International Surgery Journal
Das G et al. Int Surg J. 2020 Jan;7(1):133-137
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20195958

Original Research Article

Male breast cancer a rare entity: the experience from North-East India

Gaurav Das, Jitin Yadav*, Joydeep Purkayastha, Abhijit Talukdar, Sachin Khanna

Department of Surgical Oncology, Dr. B. Borooah Cancer Institute, Guwahati, Assam, India

Received: 15 October 2019
Accepted: 18 November 2019

***Correspondence:**
Dr. Jitin Yadav,
E-mail: jitindrcool@gmail.com

ABSTRACT

Background: Breast cancer is one of the most common malignancy among women but it is not common in men. Male breast cancer (MBC) is a rare disease and accounts for ~1% of all cancers in men. There is lack of data related to MBC. The objective was to study the clinic-pathological characteristics and outcome of MBC patients at this institute.
Methods: It is a retrospective study. Author analyzed clinico-pathological factors, management and follow up details of all patients with MBC from 2012 to 2018 at the cancer centre.
Results: Total 20 patients were included in the study. No risk factor identified in any patient. The median age at diagnosis was 57.5 years. Most common location was central quadrant. Most common stage at presentation was stage 3. Fifteen patients underwent upfront surgery while neoadjuvant chemotherapy was given to two patients. One patient had complete pathological response (cPR). The median follow up was 24 months (4-60 months). Three patients developed local recurrence (3 chest wall and 1 axilla). Two patients developed distant metastasis (lung, liver and bone). Actual overall survival rate at 5 years was 67.5% with median disease-free survival was 55%.
Conclusions: Multicentric trials are necessary to understand the predictive and prognostic markers and to improve the outcome in male breast cancer.

Keywords: Breast cancer, Breast conservation surgery**,** Male breast cancer

INTRODUCTION

Breast cancer is one of the most common malignancy among women, but it is not common in men. MBC is a rare disease and accounts for ~1% of all cancers in men.[1] However, in the past 25 years, an increased incidence is seen.[2] The incidence of MBC is higher in North America and Europe as compared with other Asian countries.[3] The highest overall

rates adjusted for age occur in Israel (1.08 per 100,000 person-years), while the rates are the lowest in Southeast Asia, particularly in Thailand (0.14 per 100000 person-years) Because of the rarity of the disease most of the information is available in the form of case series and case reports.[4] Pre‑disposing factors for MBC include family history (in the first degree relative), hormones (high estrogen and prolactin levels), radiation exposure, diseases associated with hyperestrogenemia like cirrhosis of the liver and genetic syndromes, such as Klinefelter disease.[5] About 90% of MBC are estrogen receptor (ER) positive and triple negative tumors are rare. Objectives were to study the clinic-pathological characteristics and outcome of MBC patients at the institute

METHODS

It is a retrospective study. Author analyzed clinico-pathological, management and follow up details of all patients with MBC from 2012 to 2018 at cancer centre. Kaplan-Meier survival analysis was used to find out overall survival (OS) and disease-free survival (DFS), and log-rank test was used to calculate p value. The analysis was done using the Statistical Package for Social Sciences 21.0 (SPSS Version 21.0). Overall survival (OS)

was defined as the time period between diagnosis and death from any cause. Disease free survival (DFS) (only for non‑metastatic patients) was defined as the time period from diagnosis to the occurrence of relapse.

RESULTS

Total 20 patients were included in the study. No risk factor identified in any patient. Clinicopathological details are depicted in (Table 1). The median age at diagnosis was 57.5 years (range:) Most common location was central quadrant (12/20), followed by upper outer quadrant (4/20). Most common presentation was lump (16/20) followed by ulcer (4/20). The median clinical tumor size was 3.5 cm. Most common stage at presentation was stage 3. Stage shown in Table 1 is pathological except for metastatic tumors for which clinical staging was used. Three patients presented with metastatic disease, (15%) ER, PR and HER2/neu positivity rate was 75%, 50% and 35%, respectively.

Table 1: Clinicopathological factors.

Variable	Results
Median age at diagnosis (years)	57.5 (30-76)
Risk factor	-
Comorbidities	
Diabetes	3
Hypertension	4
Coronary artery disease	1
Laterality	
Right	8 (40%)
Left	12 (60%)
Symptoms	
Lump	16 (80%)
Ulcer	4 (20%)
Duration of symptoms (mean)	7.9 months
Quadrant involved	
Central	12 (60%)
Upper outer	4 (20%)
Lower outer	3 (15%)
Upper inner	1 (5%)
Tumor size (median)	3.5 cm
T stage (n=20)	
T1	2
T2	4
T3	3
T4	10
Tx	1
N stage	
N0	5
N1	9
N2	4
N3	2
Stage 1	2
Stage 2	5
Stage 3	10
Stage 4	3
Histology	
Infiltrating Ductal Carcinoma (IDC)	18
Mucinous carcinoma	1
Apocrine carcinoma	1
Grade of tumor	
Grade 1	3
Grade 2	10
Grade 3	7
Lymphovascular emboli (LVE)	5
Perineural invasion (PNI)	4

Continued.

Variable	Results
Hormone profile	
ER +	15 (75%)
PR +	10 (50%)
Her 2 neu +	7 (35%)
TNBC	4 (20%)

Table 2: Treatment related factors.

Variable	Results
Initial treatment	
Upfront surgery	15
NACT	2
Palliative chemotherapy	3
Type of surgery (n=17)	
MRM	15 (88.2%)
BCS	2 (11.8%)
Adjuvant treatment	
Chemotherapy (CT)	13
Radiotherapy (RT)	12
Hormonal therapy (HT)	13
Lymph nodes harvested (mean)	15.17

All patients without metastatic disease (17/20) underwent definite treatment with curative intention. Fifteen patients underwent modified radical mastectomy (MRM) while breast conservation surgery (BCS) was done in two patients. Fifteen patients underwent upfront surgery while Neoadjuvant chemotherapy (NACT) was given to two patients. One patient had complete pathological response (cPR). Adjuvant chemotherapy, radiotherapy and hormonal therapy were received by 13 (76.5%),12 (70.6%) and 13 (76.5%) patients respectively (Table 2).

The median follows up was 24 months (4-60 months). Three patients developed local recurrence (3 chest wall and 1 axilla). Two patients developed distant metastasis (lung, liver and bone). Total 4 patients expired during the follow up (2 with metastatic cancer at initial presentation).

Actuarial OS at 5 years was 67.5% with median DFS was 55%. Hormone receptor (HR) negative status and higher stage at the time of diagnosis were associated with poor OS (<0.05). OS rate at 3 years was 100%, 100%, 66.25% and 0% in Stage I, Stage II, Stage III and Stage IV respectively (log rank test, p <0.05). Node positive patients have lower survival, but it was not significant (Figure 1). The DFS was not significantly associated with nodal status, hormonal status and stage of the disease.

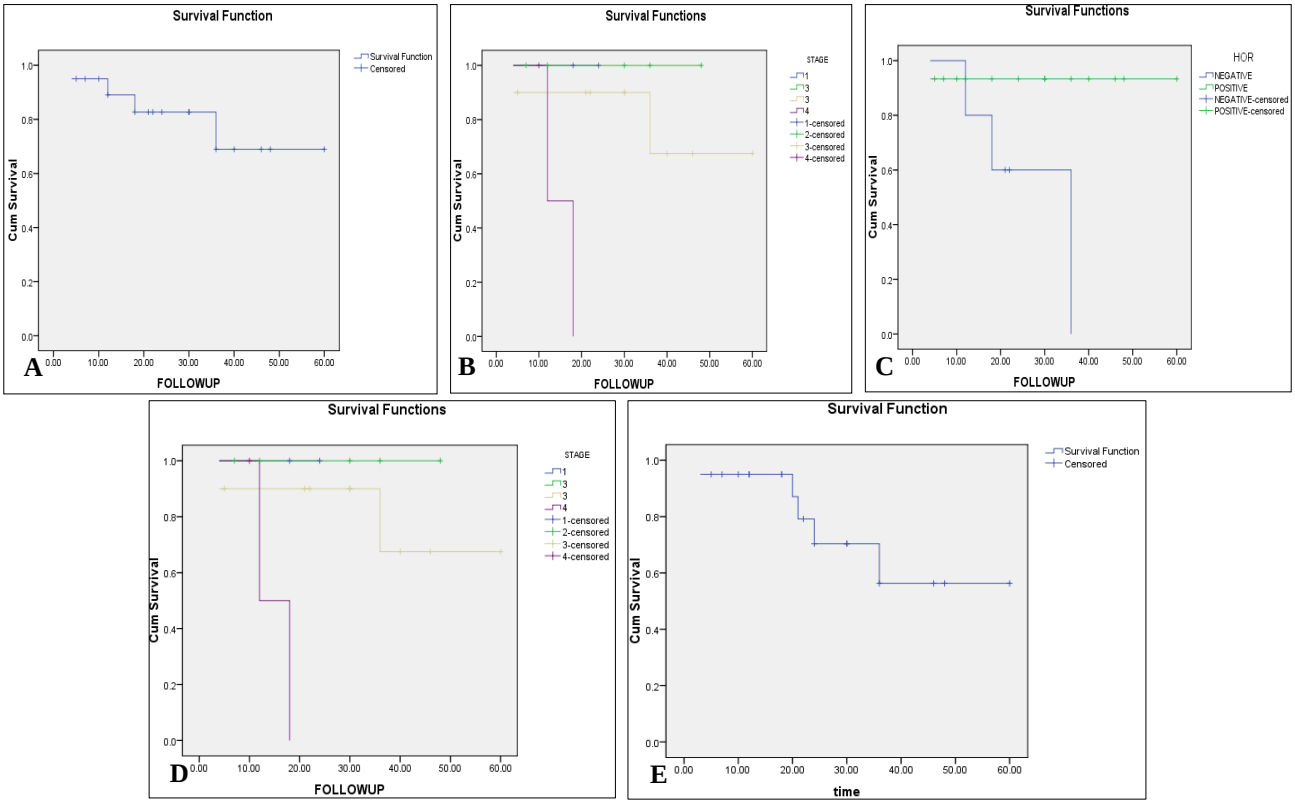

Figure 1: (A) Overall survival (OS); (B) OS in relation to stage; (C) OS in relation to hormone status; (D) OS in relation to nodal status; (E) disease free survival (DFS).

DISCUSSION

Approximately 15%-20% of men with breast cancer report a family history of breast or ovarian cancer. It is estimated that approximately 10% of men with breast cancer have a genetic predisposition, and BRCA2 is the most clearly associated gene mutation.[6-8] In this study no family history was found. Men with a family history of breast cancer in a female relative have 2.5 times the odds of developing breast cancer.[9] Prior radiation as in case of mantle field for Hodgkin lymphoma also increases the risk of a subsequent breast cancer.[10] Alcohol use, liver disease, obesity, electromagnetic field radiation, and diet have all been proposed as risk factors, but findings have been inconsistent across studies.[11-14]

Review of surveillance, epidemiology and end result (SEER) data indicate a rise in the incidence of MBC, from 1.0/100,000 men in the late 1970s to 1.2/100,000 men from 2000 to 2004.[15] This study showed that the median age of MBC diagnosis is 57.5 years (range: 28‑80 years), which is 10 years earlier than other studies.[16,17] Analysis from the SEER cancer registry show that 93.7% of MBCs are ductal or unclassified carcinomas and only 1.5% are lobular.[18]

Invasive ductal carcinoma was the most common histological subtype in this study and rest were apocrine and mucinous carcinoma. Approximately, 90% of MBCs express the ER, 81% express the PR and 2‑15% over express HER2/neu.[19-21] In this study, ER positivity rate of 78%, PR positivity rate of 75% and HER2 positivity rate of 28%.

Staging of MBC is the same as that in women using the TNM system.[22] The most important

prognostic indicators are stage at diagnosis and lymph node status. MBC most commonly develops in the central retro-areolar/nipple area which has the greatest lymphatic drainage in the breast. In this study also the most common location was central quadrant. Since 1970, radical mastectomies have been replaced with the MRM Thus, the MRM is the standard treatment for MBC at present.[23-26] A total of 17 patients underwent surgery at the center; one of them had lumpectomy at private sector and completion MRM was done at the centre. MRM was the most common procedure at the institute. BCS was done in two patients (11.8%). In this study, hormone receptor status and stage of tumor were the main prognostic factors.

On reviewing the literature, it was found that most of the articles on MBC are review articles, case series and case reports. It is because of the rarity of the disease. The main limitation of this study was the less number of patients as with other studies.

CONCLUSION

In this study, the patients had a longer time to presentation and advanced disease at presentation. Stage and hormone receptor status were main prognostic factors in this study. Multicentric trials are necessary to understand the predictive and prognostic markers and to improve the outcome.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Fentiman IS, Fourquet A, Hortobagyi GN. Male breast cancer. Lancet 2006;367(9510):595-604.
2. Gómez-Raposo C, Zambrana Tévar F, Sereno Moyano M, López Gómez M, Casado E. Male breast cancer. Cancer Treat Rev. 2010;36(6):451-7.
3. Tajima N, Tsukuma H, Oshima A. Descriptive epidemiology of male breast cancer in Osaka, Japan. J Epidemiol. 2001;11(1):1-7.
4. Fiala L, Coufal O, Fait V, Foretova L. Male breast cancer--our experience. Rozhledy v chirurgii: mesicnik Ceskoslovenske chirurgicke spolecnosti. 2010;89(10):612-8.
5. Sasco AJ, Lowenfels AB, Jong PP. Epidemiology of male breast cancer. A meta-analysis of published case-control studies and discussion of selected aetiological factors. Intern J Cancer. 1993;53(4):538-49.
6. Couch FJ, Farid LM, DeShano ML, Tavtigian SV, Calzone K, Campeau L, et al. BRCA2 germline mutations in male breast cancer cases and breast cancer families. Nature Gene. 1996;13(1):123.
7. Haraldsson K, Loman N, Zhang QX, Johannsson O, Olsson H, Borg Å. BRCA2 germ-line mutations are frequent in male breast cancer patients without a family history of the disease. Cancer Res. 1998;58(7):1367-71.
8. Rosenblatt KA, Thomas DB, McTiernan A, Austin MA, Stalsberg H, Stemhagen A, et al. Breast cancer in men: aspects of familial aggregation. JNCI: J Nat Cancer Institute. 1991;83(12):849-54.
9. Rosenblatt KA, Thomas DB, McTiernan A, Austin MA, Stalsberg H, Stemhagen A, et al. Breast cancer in men: Aspects of familial aggregation. J Natl Cancer Inst. 1991;83:849-54.
10. Sørensen HT, Friis S, Olsen JH, Thulstrup AM, Mellemkjaer L, Linet M, et al. Risk of breast cancer in men with liver cirrhosis. Am J Gastroenterol. 1998;93(2):231-3.
11. Rosenblatt KA, Thomas DB, Jimenez LM, Fish B, McTiernan A, Stalsberg H, et al. The relationship between diet and breast cancer in men (United States). Cancer Causes Control. 1999;10:107-13.
12. Erren TC. A meta-analysis of epidemiologic studies of electric and magnetic fields and breast cancer in

women and men. Bioelectromagnetics. 2001;22 Suppl 5:105-19.
13. Hsing AW, McLaughlin JK, Cocco P, Chien HT, Fraumeni JF. Risk factors for male breast cancer (United States). Cancer Causes Control. 1998;9(3):269-75.
14. Speirs V, Shaaban AM. The rising incidence of male breast cancer. Breast Cancer Res Treatment. 2009;115(2):429-30.
15. Cutuli B, Le-Nir CC, Serin D, Kirova Y, Gaci Z, Lemanski C, et al. Male breast cancer. Evolution of treatment and prognostic factors. Analysis of 489 cases. Crit Rev Oncol/Hematol. 2010;73(3):246-54.
16. Hill TD, Khamis HJ, Tyczynski JE. Comparison of male and female breast cancer incidence trends, tumor characteristics, and survival. Annals Epidemiol. 2005;15(10):773-80.
17. Giordano SH, Buzdar AU, Hortobagyi GN. Breast cancer in men. Annals Int Med. 2002;137(8):678-87.
18. Wick MR, Sayadi H, Ritter JH, Hill DA, Reddy VB, Gattuso P. Low-stage carcinoma of the male breast: a histologic, immunohistochemical, and flow cytometric comparison with localized female breast carcinoma. Am J Clin Pathol. 1999;111(1):59-69.
19. Bloom KJ, Govil H, Gattuso P, Reddy V, Francescatti D. Status of HER-2 in male and female breast carcinoma. Am J Surg 2001;182:389-92.
20. Rudlowski C, Friedrichs N, Faridi A, Füzesi L, Moll R, Bastert G, et al. Her-2/neu gene amplification and protein expression in primary male breast cancer. Breast Cancer Res Treat. 2004;84(3):215-23.
21. Hecht JR, Winchester DJ. Male breast cancer. Am J Clin Pathol. 1994;102:S25-S30.
22. Martin AM, Weber BL. Genetic and hormonal risk factors in breast cancer. J Nat Cancer Institute. 2000;92(14):1126-35.
23. Ouriel K, Lotze MT, Hinshaw JR. Prognostic factors of carcinoma of the male breast. Surg Gynecol Obstet. 1984;159:373-6.
24. Gough DB, Donohue JH, Evans MM, Pernicone PJ, Wold LE, Naessens JM, et al. A 50-year experience of male breast cancer: is outcome changing?. Surgical Oncol. 1993;2(6):325-33.
25. Cutuli B, Lacroze M, Dilhuydy JM, Veiten M, De Lafontan B, Marchal C, et al. Male breast cancer: results of the treatments and prognostic factors in 397 cases. Euro J Cancer. 1995;31(12):1960-4.

Cite this article as: Das G, Yadav J, Purkayastha J, Talukdar A, Khanna S. Male breast cancer - a rare entity: the experience from north-east India. Int Surg J 2020;7:133-7.