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Clinicopathological study of male breast lesion at a tertiary care in western India (Maharashtra)

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ABSTRACT

Background: Male breast cancer is a rare disease compared to female breast cancer. The reason of the low incidence rate in men is the relatively low amount of breast tissue along with the difference in their hormonal environment. Even though breast tissue is less in men as compared to women, the factors that influence malignant changes are similar. The rare nature of disease and lack of surveillance system for male breast cancer it makes a difficult disease to study. Present study was carried out to understand clinipathological features of male breast lesions.

Materials and Methods: A retrospective descriptive study was carried out in a tertiary care center for 5yeras duration (Jan 2014 to Dec 2018) at pathology department. Demographic, history and histopathological details of male breast lesion were retrieved from database at pathology department.

Results: Median age of cases was 58.34+6.67yrs and range of 54-80years. Very few had family history of breast cancer. Alcoholism, obesity and chronic liver disease were risk factors. Most of them were diagnosed as gynecomastia on histopathology findings. One case of phylloid tumor.

Conclusion: Changing lifestyle and environmental condition may rise MBC in the future, understanding epidemiology and pathology is need of time for early diagnosis and management.

1. Introduction

Male breast cancer is a rare disease compared to female breast cancer accounting <1% of cancers in men and all breast cancer diagnosed. The most prevalent risk factors for male breast cancer are the inherited mutations in the BRCA2 gene. The rare nature of disease and lack of surveillance system for male breast cancer it makes a difficult disease to study.

The reason of the low incidence rate in men is the relatively low amount of breast tissue along with the difference in their hormonal environment. Even though breast tissue is less in men as compared to women, the factors that influence malignant changes are similar. The Surveillance, Epidemiology and End Result (SEER) Program reported that the incidence of breast cancer was highest at ages 52-71 during 1973-2000, whereas the peak incidence in males was 71 years.[1] In fact, some authors state that MBC imitate the behavioral pattern of post-menopausal female breast cancer.

The incidence of breast cancer in males and females has increased in the past 25 years. International Association of Cancer Registries (IACR) emphasized this increase and stated that the incidence of female breast cancer increased by 20%, while breast cancer-related deaths increased by 14%. The SEER data also showed that the rate that was 1.1 for 100.000 men in the mid-1970s and raised to 1.44 for 100.000 men by 2010.[2]

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Over the past two decades, major improvements have been achieved in the understanding of breast cancer, and cure can be offered if the disease is diagnosed at an early stage. However, the disease is more often diagnosed at more advanced stages (3 or 4) in men, in contrast to women. Its rarity among men as well as lack of awareness leads to its detection at later stages. Randomized studies cannot be carried on due to the low incidence of breast cancer in males, with only a few published prospective therapeutic studies in the literature. While the information on male breast cancer (MBC) was obtained from retrospective studies, the recommendations for treatment were derived from studies conducted on female breast cancer.[3]

In the present study, we analyzed our experience of 5 years with this disease, focusing on its epidemio ology, risk factors, histopathology findings.

2. Materials and Methods

It is a retrospective descriptive study at a tertiary care center of western India (Maharashtra). For this retrospective study, we identified all male breast cancer patients seen from January 2014 to December 2018 at the Department of Pathology. The history, physical examination including tumor size, histological and nuclear grades, was evaluated. The TNM classification system was used for tumor staging. Histological material for study was available by biopsy, lumpectomy and radical resection specimens. Data on epidemiology, risk factors, clinical assessment, and pathology were the focus of study.

3. Results

Median age of cases was 58.34+6.67yrs and range of 50-80years.

Majority were present with Bilateral swelling of breast and one case had nipple discharge and skin ulceration. Lymph Node involvement was not found.

On history, it was found that were alcoholics, chronic liver disease, family history of breast cancer and co-morbid conditions like diabetes, hypertension and chronic kidney disease.

On physical examination most of them were obese and overweight.

Most common finding on histopathological examination was gynecomastia in 22 cases followed by lipoma 5 cases, normal breast tissue in 3 cases and one recurrent malignant phyllodes of male breast. In phyllodes tumor case there was history of swelling, skin ulceration and on surgery it showed involvement of muscles. Histopathology showed prominent stromal overgrowth and increased mitosis.

Table 1: Clinical profile of study subjects

Clinical profile	Number	Percentage
Age group		
51-60yrs	18	60.0
61-70yrs	7	23.3
71-80yrs	5	16.7
Presentation		0.0
One side swelling	3	10.0
B/L Swelling	27	90.0
Skin ulceration	1	3.3
Nipple discharge	1	3.3
Pain	1	3.3
H/o trauma or injury	1	3.3
Risk Factors		0.0
Obese	8	26.7
Overweight	11	36.7
Family history	4	13.3
Alcohol abuse	18	60.0
Chronic liver disease	6	20.0
Orchitis/Testicular problem	0	0.0
Other Co-morbidity		0.0
Hypertension	10	33.3
Diabetes	13	43.3
Chronic kidney disease	2	6.7

Table 2: Histopathology and immunochemistry findings

Histopathology findings	Number	Percentage
Inflammation/ gynaecomastia	18	
DCIS		
LCIS		
Paget's Disease		
Phylloid	2	
Lipoma	4	
Normal breast tissue	6	
Stage		
Stage 1		
Stage 2		
Stage 3		
Stage 4		
Grade		
Grade 1		
Grade 2		
Grade 3		
LN Involved	0	

4. Discussion

Male breast pathology has found at later stage of life compared to female. Most of the breast malignant lesion among women have presented in 4^{th} or 5^{th} decade of life whereas benign lesion in 2nr or 3^{rd} decade of life. In present study median age of cases was 58.34+6.67yrs and range of 50-80years. The median age at diagnosis was similar to that in previous studies.[4–6]

A family history of breast cancer confers a relative risk of 2.5. About 20% of men with breast cancer have a positive family history.[7] Family history of breast cancer is important risk factor and in our study there was four cases (13.3%) with family history of breast cancer. This was found to be present in 15.4% of our patients.[6]

In 21st century lot of societal changes have affected living of human beings. Rapid industrialization, urbanization and westernization in India had made change in lifestyle of Indians. Sedentary lifestyle and dietary changes are part of this urbanization and industrialization which directly leading to obesity and many health problems. Obesity commonly causes hyperestrogenism in men and some studies suggest that it can double the risk of MBC.[8,9] Out of 30 cases reviewed for study 20 were obese and 5 having overweight. Several studies evaluating risk factors for male breast cancer have been conducted. The prospective National Institute of Health (NIH)-AARP Diet and Health Study ultimately identified 121 men who developed breast cancer.[10] In this analysis, a negative correlation with physical activity was established and having history of a first-degree relative with male breast cancer (relative risk, RR, 1.92;95%CI 1.24–3.91) and increased body mass index (>30 vs. <25; RR 1.79, 95%CI 1.10–2.91) were found to correlate with increased breast cancer.

Apart from obesity and family history other another important risk factor found in our study was history of alcoholism (19/30) and chronic liver disease (11/30). Liver disease such as cirrhosis also causes hypoestrogenism associated with an increased risk of MBC.[11] A European multi-center study with 74 cases and 1432 population controls reported a significant relationship between alcohol consumption and risk of MBC.[12] The odds ratio for alcohol intake >90 g/d was 5.89 (CI 2.21–15.69). The risk of MBC rose by 16% for every 10 g of daily alcohol intake. Male breast cancer has been described in patients with hyperprolactinemia due to pituitary adenomas.[13]

Maximum breast lesion in present study was gynecomastia may be related to alcoholism and chronic liver disease, as we didn't do genetic study so exact genetic reason couldn't have identified for gynecomastia. In literature also there is however no proven link between gynecomastia and male breast cancer.[14]

Inherited mutations in BRCA increase the risk of MBC, more so with BRCA 2 (5- 15%) than BRCA 1 (0-4%).[15] Because of the prevalence of these mutations, the national comprehensive cancer network (NCCN) recommends that BRCA mutation testing be offered to men who develop breast cancer.[16] Genetic study was not done in any of our patients. MBCs have high rate of hormone receptor expression. Approximately 90% are ER positive and 81% PR positive. In contrast, 60-70% of female breast cancers are ER or PR positive. Recent studies have shown lower rate of Her 2-neu overexpression in men (2- 15%) in contrast to females (18-20%).[17,18] In our study hormone receptor expression was not studied. Lymph node involvement has often been cited as a significant prognostic indicator in men. Men who have nodal dissection omitted tend to have a worse outcome. Lymph nodal involvement was not found in our study. Sentinel lymph node biopsy (SLNB) has been evaluated in MBC. Large studies have not been performed. However, several case series have been published that have established the feasibility of SLNB in MBC.[19–21]

5. Conclusion

Carcinoma of the male breast has many similarities to breast cancer in women, but there are distinct features that should be appreciated. Male breast cancer is a rare disease at our center. Most of the lesions were benign conditions related to underlying health conditions but details didn't retrieve. Malignant lesion had late presentation with advanced disease is a common feature as in other studies. Though the rarity of the disease limits the feasibility to conduct cohort study or clinical trials, a comprehensive, multi-centric, prospective data collection would help to know epidemiology, risk factors and prognostic factors will help to improve management of male breast cancers in Indian subset of patients.

6. Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

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None.

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