Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v31i5.6249

MALE BREAST CANCER IN PAKISTAN: A SINGLE INSTITUTION EXPERIENCE

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Abstract

Introduction: Due to its rarity, male breast cancer remains a poorly characterized disease and is managed on the guidelines of female breast cancer. We present data of 56 male breast cancer patients treated at the Institute of Radiotherapy and Nuclear Medicine (IRNUM) in Peshawar, Pakistan during year 2018-2022.

Methods: A retrospective cross-sectional study was conducted at IRNUM Peshawar Pakistan, of male patients registered 1-1-2018 and 31-12-2022.

Results: A total of 56 male patients who presented over a period of 05 years were included. The most common tumor type was invasive ductal carcinoma (96.4%). The majority (36.8%) of the patients presented at stage III. Among the 56 patients who underwent surgery, only one patient had invasive lobular histopathology while one patient had Papillary CA variant. 31 out of the 56 patients (55%) were grade II while 25 patients (44.6%) were Grade III. Additionally, the majority of patients were pathologic stage III (n = 45/56, 80.4%), followed by stage IV (n = 11/46, 19.6%). Of the 48 cases that underwent molecular studies had estrogen receptor positivity, where 4 (8.3%) were human epidermal growth factor receptor 2 (Her 2+ive) while 44 (91.6%) were Her –ive.

Conclusion: Breast cancer in males presents at an advanced stage with poor survival. Multicenter studies are required to accurately identify incidence, prognostic factors, and outcomes in order to have a better understanding of its management.

Introduction:

Breast cancer is one of the most prevalent malignant tumors and the primary cause of cancer-related death in females worldwide. Male breast cancer (MBC), on the other hand, is a rare disease with an incidence of 1% of all breast cancers and less than 1% of all male malignancies [1-3]. MBC shares some risk factors with female breast cancer (FBC), such as age, family history, ethnicity, and genetic mutations such as BRCA1 and BRCA2. Even though, the clinic-pathological characteristics of MBC are not identical to those of breast cancer in women, it is still treated according to the protocols for breast cancer in women [3, 4]. Male breast cancer patients have a worse prognosis than female breast cancer patients due to the different pathogenesis of male breast cancer and the paucity of knowledge about male breast cancer.

In terms of disease-free and overall survival rates, the prognosis for FBC has improved significantly, whereas the prognosis for MBC has not improved proportionally.2 MBC patients are typically associated with advanced stages, higher grades, a higher incidence of hormone receptor-positive tumors, and a poorer prognosis compared to females with the same disease [5-8]. In comparison to

women, the majority of males presents with asymptomatic breast lumps and may experience a delay in diagnosis. Due to the low incidence, previous studies on MBC had tiny sample sizes and short follow-up periods, which limited their interpretability [6]. On the basis of a multicenter aggregated analysis, guidelines were recently published. However, these recommendations are rarely founded on clinical trials, which exclude men frequently. Consequently, there is a dearth of literature evaluating outcomes for men with BC. We present a data of 56 male breast cancer patients treated at the Institute of Radiotherapy and Nuclear Medicine (IRNUM) in Peshawar, Pakistan, between 2018 and 2022.

Materials & Methods:

The data of cancer patients were gathered from its primary source of the institute;both manual and computer records of patients were accessed and analyzed. Data analysis was focused on male breast cancer patients and exploring their trends regarding Stage of diagnosis, therapeutic modalities, receptor status and follow-up data of all male breast cancer patients who were treated at IRNUM were reviewed.

INCLUSION CRITERION:

Male patients of all ages who had biopsy proven histopathology of breast cancer, registered at IRNUM from 1-1-2018 to 31-12-2-2022

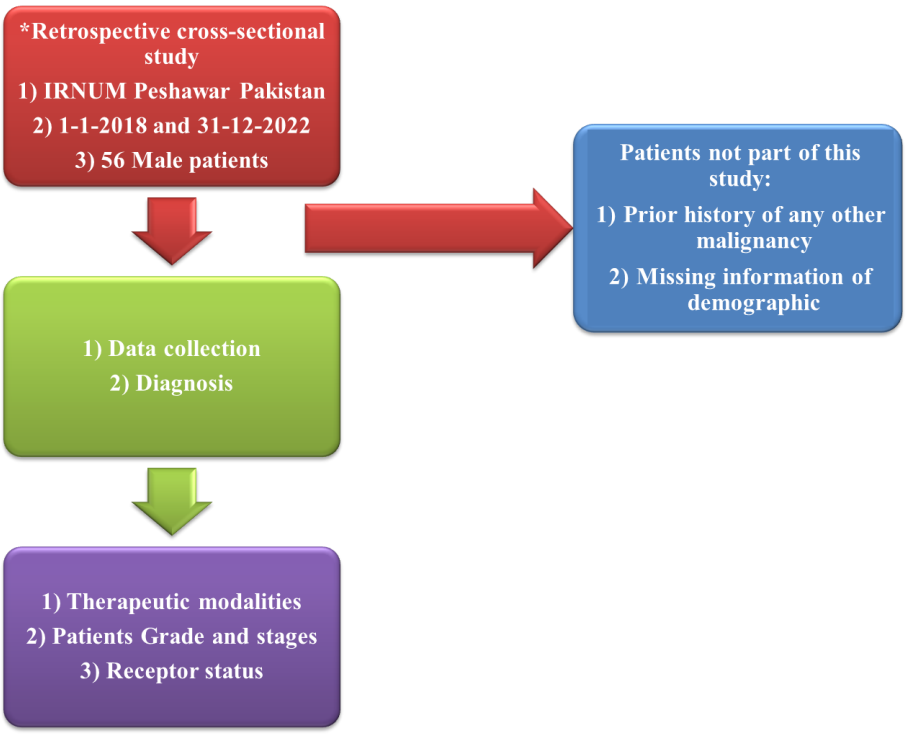
EXCLUSION CRITERION:

All those male patients who had any dual malignancy.
Those male patients who had metastasis to breast from any other primary site.
All female breast cancer patients.

Statistical analysis

Patients' clinical, pathological and treatment information were characterized by descriptive statistics. Clinical files of patients, admission files and operating reports were the sources of the data. All records were entered and analyzed using Statistical Package for the Social Sciences (SPSS).

The study was authorized by the Ethical committee at IRNUM Hospital, Peshawar Pakistan. The data collection was done anonymously and confidentiality was respected for all the patients.



Results and Discussion:

During the 5-year review period, our institution diagnosed and treated a total of 56 male patients with MBC. A comprehensive analysis was conducted on the diagnostic stages, receptor status, and follow-up information pertaining to male breast cancer patients who received treatment at IRNUM. The data utilized in this study was obtained from clinical files of patients, admission files, and operative records. The Fig.2(a-c) and Table.1 shows the patients characteristics. The predominant tumor subtype observed in this study was invasive ductal carcinoma, accounting for 96.4% of cases. The preponderance of patients (36.8%) exhibited stage III upon presentation. Out of the total sample size of 56 patients who had undergone surgery, it was observed that just a single patient exhibited invasive lobular histopathology, while another patient presented with the papillary ca variant. Out of the total sample size of 56 patients, 31 individuals (55%) were classified as grade II, while 25 patients (44.6%) were categorized as grade III. Furthermore, a significant proportion of the patients in the study were classified as pathologic stage III (n = 45/56, 80.4%), with stage IV being the subsequent category with a smaller representation (n = 11/46, 19.6%). Out of the 48 cases that were subjected to molecular studies, it was found that all of them had estrogen receptor positivity. Among these cases, 4 (8.3%) were identified as having human epidermal growth factor receptor 2 (Her 2+ive), while the remaining 44 (91.6%) were determined to be (Her –ive).

Table: 1 Clinicopathological physiognomies of male breast cancer patients (n = 56).

Characteristics	Expression
(i) Patients	
Number of Patients	56 Male
(ii) Tumor type	
invasive ductal carcinoma	(96.4%)
(iii) Tumor stage	
stage III	n = 45/56, 80.4%
stage IV	(n = 11/46, 19.6%).
(iv) Tumor grade	
Grade II	n= 31/56
Grade III	n= 25/56
(v) Estrogen receptor positivity	
Her 2+ive	4 (8.3%)
Her –ive	44 (91.6%)

Fig. 2 Clinicopathological characteristics of patients in this study
(a) Patients grade
(b) Stage and
(c) Receptor status.

Discussion

Multiple studies have provided evidence that MBC is a rare disease, with a reported incidence of less than 1% worldwide [9-11]. The incidence of male breast cancer is positively correlated with age, and highest rates occur in blacks (2.7 per 1000,000) and white males (1.9 per 1000,000).In a study conducted by Khokher et al. [12], a hospital-based breast cancer registry comprising 6,718 patients at an oncology center in Pakistan revealed a 2% prevalence of MBC over a 10-year period (2000-2009). The investigation of phenotypic changes in male breast tumors is limited, with most knowledge derived from studies on female breast cancer. While there are many similarities between the two diseases, it is important to acknowledge the distinct variances in terms of risk factors, prognosis, and survival rates. Distinctions have been identified between male and female breast carcinoma; male breast carcinoma typically manifests at more advanced clinical stages and with a greater number of lymph node metastases. In contrast to females, the incidence of breast cancer in

males has not significantly increased over the past four decades. With advancing age, the incidence rises exponentially. In the majority of Western nations, males comprise an estimated 1% of the breast carcinoma cases. In contrast, the male gender accounts for a mere 6% of breast cancer diagnoses in Tanzania. Furthermore, countries situated in central Africa have documented a significantly higher percentage of male breast cancer cases [13]. The factors contributing to this geographical heterogeneity remain uncertain. Due to the absence of a comprehensive national cancer registry in Pakistan, accurately determining the population-based incidence and local disease patterns of MBC is tricky. Currently, only data from specific institutions has been published, limiting the ability to make meaningful comparisons with industrialized nations.

The vast majority of histologic subtypes of breast cancer identified in women have likewise been documented in men. In men, the prevalence of invasive carcinomas accounts for around 90% of all breast tumors, with the remaining 10% being non-invasive. Upon presentation, the majority of patients (36.6%) exhibited stage III, according to our findings. invasive ductal carcinoma constituted the prevailing tumor subtype, comprising 96.4% of the cases identified. An individual patient was identified as having invasive lobular histopathology, whereas another patient displayed the Papillary Ca variant. The prevalence of non-invasive malignancies is greater in comparison to the rates observed in women before to the implementation of mammography. This disparity may be attributed to the relatively smaller size of the male breast, and lack of acini and lobules in breast tissue. It is important to highlight that the occurrence of invasive lobular carcinoma (ILC) in males is an exceedingly uncommon phenomenon, as evidenced by its limited documentation in a handful of case reports. Furthermore, it is frequently observed in conjunction with Klinefelter syndrome [14]. A single study conducted in Pakistan has shown the occurrence of two cases of ILC among a total of 55 patients of MBC [15]. There were no instances of ILC found among the cases in our cohort. Specifically, <2% of invasive male breast carcinomas are lobular, as compared to approximately 15% in female breast cancers. Among the 56 patients included in the study, 31 individuals (55%) were assigned to grade II, while 25 patients (44.6%) were classified as grade III. Moreover, it is worth noting that none of the tumors observed in our study had a grade 1 classification.

When comparing tumor stage, grade, and patient age, it has been observed that male breast carcinomas have a higher prevalence of hormone receptor positivity compared to female breast carcinomas. In the present analysis, a total of 48 instances were included for mol, whereby it was observed that each case exhibited estrogen receptor positive. Out of the total number of cases examined, 4 cases (8.3%) were classified as human epidermal growth factor receptor 2 positive (Her 2+ive), while the remaining 44 cases (91.6%) were confirmed to be Her 2 negative (Her –ive).

Conclusion

Male breast cancer typically manifests at an advanced stage, resulting in a diminished likelihood of survival. Accurate identification of prevalence, prognostic factors, and outcomes through multicenter investigations is imperative for a more comprehensive understanding of its management. In order to determine the most suitable therapeutic interventions, additional molecular and clinical research will be required. Males are ineligible for breast cancer screening on account of the disease's rarity; therefore, it is critical to raise awareness about the disease's manifestation and occurrence in order to decrease the incidence of late presentation and the associated mortality.

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