.

A crucial development in the treatment of breast carcinoma has been the realization that the presence of hormone (estrogen and progesterone) receptors in the tumor tissue correlates well with response to hormone therapy and chemotherapy. Estrogen receptor status is regarded at present as the most powerful predictive marker in breast cancer management. Progesterone receptor (PR) is a weaker predictor of response to endocrine therapy than estrogen receptor (ER).

Both Estrogen (ER) and progesterone receptors (PR) are found positive in only 20-45% of Indian patients. Our study showed ER and PR positivity in 21%. Immunohistochemistry of HER2/ Neu oncogene along with ER and PR receptors segregated breast carcinomas at the molecular level. Triple negative carcinomas were categorized with high grade characteristics. We found 3 cases of triple negative carcinomas in our study accounting for 1.28%. This is lower than the existing percentage of 10 – 20%. Distant metastases are seen most commonly in the skeletal system, lung, pleura, liver, ovary, adrenal gland, and central nervous system (including leptomeninges and eyes). However in our study liver metastases (16 cases) dominated over skeletal metastases (9 cases), followed by brain and lung metastases (5 cases each ).Local recurrence is a sign of poor prognosis. This was noted in 8 cases in our study after complete management.

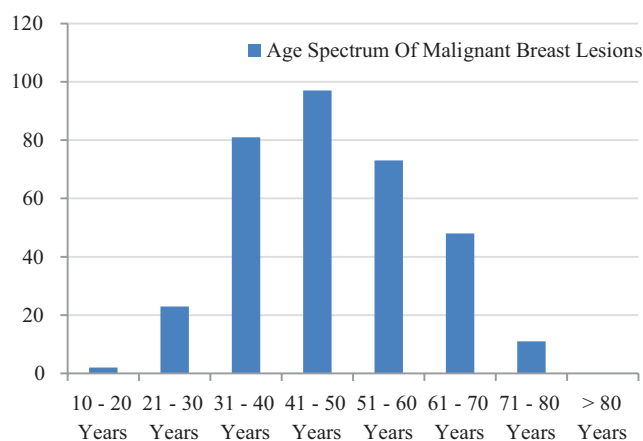


Figure-1: Age spectrum of malignant breast lesions

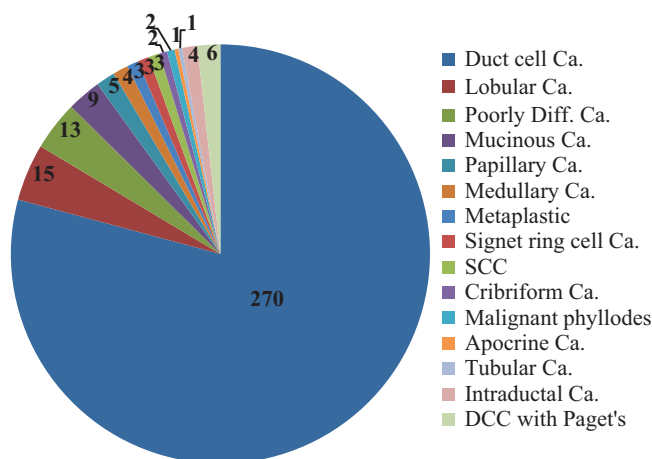


Figure-2: Histological variants

Histological Type	Current study	Existing data
Mucinous	2.68%	1 – 4 %
Papillary	1.49%	1 – 2 %
Medullary	1.19%	1 – 7 %
Metaplastic	0.89%	< 1 %
Cribriform	0.59%	0.8 – 3.5 %
Apocrine	0.29%	1 – 4 %
Tubular	0.29%	0.7 – 10.3 %
Paget’s	1.79%	1.4 – 3 %

Table-1: Histological variants

**DISCUSSION**

Analysis and comparison of our data with existing literature showed a similarity and consistency.

There were a total of 106 cases in women younger than 40 years in our study accounting for 31.64%. And this figure is consistent with international and Indian trends.<sup>2,6-8</sup> A study by Murthy et al. reveals a raise in incidence in younger age groups (<45years).<sup>9</sup> The average age of patients in 6 hospital based cancer registries in india ranged from 44.2 years Dibrugarh to 46.8 years in Delhi.<sup>10</sup>

The mean age of diagnosis for men with breast cancer according to existing literature is around 60 years i.e 5-10 years later than in women. However in our study all three patients presented in early fifties. The most common histological type in males is duct cell carcinoma and our study correlates with this data.<sup>3</sup> The stage at diagnosis of a malignancy is an important

determinant of survival. Our figures indicate the higher prevalence of stage II tumours in the study population. This is in accordance to the studies of Ikpat et al, Nair et al, Fakhro et al and Ibrahim et al.<sup>11-14</sup>

Estrogen receptor concentrations are lower in tumors of premenopausal women than in those of postmenopausal women. In our study ER positive cases accounted for 37% and this could be due to the fact that majority of the cases for which IHC was done in our study were in premenopausal age (table-2).

As the Institution is branded as a cancer hospital and having become popular as a referral centre towards the later period, we see a overall predominance of malignant lesions. Also we need to infer the fact that social stigma associated with cancer and cancer hospital, made this institution a last choice for evaluation of breast complaints. Most patients came to hospital after having already been diagnosed with malignancy. Such situations could lead to a delay in treatment and probably wrong treatment. Investment should go into educating the public about the disease.

Financial status of the institution improved after the government implemented the public health insurance. This facilitated routine inclusion of prognostic markers in work up which inturn improved decision making. But such changes were possible because of active role of physicians in administration.

Several investigations like CT Scan, PET CT were not available in house. As the treating physicians were in lead administrative posts and their pro active nature and resourcefulness helped develop rapport with other institutions to offer deficient services at a discount and on a priority.

We collaborated with a institution having advanced plastic surgery resources for providing reconstruction options to our patients. But, in spite of regular pre operative counseling, there were few takers. We assume social stigma, cultural reasons and the discomfort of a second surgery at a different institution could be the reasons behind.

A new center in a rural/ semi urban location is fraught with credibility issues apart from deficient human resources. This institution had an additional disadvantage, of being just 3 hours away from a metro with established medical care. A dual pronged strategy was devised by the physicians in administration. Educating the medical community about the available infrastructure, methods and quality controls in the hospital was done by conducting CME, get-togethers etc within the campus. Every opportunity was used to gain the confidence of the referring doctor community. A monthly newsletter was instituted to act as a bridge and a fool proof procedure to ensure the referring doctor updated about the status and treatment given to the patient.

The second strategy to improve credibility of the institution was to reach out to the community. We were continuously looking out for opportunities to reach the public through screening camps at schools, colleges and associations. All designated cancer days were used to publish patient education materials in the print and visual media on behalf of the hospital.

Budding cancer centers should be lead by administrators who are dynamic, aware about the shortcomings, resourceful to overcome them and endowed with the necessary vision for the future. Cancer is a disease which has significant social impact and attracting philanthropy is relatively easy provided

IHC - Total 233 cases	
ER and PR positive	50
ER and PR negative	138
Total ER positive	87
Total PR positive	57
Total ER negative	146
Total PR negative	176
<b>Table-2: Hormone receptor status</b>	

a high degree of transparency is ensured in administration and imaginative planning and projection of the quality of work could be done.

Breast cancer was chosen as a benchmark to asses performance of the hospital and the steady increase in number of patients, acceptance for surgery and acceptable followup figures assure us about the standard of care.

## CONCLUSION

Better results of cancer care can be achieved by adopting multidisciplinary approach and creation of comprehensive cancer care centers is the need of the day.

Pro active networking is a must to ensure overcoming lacunae in these institutions and our such attempts helped our patients in securing nuclear medicine, advanced radiology and image guided radiotherapy services as needed in other centres.

Establishing viable cancer care centers needs physicians with special interest and training in oncology and strong motivation to keep abreast of rapidly changing treatment scenarios. Sustaining these centers needs strong financial backing and government funded health insurance schemes as provided at this institution facilitated introduction of IHC, advanced radiological imaging and monoclonal antibody therapies.

Introduction of pre operative counselling and disease specific consent forms, education of the patient regarding options of breast conservation and reconstruction, prior explanation about radiotherapy and chemotherapy improved patient retention for surgery. Introduction of non surgical options of cosmesis through special undergarments in a predominantly financially weak patient population (who otherwise couldn't afford breast reconstruction) helped overcome the social and psychological barrier to mutilating mastectomy.

This cross sectional study of breast cancer revalidated the national data in this geographic region and emphasized the age shift of breast cancer incidence, with younger patients being afflicted more, even in tier 2/3 cities like Nellore and semi urban population.

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