Clinical Practice Article

THE CLINICO-PATHOLOGICAL ANALYSIS OF BREAST CANCER IN MALES: A CASE SERIES

ABSTRACT

BACKGROUND

Male Breast Canceris a rare disease, which accounts for less than 1% of breast cancer. Common risk factors are radiation exposure and estrogen therapy whereas the commonest presentation is palpable breast lump. Triple assessment forms the basis of diagnosis. Modified Radical Mastectomy is the treatment of choice usually followed by adjuvant chemotherapy.

METHODOLOGY

The objective of the study is to evaluate the clinico-pathological and immunohistochemical characteristics of Male Breast Carcinoma. A retrospective multicentric observational study is performed in Assam. The patients are ascertained from hospital admission register over a period of 18months from January2022 to June2023. The patients contact numbers are retrieved and data are collected along with details of recurrence and death. The associations between clinical factors, pathological status and treatment choice are reviewed in cross-tabulation form.

RESULTS

Nine patients of MBC are studied over a period of 18months. The median age of presentation is 45years.The most common presentation is palpable lump around nipple areolar complex. Cases of fungating mass are also seen. On USG analysis, 66% patients have BIRADS IV lesion with axillary lymphadenopathy in 89% patients. HPE reports suggested Invasive Ductal Carcinoma in 89% cases. ER positivity is observed in 80%, PR positivity 70% and Her2 neu positivity in 20% cases. Treatment options include modified radical mastectomy along with chemotherapy and radiotherapy. Overall mortality is found to be 20%.

CONCLUSION

Male Breast Cancer isfound to be more aggressive than Female Breast Cancer. The important prognostic factors are tumour size, nodal involvement, histological grade and hormone receptor status which is similar to female breast cancer. Treatment options are similar to that of FBC. Breast carcinoma awareness in the community, early detection and timely management of the disease are the key for improvement of its prognosis

KEY WORDS

Male breast cancer, Clinico-pathological, Immuno-histopathological, BIRADS, Modified radical mastectomy

INTRODUCTION:

Fewer than 1% of all breast cancer occur in men and 0.2% of cancer deaths in men [1-6].In adult males, breast tissue is rudimentary, 2 cm in diameter lying deep to areola and extending to the areolar edges[2].

Common risk factors are increasing age, family history,genetic predisposition (BRCA 2 mutation), radiation exposureand estrogen therapy[1-8]. Others are testicular feminising syndrome, Klinefelter's syndrome (XXY), infertility, obesity, cryptorchoidism and epididymorichitis[1-16].The commonest clinical presentation is palpable breast lump with or without pain[1-15]. Other presentations are axillary swelling, nipple retraction, breast ulceration, fungating mass, bleeding from nipple and nipple discharge[1-12]. Male breast cancer share the same staging and same prognosis as female breast cancer[2-8, 12-14]. Triple assessment forms the basis of diagnosis. Modified Radical Mastectomy is the treatment of choice[1-9]and usually associated with chemotherapy.Adjuvant Tamoxifen is considered for hormone receptor positive male breast cancer[1-4]

MATERIALS AND METHODS:

The objective of the study is to evaluate the clinicopathological and immunohistochemical characteristics of breast carcinoma in males.Two tertiary level hospitals of Assam are chosen for data collection (Assam Medical College and the Gauhati Medical College representing Upper Assam and Lower Assam). All clinically suspected and histopathologically confirmed cases of male breast carcinoma are included in this study.

Since male breast carcinoma constitutes <1% of all breast carcinoma, a multicentric retrospective observational study is performed to understand the clinico-pathological and immuno-histochemical scenario of the disease in men. The patients are ascertained from hospital admission registration records over a period of 18 months from January 2022 to June 2023. Data regarding patient history, presenting signs and symptoms, risk factors, family history, primary tumour pathology, treatment options, surgical treatment, pre and post-surgical treatment along with the details of recurrencesare ascertained from the master ticket recovered from the MRD Office.The patients contact numbers are retrievedand they are enquired about their current difficulties and disease status and informed consent taken during their follow up.

RESULTS:

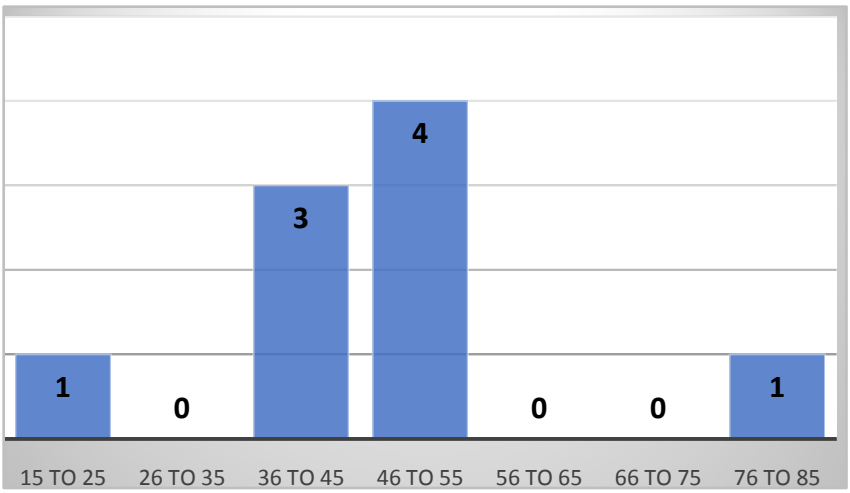


FIG 1 : TABLE SHOWING AGE DISTRIBUTION OF PATIENTS

In the present study, patient age ranges from 18 to 84 years and the median age of presentation is 45 years. 8 men are married at the time of presentation and all of them have offsprings. Clinical gynaecomastia is evidenced in 2 cases out of which 1 patient reported bilateral gynaecomastia.No features of hypoandrogenism or hyperestrogenismor infertility is elicited by any of the cases. 2 patients gave history of trauma to the chest and breast tissue. There is occupational exposure to chemicals in 33% cases(petroleum products) but no history of radiation exposure found.There is no past history of radiotherapy or chemotherapy. Family history remains insignificant in all of the cases.

CLINICAL PRESENTATION	Number of cases	Percentage
Asymptomatic	0	0%
Pain only	0	0%
Swelling around NAC without pain	1	11%
Swelling around NAC with pain	4	44%
Fungating Mass with nipple discharge	1	11%
Fungating Mass with bleeding	2	22%
Axillary Swelling	1	11%
Ulcerated lesion	0	0%

FIG 2 : TABLE SHOWING CLINICAL PRESENTATION

In the study, fourout of nine cases presented with palpable swelling around the nipple areolar complex which wasassociated with pain whereas one patient present with swelling without pain or discharge. Three cases presented with a fungating mass of breast. One patient presented with axillary swelling as the chief complaint. There were no asymptomatic patients or patients presenting with only pain of the breast or any precancerous changes. Right sided breast involvement is evidenced in 67% cases.

FIG 3 : PICTURES OF THE CLINICAL CASES UNDER STUDY

NVESTIGATIONS:

On preoperative clinical staging, 5 out of 9 patients presented in stage 3, whereas 3 patients, who were in stage 4, have already presented with metastasis on their first pursual of medical care. Only one patient presented earlywith stage 2 disease.

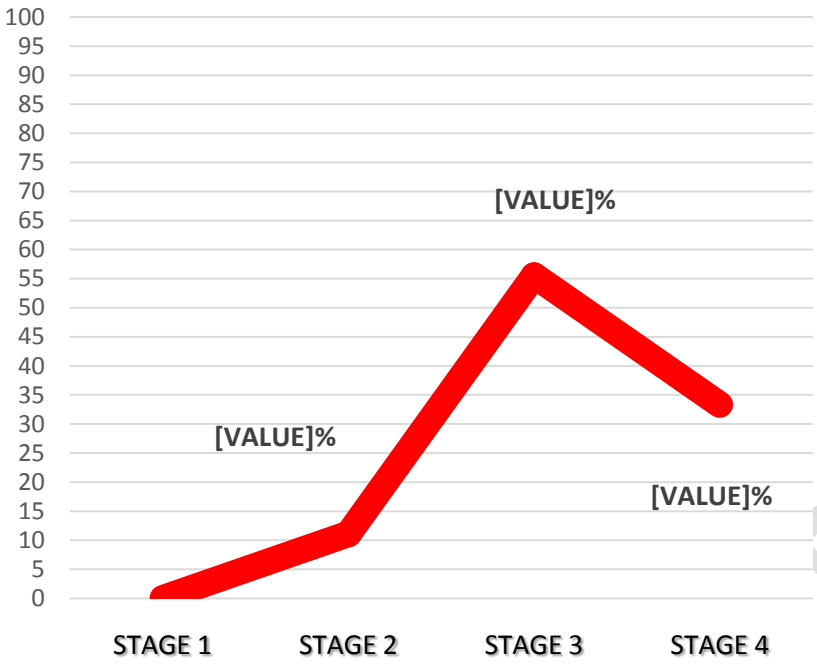


FIG 4 : GRAPH SHOWING CLINICAL STAGING ON PRESENTATION

	Number	Percentage
BIRADS 1	0	0.0
BIRADS 2	0	0.0
BIRADS 3	2	22.2%
BIRADS 4	6	66.6%
BIRADS 5	1	11.1%
BIRADS 6	0	0.0

FIG 5: TABLE SHOWING BIRADS SCORING OF PATIENTS UNDER STUDY

On analysis of USG reports, it is seen that 6 patients have BIRADS IV primary lesion. 2 patients presented with BIRADS score 3 who were under evaluation and later surgery was done after proper assessment.1 patient presented with BIRADS V primary lesion. Axillary lymphadenopathy is evidenced in 90% patients sonographically suggestive of highlymphovascular invasion of the disease.

Histopathological analysis suggested Invasive Ductal Carcinoma to be the most prevalent type seen in 8 out of 9 cases and 1 case presented as an Invasive Papillary Carcinoma.On immunohistochemical analysis, 4 subtypes are mainly encountered as depicted in chart, figure 6. It is seen that ER/PR positivity with Her2neu negative is the most common subtype and have a good prognosis until not metastasised. 2 patients have ER/PR/ Her2neupositive and 1 patient is her2neu enriched whereas 2 patients have a triple negative hormone receptor status.

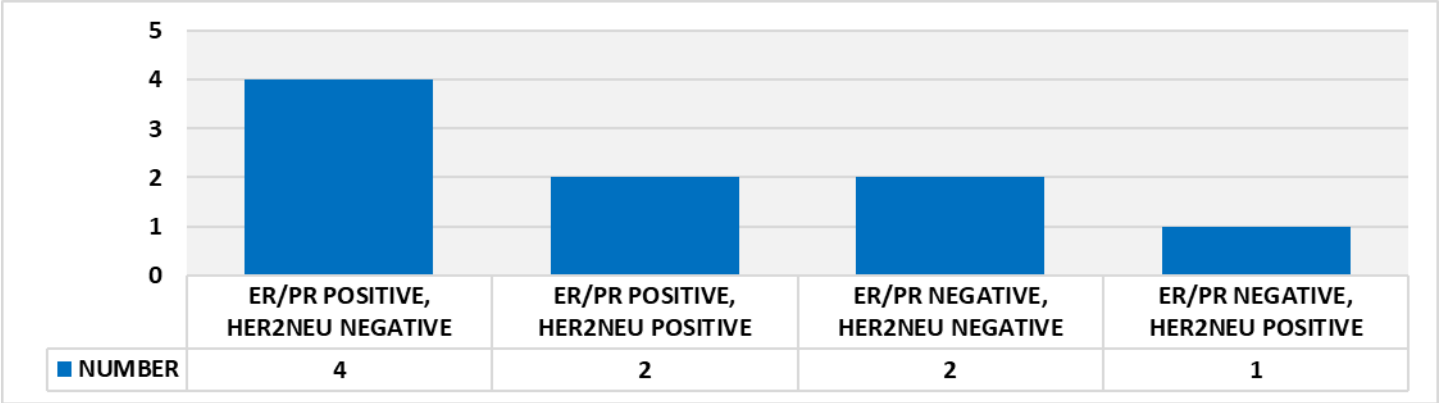


FIG 6: GRAPH SHOWING THE PREVELANCE OF FOUR TYPES OF HORMONAL STATUS EVIDENCED DURING THE STUDY

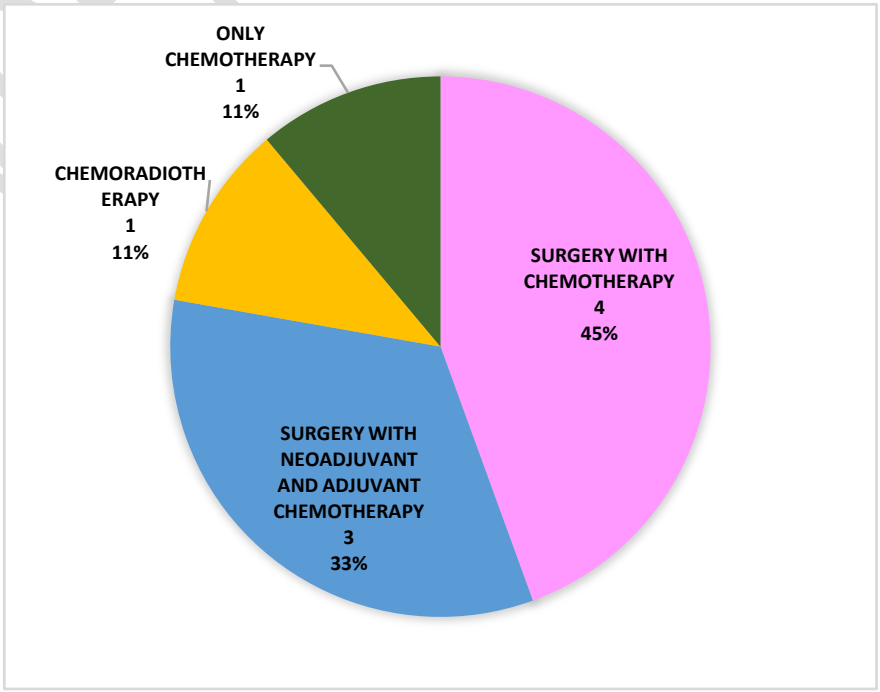
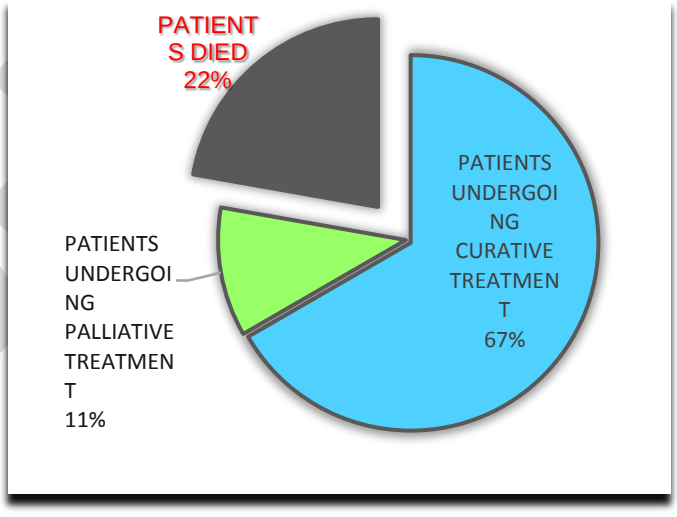


FIG 7: PIE DIAGRAM SHOWING TREATMENT OPTIONS OF PATIENTS

In the present study, seven out of nine patients have undergone curative treatment in the form of Surgery. Six patients underwent Modified Radical Mastectomy and simple mastectomy was done onthe youngest patient who presented in stage 2 of the disease. Surgery was followed by chemotherapy in four patients as the primary mode of treatment. Three other patients have received neoadjuvantchemotherapy followed by post-surgical chemotherapy. Two patients, who presented as a stage 4 breast cancer, have been receiving palliative treatment, one in the form of chemoradiation and another with chemotherapy only (without surgery).Modified Radical Mastectomy is performed in 88% cases with chemotherapy (CAF regimen) given in post-operative period of all cases.

Two patients out of nine, have died within a period of 8 months of diagnosis who did not undergo surgical intervention. Rest of the patients are on regular follow ups. No recurrences or complications have been reported till date.

FIG 8 : PIE DIAGRAM SHOWING CONSEQUENCES



DISCUSSION:

Due to the rarity of the disease, information regarding etiology, risk factors, diagnosis, management and prognosis of male breast cancer are usually extrapolated from our knowledge of female breast

cancer. In our study, majority of the cases lie within the range 46 to 55 years in contrast to the literature which states that incidence peaks in 6th decade of life[1-8]. In thecurrent study, two patients have gynaecomastia out of which one of them had bilateral gynaecomastia and has given history of regular consumption of unspecified hormonal tablets for the last 3 years. Gynaecomastia may precede male breast cancer in 20%[1] of men but is not a risk factor of it[2].Obesity is associated with higher levels of estrogen in the body, which increases the risk of male breast cancer.[11-14]In the present study, exposure to chemicals in the form of petroleum products have been evidenced in 33% cases but no literature till date have mentioned its significance.

Majority of patients presented with palpable breast lump with or without pain which parallels the study of Male Breast Carcinoma: A Clinical and Pathological Review in 2016 (Sara Javidiparsijani, Lauren E. Rosen, and Paolo Gattuso). Presentation of majority of the cases in Stage 3 of the disease emphasises that male breast cancer, for any reason, is diagnosed at a later stage than Female breast cancer. Infiltrating ductal carcinoma accounts to 89% of all cases which parallels to the same study and other similar studies done at Marshal University of California,2021; in Istanbul in 2023 and by Deepak Sundriyal& et al in New Delhi in 2015. In this study, two patients who have expired during the study period have a triple negative hormonal receptor status which suggests the poor outcome of the disease with triple negative status. This result is consistent with the study of QI Wu, Shan Zhu and et al of Poorer breast cancer survival outcomes in males than females in 2016 done in Wuhan university, China.

CONCLUSION :

The median age of presentation of the disease have shifted to the younger age zone. Stage 3 is most commonly encountered in males. The exposure to petroleum products may be a risk factor which needs further evaluation.Male Breast Carcinoma are more likely to be node positive and have high propensity of lympho-vascular invasion.Majority of the male breast carcinoma patients have shown to be ER/PR positive with Her2 Neu negative which have also shown to have a good prognosis following treatment. The hormone receptor negatives status is associated with higher mortality of the patients.

LIMITATIONS OF THE STUDY:

- There exist limited data on transgender patients with breast carcinoma.
- Genetic predisposing factors including BRCA1 and BRCA2 have not been studied.
- Hormone levels of the patients are not measured pre operatively or post operatively
- Finally, due to the rarity of the disease, the small number of cases in our study may affect the validation of its conclusion. Additional studies with larger numbers of patients are needed to achieve sufficient statistical power.

Picture 1 : Preoperative breast lesion planned for modified radical mastectomy

Picture 2 : Post-mastectomy with split skin grafting

Picture 3 : Cuteneous surface of the excised specimen

Picture 4 : Undersurface of the excised specimen containing the tumour

ACRONYMS USED:

MBC : Male Breast Carcinoma

FBC : Female Breast Carcinoma

MRD : Medical Records Department

MRM : Modified Radical Mastectomy

HPE : Histopathological Examination

ER : Estrogen Receptor

PR : Progesterone Receptor

Her 2 Neu : Human Epidermal Growth Factor Receptor 2

Ethical clearance taken

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