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Original Articles

Switch Maintenance Tyrosine Kinase Inhibitors in EGFR Mutation Positive Metastatic Non–squamous NSCLC: Experience from the real world
A. Pandey, V. Noronha, A. Joshi, K. Prabhash ............................................................................................................................................................06

Primary Thyroid Lymphoma: Clinicopathologic Characteristics and Therapeutic Outcomes of Six Cases in Morocco ...........................................11
A. Adani–Ifè, H. Kloub, N. Salmi, H. Mrabti, H. Errihani

Evaluation of Clinicopathological Findings on 255 cases of Inoperable Locally Advanced Breast Carcinoma: A Tertiary Care Experience .... 16
S. Naveed, H. Quari, G. Pangawani, A. Shah, B.B. Panday

Effect of Cancer Awareness on the Percentage of Reported Oral Cancers in Aden, Yemen .....................................................................................21
Wael Al–Kahiry

Population Pharmacokinetics of Imatinib and its application to the therapeutic drug monitoring: Middle East CML population ............................26
M. Ansari, B. Kalantary–Khandani, A. Pardakhty, M. Safavi, N. Mosavi, E. Mokhjiri

Does Alternative and Traditional WASAM (Local cautery) Therapy Facilitate an Early and More Extensive Loco–regional Metastasis of Breast Cancer? ......................................................................................................................................37

Ring chromosome may signal progression of Fanconi anemia ........................................................................................................................................43
R. E. Abdelgadir, K. Mohamed, I. F. Elmula

Assessment of hypoxic stress in 44 women with breast cancer in the West Algeria .............................................................................................47
A. Medjdoub, Z. Tahari, L. Belhabri, T. Sahraoui, F.Z. El Kebir

Neo–adjuvant Chemotherapy in Locally Advanced Breast Cancer: A Retrospective Analysis from Tertiary Care Centre ........................................51
D. Sharma, G. Singh

Chemoradiation for organ preservation in the treatment of muscle invasive bladder cancer: Our Institutional Experience ........................................................................55
S. Gupta, S. De, N. Leekha, S.C. Sahay, P. Chaudhary, S. Srinivasan, M. Nandy

Case Reports

Unusual Destruction of the Nasal Septum ..................................................................................................................................................61
T. Assi, E. El Rassy, T. Moussa, S. Tabchi, R. Chbib, M. Ghosn

Gastro–Intestinal Stromal Tumors (GIST): Institutional Experience at SRMS–IMS, India .....................................................................................64
S. Gupta, K. Ankit, A. Gupta, T. Agarwal

Metastatic Ameloblastoma to Brain: A Rare Entity .................................................................................................................................69
S. Arif, N. Khursheed, M. Rumana, B. Azhar, A. Ramzan

Moderately Differentiated Neuroendocrine Cell Carcinoma of the Vulva: A Case Report and Review of the Literature ..............................72
S. Aminimoghaddam, A. Maghsoudnia, S. Shafiee

Acute lymphoblastic leukemia mimicking Wilms tumor at presentation ........................................................................................................76
A. Singh, A. Mandal, V. Gnanaguru, R. Seth

Review Article

The Pathophysiologic Basis of Anaemia in Patients with Malignant Diseases ..................................................................................................80
U.A. Ibrahim, A.A. Yusuf, S.G. Ahmed

Conference Highlights/Scientific Contributions

News Notes ..................................................................................................................................................................................................................90
Advertisements ...................................................................................................................................................................................................93
Scientific events in the GCC and the Arab World for 2016–2017 .........................................................................................................................94
Evaluation of Clinicopathological Findings on 255 cases of Inoperable Locally Advanced Breast Carcinoma: A Tertiary Care Experience

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Abstract

Introduction

Breast cancer is the second most common cancer in the Indian female population. LABC and metastatic breast cancer are the most common stages at presentation in most low-resource countries (1–4). Although the incidence of LABC has decreased significantly in countries with enhanced resources thanks to widespread education and screening programs, it remains a daily encounter for surgeons and oncologists in low-resource countries (6–8). Neoadjuvant therapy has been studied widely for the treatment of LABC and is followed by locoregional therapy (9).

Objectives

As per our hospital data, breast cancer is also found to be the second leading malignancy in women and locally advanced breast cancer is the most common type of breast cancer. Hence, we undertook this study to evaluate the clinical profile, histopathologic types and grade of the disease in our patients.

Materials and Methods

This study was undertaken over a period of three years comprising of 255 patients who underwent modified radical mastectomy following neoadjuvant chemotherapy after preliminary diagnosis of carcinoma on histopathological examination of the truncut biopsy specimens. Clinicopathological evaluation was done in all of these cases following standard protocols.

Results

The study comprised of 252 female patients and 3 male patients in the age range of 26 to 70 years. Majority (255, 66.6%) of the cases were within the age range of 31–60 years. Three females had bilateral breast cancer. Invasive ductal carcinoma no special type was the most common histopathologic pattern, and was seen in 254 (98.4%) cases. Most tumors were Scarff Bloom Richardson grade II and American Joint Committee on Cancer pathologic stage 3.

Conclusions

The present study has provided information about the clinicopathological aspects of locally advanced breast cancer in patients who are from rural areas. LABC remains a daily encounter and challenge for medical and surgical oncologists in developing low-resource countries. Neoadjuvant chemotherapy is recommended for inoperable LABC at all resource levels.

Key Words

Breast cancer, grading, histopathology, staging, locally advanced.

Introduction

Worldwide, breast cancer is the most common form of cancer in women and listed as second leading cause of cancer death among women (9, 10). Early detection with screening mammography and multimodality treatment has reduced the cancer mortality in western countries; however, it still continues to have a high prevalence in the developing countries. Although the incidence of LABC has decreased significantly in countries with enhanced resources thanks to widespread education and screening programs, it remains a daily encounter for surgeons and oncologists in low-resource countries (11–13). Every year 75,000 new cases of breast cancer are diagnosed in Indian women (11) and it is regarded as the most common...
cancer in women in many metropolitan cities and the second most common cancer in the rest parts of the country [12, 13].

The pathogenesis of breast cancer is complex and many factors, such as, genetic, dietary, environmental and lifestyle related have been extensively studied and implicated. The prognosis and treatment of the disease depends on various parameters such as the tumor size, lymph node status, histopathologic type, the grade and stage of the cancer. As per our hospital data, breast cancer is the second most frequently observed malignancy in females, and second to cervical cancer and locally advanced breast cancer is the most common type among breast carcinoma. Hence, the present study was undertaken to include patients from January 2010 to January 2013 to characterize the clinical profile, histopathologic types and grades of the disease in our patients.

Materials and Methods

Between 2010 and 2013, all patients presenting to our institution with locally advanced breast cancer requiring neoadjuvant chemotherapy were entered into the current study, provided they had a Karnofsky index of at least 80, age < 75 years, adequate renal and hepatic function, no history of a myocardial infarct or congestive heart failure or significant cardiac arrhythmias. Histological diagnosis was established by core needle biopsy and the absence of distant metastases was based on complete physical examination, chest X-ray, USG abdomen, CT abdomen and bone scan. 255 cases satisfied these requirements.

Out of 255 cases, three female patients had bilateral carcinoma, and thus the total sample size was of 258 MRM specimens. The median duration of symptoms was 8 months with a range from less than 3 month to more than 3 years. Detailed clinical examination was done in all 255 cases. Histopathological evaluation of the 258 MRM specimens was done from paraffin embedded sections stained by Haematoxylin and Eosin (H and E) stain following the standard on Scarff Bloom Richardson’s (SBR) grading system and TNM staging (where, T describes the size of the tumor and whether it has invaded nearby tissue, N describes regional lymph nodes that are involved, M describes distant metastasis (spread of cancer from one body part to another)) based on American Joint Committee on Cancer (AJCC) was done in all tumors [6, 7]. Neoadjuvant chemotherapy of CAF (cyclofosfamide, adraimycin and 5-FU) was given as 3 cycles followed by clinical assessment by the surgical oncologist and medical oncologist, decision was made regarding the operation to be done. Modified radical mastectomy was done followed by additional 3 cycles of adjuvant chemotherapy and external beam radiotherapy. Hormonal therapy was initiated when indicated.

Results

The study comprised of 255 cases of which 252 (98.82%) were females and 3 (1.1%) were males. The age of the patients ranged from 26 to 70 years. Majority of the patients (255, 66.6%) were between 31–60 years of age. The mean age of breast cancer seen in the males was 64.6 years. Three of our female patients had

![Figure 1: LABC with peau d'orange](image)

<table>
<thead>
<tr>
<th>Gross findings (%)</th>
<th>Microscopic findings (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITE</td>
<td>TYPES</td>
</tr>
<tr>
<td>UOQ 135 (52.3)</td>
<td>Invasive ductal 254 (98.4)</td>
</tr>
<tr>
<td>UQ 35 (15.5)</td>
<td>Invasive lobular 3 (1.16)</td>
</tr>
<tr>
<td>LOQ 30 (12.8)</td>
<td>Mucinous 1 (0.38)</td>
</tr>
<tr>
<td>LQ 20 (3.9)</td>
<td>Papillary 2 (1.1)</td>
</tr>
<tr>
<td>Central 8 (2.8)</td>
<td>Metaplastic 1(0.6)</td>
</tr>
<tr>
<td>SKIN CHANGES</td>
<td>SBR GRADE</td>
</tr>
<tr>
<td>Uceration-30 (11.62)</td>
<td>I 120 (46.51)</td>
</tr>
<tr>
<td>Fungating growth-12(4.65)</td>
<td>II 126 (48.83)</td>
</tr>
<tr>
<td></td>
<td>III 12 (4.65)</td>
</tr>
<tr>
<td>SIZE (TNM)</td>
<td>LYM ph NODE STATUS</td>
</tr>
<tr>
<td>T1-0 (5.0)</td>
<td>pN0-78 (30.23)</td>
</tr>
<tr>
<td>T2-6 (2.32)</td>
<td>pN1-42 (16.27)</td>
</tr>
<tr>
<td>T3-18 (6.97)</td>
<td>pN2-78 (30.23)</td>
</tr>
<tr>
<td>T4- 234(90.69)</td>
<td>pN3-60 (23.25)</td>
</tr>
<tr>
<td></td>
<td>TNM STAGING</td>
</tr>
<tr>
<td>cN0-8 (54.7)</td>
<td></td>
</tr>
<tr>
<td>cN1-20 (54.7)</td>
<td></td>
</tr>
<tr>
<td>cN2-118 (39.6)</td>
<td></td>
</tr>
<tr>
<td>cN3-12 (5.7)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Summary of the findings (N=258) of histopathological examination of the patients in the study
Inoperable Locally Advanced Breast Carcinoma, S. Naveed, et. al.

carcinoma involving both the breasts. Table I discerns the salient findings of histopathologic examination of the total 258 specimens. The most common site of tumor was the upper outer quadrant (UOQ) accounting for 52.3% of all the cases. 30 patients (11.62%) of the tumors had ulceration of the overlying skin and 4.65% tumors showed fungating type growth (Figure 1). The size of the tumors varied from 4.0 cm to 25.0 cm, with majority of the tumors belonging to T4 (90.69%) stage, followed by T3 (6.97%) and T2 (2.32 %) stage (Table –I). Invasive ductal carcinoma no special type (IDC NST) was observed to be the most common histopathologic type seen in 254 of 258 (98.4%) specimens. Invasive lobular carcinoma and mucinous carcinoma was seen in 3 and 1 specimens respectively (Table 1). The two male patients with breast cancer and three female patients having bilateral breast cancer also had invasive ductal carcinoma. The third male breast carcinoma was mucinous type (Figure 2). Majority of tumors were SBR grade-II as observed in 48.83% of the total 258 MRM specimens followed by grade I and grade III seen in 46.51% and 4.65%, respectively. Pathological metastasis in ipsilateral axillary node was observed in 180 (69.76%) of cases. Of those, majority (30.23%) belonged to TNM stage pN0 involving 1 to 3 lymph nodes and pN2 stage (30.23%) involving 4 to 9 lymph nodes, 23.25% cases belonged to pN3 stage with involvement of more than 10 lymph nodes and 16.27% cases had pN1 (Table I). With AJCC staging, it was observed that most of the tumors belonged to pathological stage 3 comprising of 3B and 3C. Out of the 3 male cases, two belonged to grade II and third one to grade I. One of the three female cases with bilateral breast carcinoma had stage 3B in the left breast and stage 3C in the right breast. The other two patients had stage 3A in the left and 3B in the right breast.

Discussion

In the present study, majority, 66.6% cases belonged to 4th to 6th decade of age which is similar to that reported in Indian and Asian literature (11,14-16). The occurrence of breast carcinoma above 50 years of age in our study constituted 38.3% cases, which is different from western literature that depict nearly 75.0% of patients with breast cancer are above 50 years of age.(17) The finding of carcinoma in 3 (1.1%) male patients and bilateral breast carcinoma in 3 (1.17%) cases are not surprising as studied by other authors.(18–20) The commonest site of the tumor was UOQ of breast as observed in 52.3% of all the specimens which is similar to the reported literature saying that nearly 50.0% of the tumors are located in upper outer quadrant.(16,17) In our study, more than 75% of the tumors belonged to TNM stage T2 which agrees with the study conducted by Ahmed et al.,(21) in Pakistan who also observed T2 or T3 stage in majority of their studied breast cancer cases. The most frequently observed histopathological pattern was invasive ductal carcinoma NST as seen in 254, 98.4% of the total 258 specimens followed by other histological types such as invasive lobular carcinoma and mucinous carcinoma as seen in 1.16% and 0.38%, of the total specimens, respectively, which corroborates with the observations made by various authors (14,16,17,22).

Histopathologic grade based on SBR grading system is one of the minor prognostic factors predicting the probable outcome of the disease in carcinoma breast. Various studies describe that the high grade tumors have more propensity for metastases to the regional lymph nodes, frequent systemic recurrences and have a high mortality compared to those with low grade tumors.(21,23,24) Hence, accurate pathologic grading of tumor is essential in order to assess the prognosis of the disease. In our study, majority of tumors belonged to SBR grade II as seen in 48.83% cases which coincided with that of Ahmed et al.,(21) who also ascribed IDC NST grade II type to be the most frequently observed tumor as seen in 76.0% of their studied 120 cases. In his study 6.66% were T4 (4.17% T4b and 2.5% T4d). T4b are tumors of any size with direct extension to the skin of breast causing ulceration; while T4d are inflammatory carcinoma, tumors of any size with dermal lymphatic permeation on microscopic examination (a sign of ominous prognosis), but in our records maximum of our patients present as T4b. These results show that in the large majority of our patients, the tumors are already of large size when women first seek medical attention. Lymph node metastasis is one of the most important prognostic factors in carcinoma breast as the 10 year survival rate is 70–80% in women with node
negative carcinoma; 35–40% in carcinoma with 1 to 3 positive lymph nodes and 10–15% in patients with more than 10 lymph nodes (17). In our study ipsilateral axillary nodes were positive in 180 (69.76%) of all the specimens which reflects that majority of our patients are detected in advanced stage of the disease. This observation is consistent with the fact that almost half of the patients who present with a palpable lump in the breast will have spread metastases to the regional lymph nodes at the time of presentation (17). Histopathologic grade was coincident with AJCC stage as majority of our patients belonged to SBR grade II and AJCC stage II. The NPI scoring has been widely adopted as a prognostic tool for assessing the prognosis in breast carcinoma patients. It is based on three parameters (Tumor size, tumor grade and axillary node status) (25). The index is defined as four subtypes basing on the score such as ‘excellent’ (<2), ‘good’ (2 to 3.4), ‘moderate’ (3.41 to 5.4) and ‘poor’ (>5.41). The five year survival rate varies from 80% in patients with ‘good’ prognosis to 42% and 13% in patients with ‘moderate’ and ‘poor’ prognosis, respectively. In our study, maximum number of cases (49.5%) had “moderate” prognosis index.

Conclusion

The present study has provided information about the clinicopathological aspects of locally advanced breast cancer in patients who are from rural areas. We observed invasive ductal carcinoma breast in three males, bilateral breast carcinoma (IDC NST) in two females and synchronous papillary serous cystadenocarcinoma of ovary in one case. LABC remains a daily encounter and challenge for medical and surgical oncologists in developing low-resource countries. Neoadjuvant chemotherapy is recommended for inoperable LABC at all resource levels.

References


