

Incidence of Male Breast Cancer in A Tertiary Care Hospital: A Retrospective Study with Review of Literature

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ABSTRACT

Introduction: Even though breast cancer in males is relatively uncommon its incidence now seems to be substantially increasing. The significance of the study is to look into the estimates of male breast cancer patients in a tertiary care hospital.

Material and Methods: A retrospective study for a period of 3 years was undertaken. 27 male breast lumps and 189 female breast cancer cases proved on histopathology were included in the study. The data was analyzed using Microsoft Excel.

Results: Out of the 27 male breast lumps, 25 were gynecomastia and 2 were breast cancer. Out of the 191 breast cancer cases (female and male subjects included) infiltrating ductal carcinoma with non-specific features was the commonest type found in 170 patients. Other types include ductal carcinoma insitu 8 cases, 6 cases of infiltrating ductal carcinoma of medullary type. 5 cases were of invasive lobular type and 2 cases were Paget's disease of nipple.

Conclusion: The extremely very low sample size in a 3 year period limits the possibility of study of any epidemiologic factors and further work is needed for better understanding of this rare disease.

Keywords: Male Breast Cancer, incidence, epidemiology, gynecomastia

INTRODUCTION

Breast cancer in males is relatively uncommon, accounting for less than 1% of all breast cancers and less than 1.5% of all malignancies in men.¹ The incidence of MBC, once thought to be relatively stable, now seems to be substantially increasing. The incidence of male breast carcinoma increased significantly from 0.86 to 1.08 per 100,000 population in the past 25 years.² The worldwide variation of MBC resembles that of breast cancer in women, with higher rates in North America and Europe and lower rates in Asia.³ The major genetic factors associated with an increased risk of breast cancer for men include, BRCA2 mutations^{4,5} which are believed to account for the majority of the inherited breast cancer in men; a positive family history of breast cancer in first-degree relative⁶ or a positive history of breast cancer in a female relative⁷; Klinefelter syndrome,^{8,9} where there is increased levels of gonadotropins but low levels of androsterone and normal to somewhat low levels of estrogens, resulting in a high estrogen/androgen ratio.

Although the epidemiologic literature on female breast cancer is extensive, little is known about the etiology of MBC, the difference mostly being the rarity of the disease in men, which limits the application of epidemiologic methodology to studies of MBC.

Hence the present study was taken to look into the estimates of male breast cancer patients in a tertiary care hospital.

MATERIAL AND METHODS

Because breast cancers in men are rare, few patients are available for prospective studies. The aim of the study is to know the incidence of male breast cancer among the male patients presenting with breast lumps and also to know the incidence of male breast cancer among all breast cancer cases (both male and female included) presenting to our institution. This present study was a retrospective study for a period of 3 years from 01.11.2012 to 30.11.2015. The study being a retrospective study, no ethical issues or consent from the patients were needed/taken. All the male patients presenting to the surgical department and diagnosed and/or admitted for evaluation of breast lump were taken into consideration. All the breast lumps operated and whose biopsy reports which came as carcinomas (both male and female patients) were included in the study. The breast biopsy reports sent to the pathology department, after mastectomy (modified/radical) in case of operable lumps or true-cut biopsies in case of inoperable cases were cross-checked and analyzed.

RESULTS

A total of 27 male breast lumps and 189 female breast cancer patients were diagnosed and treated during this period. The data was analyzed by Microsoft Excel software. The age of presentation of the male breast lump patients was from 17 years to 51 years. Out of these 25 cases (92.59%) were gynecomastia and 2 (7.41%) were male breast cancer.

There were a total of 191 breast carcinoma cases during the study period of which 2 (1.045%) were male breast cancer patients and 189 (98.95%) were female breast cancer cases. The age of presentation of female breast cancer patients was from 24 years (youngest patient) to 81 years (oldest patient) with a mean of 47.8 years. The most common age in the female group was 40 – 49 years with 58 cases (30.69%), then 50 – 59 years with 49 cases (25.93%), followed by 30 – 39 years with 43 cases (22.76%), 60-69 years with 29 cases (15.35%), 70 – 79 years with 6 cases (3.18%), 20 – 29 years with 3 cases (1.59%) and there was also one case (0.5%) of 81 years. The two male breast cancer patients were aged 46 and 51 years respectively with the mean age of presentation being 48.5 years.

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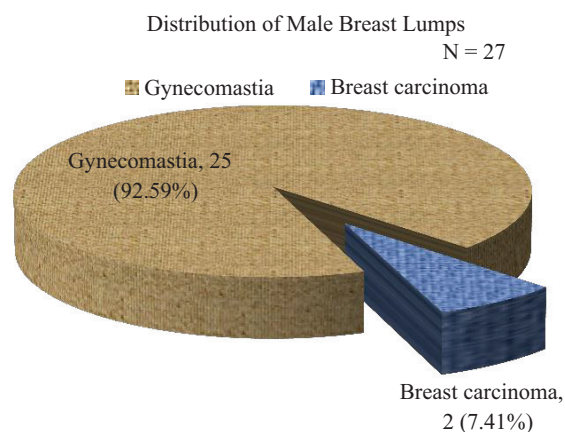


Figure-1: Distribution of Male Breast Lumps

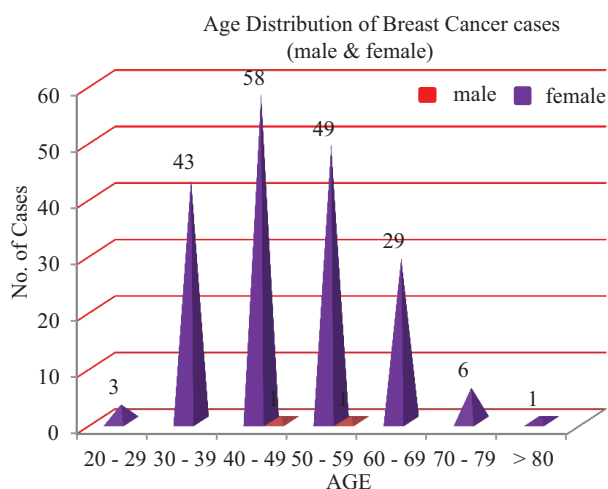


Figure-2: Age Distribution of Breast Cancer cases (male and female)

Type	Sub type	N = 191		
		Cases	%	
Lobular	In situ	0	0	
	Invasive	5	2.62	
Ductal	In situ	8	4.19	
	Infiltrating	170	89	
	Non-specific	Medullary	6	3.14
		Mucinous	0	0
		Tubular	0	0
		Papillary	0	0
		Inflammatory	0	0
Others	Paget's disease of nipple	2	1.05	
	Mixed lobular and ductal	0	0	

Table-1: Distribution of cases of different types of breast carcinoma

The two male patients presented in Stage III with mobile axillary lymph nodes and tumor size ranging between 4 – 7 cm. and skin infiltration. None of the male breast cancer patients received neo-adjuvant chemotherapy and both patients underwent modified radical mastectomy with axillary lymph node clearance. The histopathology specimen report came as infiltrative duct cell carcinoma for both the male breast cancer patients.

Infiltrating ductal carcinoma with non-specific features was the commonest type, found in 170 patients (89%) out of the total 191 breast cancer cases (both male and female cases included).

Other types include ductal carcinoma insitu 8 cases (4.19%), 6 cases (3.14%) of infiltrating ductal carcinoma of medullary type. 5 cases (2.62%) were of invasive lobular type and 2 cases (1.05%) were of Paget's disease of nipple.

Both the male breast cancer patient's specimens were negative for lymph nodes and were hormone receptor positive. Adjuvant chemotherapy and Tamoxifen were offered to them.

The male breast lumps which were diagnosed as gynecomastia underwent subcutaneous mastectomy. None of these histopathology specimen showed carcinomatous tissue embedded within.

DISCUSSION

The aim of this retrospective study was to study the incidence of male breast cancer at a tertiary care hospital. We came across 2 male breast cancer and 189 female breast cancer cases during the 3 year study period. So the male breast cancer accounts for 1.06% of all the breast cancer cases of the study period. The mean age of presentation in this study is 48.5 years which is very lower than the western studies where the mean age was 71¹⁰, and another Indian study were it was 57 years.¹¹

In the present study the most common histopathological type of male breast cancer was found to be infiltrating ductal carcinoma. The same histological type was also found to common by others like Ian S Fentiman et al¹⁰ in 2006 and Chikaraddi SB et al¹¹ in 2012.

Suspected genetic factors implicated in male breast carcinoma include Androgen Receptor (AR) gene mutations¹² where there is mutation in exon 3 encoding the DNA-binding domain of the AR causing the ability to bind to estrogen response elements and therefore activating the estrogen-regulated genes. (There is reduction in androgen levels and subsequent elevated estrogen/androgen activity ratio); CYP17 polymorphism^{13,14} where the 5'untranslated region of the gene contains a T-to-C polymorphism which creates an additional Sp1-type (CCACC) promoter motif leading to increased transcriptional activity and enhanced steroid hormone production; Cowden syndrome¹⁵ which is an autosomal dominant cancer susceptibility syndrome characterized by multiple hamartomas and germ line mutations in the PTEN tumor suppressor gene; and CHEK2*1100delC mutation variant.^{16,17}

Epidemiologic and dietary risk factors for male breast cancer include disorders relating to hormonal imbalances, such as obesity¹⁸, testicular disorders¹⁹ and radiation exposure.²⁰

Suspected epidemiologic risk factors include prostate cancer^{21,22}, gynecomastia^{22,24}, occupational exposures (e.g., electromagnetic fields²³, polycyclic aromatic hydrocarbons^{26,27}, and high temperatures²⁶; dietary factors (e.g., red meat intake and fruit and vegetable consumption); and alcohol intake.²⁹

Men tend to be diagnosed at an older age than women. Presentation is usually a painless lump, nipple retraction, or Paget's disease of breast, but is often late, with more than 40% of individuals having stage III or IV disease. When survival is adjusted for age at diagnosis and stage of disease, outcomes for male and female patients with breast cancer is similar.³⁰ The mean age of presentation in the western population is 71 years¹⁰ while in the Indian setting it is 57 years.¹¹ It is usually unilateral. The management is usually modified radical or radical mastectomy (mastectomy with axillary clearance or sentinel

node biopsy). Most are ductal carcinomas. As 90% of tumors are hormonal receptor positive, tamoxifen is standard adjuvant therapy. Indications for radiotherapy and chemotherapy are similar to female breast cancer. For metastatic disease, hormonal therapy is the main treatment, but chemotherapy can also provide palliation.^{30,11}

CONCLUSION

The main limitation of this study is it was a single-institution study having an extremely very low sample size (2 male breast cancer cases) in a 3 year period. So no concrete study of other epidemiologic factors is possible and further work incorporating multiple institutions is needed for better understand of this rare disease.

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