International Surgery Journal
Pawar SS et al. Int Surg J. 2021 Sep;8(9):2595-2599
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20213209

Original Research Article

Male breast cancer: a 5-year experience from a State Cancer Institute

Shashi Singh Pawar[1], Manish Kumar[1], Kunal Kishor[2]*, Nadeem Ahmad[3], Sanjeet Kumar Singh[4], Kumari Anshu Lata[5]

Department of [1]Surgical Oncology, [2]Radiation Oncology, State Cancer Institute, IGIMS, Patna, Bihar, India
Department of [3]General Surgery, [4]Pathology, IGIMS, [5]Sudha Diagnostics, Patna, Bihar, India

Received: 20 July 2021
Accepted: 05 August 2021

***Correspondence:**
Dr. Kunal Kishor,
E-mail: dr.shashipawar@gmail.com

ABSTRACT

Background: Male breast cancer (MBC) is an uncommon malignancy accounting for <1% of all cancers in men and <1 % of overall breast cancer cases. Although there are many similarities between MBC and female breast cancer (FBC), they are not identical in clinical behaviour. There is need to understand the exact biological behavior of MBC.
Methods: A retrospective observational study was done at State Cancer Institute, IGIMS, Patna which included all MBC patients registered during a 5-year study period (January 2016 to April 2021). 16 consecutive cases of MBC were identified and their detailed clinicopathological profile was analyzed.
Results: MBC accounted for 1.10% of the total breast cancer cases. The median age of presentation was 58 years. Most common presentation was lump. Invasive ductal carcinoma (IDC) was most common histology. Majority of the patient presented to us in advanced stage. Estrogen receptor (ER)/progesterone receptor (PR) status was found to be positive in 12 patients. HER-2/neu receptor was positive in 4 patients. 2 patients had triple negative disease (TNBC) status. Surgery in the form of modified radical mastectomy (MRM) was done in 10 patients. All patients received adjuvant therapy as per NCCN guidelines.
Conclusions: MBC is rare disease presenting at a relatively early age in Indian male patients. Most of them have positive ER/PR status. As outcomes have not improved comparatively, there is a need to evolve separate guidelines for MBC.

Keywords: Male breast cancer, Female breast cancer, State cancer institute

INTRODUCTION

Male breast cancer (MBC) is an uncommon malignancy accounting for <1% of all cancers in men and <1 % of overall breast cancer cases.[1] Management of MBC is done by extrapolation from female breast cancer (FBC). Although there are many similarities between MBC and FBC, they are not identical in clinical behaviour. There has been significant improvement in the outcome of FBC in terms of disease free and overall survival rates, but the outcome has not improved proportionately for MBC.[2] It mostly affects elderly men and in 6th or 7th decade and risk progressively increases with increasing age. Patients usually present in advanced stage and the prognosis is relatively poorer as compared to the disease in females. Due to its rarity, there is lack of good-quality data guiding its management. Recently, guidelines have been published on the basis of multicenter pooled analysis, but prospective clinical trials are still lacking.[3-5] This study was done with an aim to analyse the clinicopathological behaviour of MBC presenting at State Cancer institute, Indira Gandhi institute of medical sciences, Patna, India

METHODS

It is a retrospective observational study done at State Cancer Institute, IGIMS, Patna which included all MBC patients registered during a 5-year study period (January

2016 to April 2021). A total of 1443 patients with breast cancer were registered during this time period. All patients of biopsy proven MBC were included in study. A total of 16 such consecutive cases of MBC were identified. The case records of patients were reviewed to extract the information on all clinical data regarding history, symptoms, examination findings, performance status (PS), stage of disease, pathological characteristics, hormonal status, treatment provided and its follow up. Data has been presented as frequency (percentage, %) for categorical variables and mean±SD for numerical variables.

RESULTS

MBC accounted for 1.10% of total breast cancer cases. Median age of presentation was 58 years ranging from 36 to 76 years. Tumor was present on left side in 10 patients and on right side in 5 patients and bilateral in one patient. Most common presentation was lump which was detected incidentally. Along with mass lesion, 3 patients presented with ulceration and 2 patients presented with bloody discharge from nipple. There was no history of breast cancer in any of the family members. There was history of pancreatic cancer in first degree relative of one patient.

Table 1: Clinicopathological characteristics of male patients with carcinoma breast.

Clinicopathological characteristics	No. of patients (n=16)
Median age (years)	58 (36-76)
Duration of complaints	<1 month- 3
	1-6 months-9
	>6 months-4
Laterality	Left-10
	Right-5
	Bilateral-1
Presentation	Lump-16
	Ulceration-3
	Bloody discharge from nipple-2
Family history of breast cancer	None
Performance status (ECOG)	PS 0-15
	PS 1-1
Stage of the disease	I-0
	II-3
	III-12
	IV-1
Histology	IDC 16
	Associated DCIS-2
Hormonal status (n=16)	ER+ 10
	PR+ 8
	HER-2/neu + 4
	Triple negative -2
Treatment	Upfront surgery-10 (62%)
	NACT-6 (37%)
	Adj CT-15 (93%)
	Adj RT-8 (50%)
	HT-12 (75%)
Surgery	Modified radical mastectomy (MRM)-16
	Reconstruction-1
Post-surgical HPE (n=16)	Node involvement-8 (pN2=5; pN1=3)
	Lymphovascular invasion-7
	Perineural spread-3

ECOG: Eastern co-operative oncology group; IDC: Invasive ductal carcinoma; ER/PR: Estrogen receptor/progesterone receptor; HPE: Histo-pathological examination.

On HPE, invasive ductal carcinoma (IDC) was found in all patients. 2 patients had associated DCIS. Majority of the patient presented to us in advanced stage. Three patients presented in stage II, 12 in stage III while only one patient presented with solitary bone metastasis. None of patients had visceral metastasis. All patients had good performance status (PS) on Eastern co-operative oncology group (ECOG) scale. PS was 0 in 15 patients and 1 patient had a PS of 1. Estrogen receptor (ER)/progesterone receptor (PR) status was found to be positive in 12 patients. HER-2/neu receptor was positive in 4 patients. 2 patients were found to have triple negative

disease (TNBC) status. Surgery in the form of upfront modified radical mastectomy (MRM) was done in 10 patients. 5 patients received 4 cycles of neoadjuvant chemotherapy followed by MRM. Patient presenting with solitary bone metastasis received eight cycles of NACT followed by MRM. In 1 patient chest wall reconstruction was done using Latissimus dorsi flap. All patients received adjuvant therapy as per NCCN guidelines. On final HPE, 8 patients had node positive disease. pN2 stage was seen in 5 patients while 3 had pN1 nodal disease. Lymphovascular invasion was identified in 7 out of 8 patients while 3 had perineural spread.

DISCUSSION

Incidence

MBC is a rare disease. Population-based studies from west have reported the incidence of male breast cancer as 0.6-0.7% of all breast cancers.[5,6] Indian data published on MBC consists of mostly single institution-based studies and only one multicentre study from North India.[7] The number of patients ranged from 18 to 106.[8-16] The reported incidence of MBC is around 0.5-2.8% of all breast cancers in these institutes.[8,10,12,14] The incidence of MBC in our series is 1.1% which is consistent with Indian data but slightly higher in comparison to global incidence. As per a study by Rai et al from north India, the incidence of male breast cancer was 0.5% while Shah et al have reported a relatively high incidence of 4.1% from Kashmir.[8,12,17]

Age

Breast cancer in males is a disease of elderly population. Women usually have a relatively younger age at diagnosis.[5] In a French study on MBC by Cutuli et al the median age was 66 years at the time of diagnosis and age range was from 24 to 94 years.[18] The median age of MBC in Indian studies is 5-10 years younger than that reported in western literature.[8-17] In our study, also the median age was 58 years with an age range of 36-76 years. This is almost a decade earlier than what is being reported in the West.[5,8,12,17]

Family history

A positive family history of breast cancer is associated with increased risk of MBC which is similar to the pattern observed in female breast cancer. However, we did not find positive family history of breast cancer in any of our patient.

Time of presentation

There is a delay of 6-10 months in presentation in various studies.[19] Majority of patients in our study presented beyond one month. This may be attributed to lack of awareness, psychological issues, fear of social stigma, factors related to body image and failure of disease recognition by local doctors.[20, 21]

Clinical presentation

A palpable lump is the most common presentation of MBC. Bloody nipple discharge and ulceration with or without palpable axillary nodes is usually rare. In our study also majority of patients presented with lump. Previous studies show nipple involvement as an early event in a significant number of male patients.[12,13,23] This is in concordance with our findings.

Histology

Infiltrating ductal carcinoma (IDC) is the commonest histopathological type reported in most of the Indian MBC studies.[8-16] This is similar to findings in Western studies too.[18,21,24,25] Other histologies like lobular carcinoma, medullary carcinoma, papillomas, Pagets' disease, and inflammatory breast carcinoma are relatively rare.[21,26] We found IDC as histologic subtype in all patients. Two of the patients had associated DCIS also.

Stage at presentation

In most of the western studies on MBC, there has been a preponderance of T2/T1, N1/N0 disease.[18,24] An analysis of SEER data from 2005-2010 (USA) of MBC by Lui et al, reported stages II/III, I, and IV in decreasing order of occurrence. As per Indian data majority of patients present in stage III.[8-16] Few recent Indian studies have reported majority patients in stage II at presentation.[15,16] However, most of the patients in our study presented in advanced stage of disease. Presence of multiple nodes with lymphovascular invasion and perinodal spread indicates advanced stage of disease. Male breast cancer in general is more likely to be positive for nodal metastasis and lymphovascular invasion.[24,27]

Hormonal status

Majority of MBC patient are ER, PR positive, and HER2 neu negative as documented in various studies as compared to female counterpart.[18,21,25,26] As per analysis of national cancer institute's surveillance, epidemiology, and end results (SEER) database, more than 90% of the male breast cancers are ER positive.[2] Most of the Indian studies have also reported ER/PR positivity rate ranging from 55 to 89% and HER2 neu positivity from 9 to 28%. TNBC tumors are seen in 2–21% of cases.[8-16] 12 out of 16 patients in our study were ER/PR positive. Only 2 patients were TNBC.

Management

Modified radical mastectomy is the most common surgical procedure for MBC as reported in the literature.[18,24,28] Breast conservation is a relatively less feasible option due to paucity of breast tissue, central

location, advanced stage at presentation.[26,29,30] Various studies regarding feasibility of sentinel lymph node biopsy (SLNB) in MBC has been encouraging. The local relapse as well as overall survival following SLNB is comparable to female breast cancer.[31,32] In our study, all the patients underwent MRM.

In a retrospective study from MD Anderson Centre by Giordano et al, adjuvant CT was given to 32 (24%) patients which resulted in a lower risk of death and better overall survival. In our series, 37% patients received neoadjuvant chemotherapy and 93% received adjuvant chemotherapy.[32]

Tamoxifen is standard adjuvant hormonal therapy in adjuvant setting as well as in metastatic disease.[18,19,21,32] In the present series, 75% MBC patients received Tamoxifen as adjuvant hormonal therapy.

In our series, 50% of MBC patients were given post-operative radiotherapy

Limitations

Our study had limitations as of any other retrospective study. The number of cases although significant but still less was another drawback. This is attributed to the relative rarity of the disease.

CONCLUSION

MBC is rare disease and there are significant differences between MBC and FBC but still it is treated on the same lines as FBC. Indian males with MBC present at a relatively early age. Most of them have positive ER/PR status. Taking into consideration the fact that the outcomes have not improved as much comparatively, there is a need to evolve separate guidelines for MBC. A comprehensive multi-institutional study is required to exactly decipher its clinical behavior.

ACKNOWLEDGEMENTS

Author would like to thank their patients.

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;367:595-604.
2. Anderson WF, Jatoi I, Tse J, PSR. Male breast cancer: a population-based comparison with female breast cancer. J Clin Oncol. 2010;28:232-9.
3. Cardoso F, Bartlett JMS, Slaets L. Characterization of male breast cancer: results of the EORTC 10085/TBCRC/BIG/NABCG International Male Breast Cancer Program. Ann Oncol. 2018;29(2):405-17.
4. Korde LA, Zujewski JA, Kamin L. Multidisciplinary meeting on male breast cancer: summary and research recommendations. J Clin Oncol. 2010;28(12):2114-22.
5. Miao H, Verkooijen HM, Chia KS. Incidence and outcome of male breast cancer: an international population-based study. J Clin Oncol. 2011;29(33):4381-6.
6. Liu N, Johnson KJ, Ma CX. Male breast cancer: an updated surveillance, epidemiology, and end results data analysis. Clin Breast Cancer. 2018;18(5):e997-1002.
7. Chhabra MK, Kadyaprath G. Male Breast Cancer-an Indian Multicenter Series of 106 Cases. Indian J Surg. 2019.
8. Shah P, Robbani I, Shah O. Clinicopathological study of male breast carcinoma: 24 years of experience. Ann Saudi Med. 2009;29(4):288-93.
9. Shukla NK, Seenu V, Goel AK, Raina V, Rath GK, Singh R. Male breast cancer: a retrospective study from a regional cancer center in northern India. J Surg Oncol. 1996;61:143-8.
10. Ghoshal S, Rai B, Sharma SC. Breast cancer in males: a PGIMER experience. J Cancer Res Ther. 2005;1:31-3.
11. Gogia A, Raina V, Deo S. Male breast cancer: a single institute experience. Indian J Cancer. 2015;52:526.
12. Chikaraddi S, Krishnappa R, Deshmane V. Male breast cancer in Indian patients: is it the same? Indian J Cancer. 2012;49:272.
13. Mukherjee A, Saha A, Chattopadhyay S, Sur PK. Clinical trends and outcomes of male breast cancer: experience of a tertiary oncology centre in India Original Article Abstract. Int J Cancer Ther Oncol. 2014;2:1-8.
14. Sundriyal D, Kotwal S, Dawar R, Parthasarathy KM. Male breast cancer in India: series from a cancer research centre. Indian J Surg Oncol. 2015;6:384-6.
15. Patel R, Kumar R, Pandya SJ, Mendiratta P. Male breast cancer: single institutional experience at Gujarat Cancer &Research institute. Int J Curr Adv Res. 2016;5:1203-4.
16. Ram D, Rajappa SK, Selvakumar VP, Shukla H, Goel A, Kumar R et al. Male breast cancer: a retrospective review of clinical profile froma tertiary care center of India. South Asian I Cancer. 2017;6(4):141-3.
17. Rai B, Ghoshal S, Sharma SC. Breast Cancer in males: a pgimer experience. J Cancer Res Ther. 2005;1(1):31-3.
18. Cutuli B, Le-Nir CCS, Serin D. Male breast cancer. Evolution of treatment and prognostic factors. Analysis of 489 cases. Crit Rev Oncol Hematol. 2010;73:246-54.
19. Fentiman IS, Fourquet A, Hortobagyi GN. Male breast cancer. Lancet. 2006;367:595-604.

20. Samuelson MH. Breast cancer: not for women only. Lancet. 2006;367:605.
21. Rudlowski C. Male breast cancer. Breast Care (Basel). 2008;3:183-9.
22. Giordano SH. A review of the diagnosis and management of male breast cancer. Oncologist. 2005;10:471-9.
23. Hill A, Yagmur Y, Tran KN, Bolton JS, Robson M, Borgen PI. Localized male breast carcinoma and family history. An analysis of 142 patients. Cancer. 1999;86:821-5.
24. McLachlan SA, Erlichman C, Liu FF. Male breast cancer: an 11-year review of 66 patients. Breast Cancer Res Treat. 1996;40:225-30.
25. Onami S, Ozaki M, Mortimer JE, Kumar S. Male breast cancer: an update in diagnosis, treatment and molecular profiling. Maturitas. 2010;65:308-14.
26. Gómez-Raposo C, ZambranaTévar F, Moyano MS, Miriam López Gómez EC. Male breast cancer. Cancer Treat Rev. 2010;36:451-7.
27. Joshi MG, Lee AK, Loda M. Male breast carcinoma: an evaluation of prognostic factors contributing to a poorer outcome. Cancer. 1998;77(3):490-8.
28. Weir J, Zhao YD, Herman T, Algan Ö. Clinicopathologic features and radiation therapy utilization in patients with male breast cancer: a national cancer database study. Breast Cancer Basic Clin Res. 2018;12:117822341877068.
29. Cloyd JM, Hernandez-Boussard T, Wapnir IL. Poor compliance with breast cancer treatment guidelines in men undergoing breast-conserving surgery. Breast Cancer Res Treat. 2013;139(1):177-82.
30. Golshan M, Rusby J, Dominguez F, Smith BL. Breast conservation for male breast carcinoma. Breast. 2007;16(6):653-6.
31. Goyal A, Horgan K, Kissin M, Yiangou C, Sibbering M, Lansdown M et al. Sentinel lymph node biopsy in male breast cancer patients. Eur J Surg Oncol. 2004;30:480-83.
32. Giordano SH, Perkins GH, Broglio K, Garcia SG, Middleton LP, Buzdar AU et al. Adjuvant systemic therapy for male breast carcinoma. Cancer. 2005;104:2359-64.

Cite this article as: Pawar SS, Kumar M, Kishor K, Ahmad N, Singh SK, Lata KA. Male breast cancer: a 5-year experience from a State Cancer Institute. Int Surg J 2021;8:2595-9.