Male breast cancer: experience from a Malaysian tertiary centre

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ABSTRACT

Introduction: Breast cancer is a rare condition among men with a reported incidence of about one percent. Nevertheless, it is thought to behave similarly in both genders. Due to its rarity, male breast cancer is not widely reported, especially in the Asian population.

Methods: In a five-year review of our breast cancer surgery series, about 1.6 percent involved male patients. There was a substantial delay in presentation among those men, whose mean age at presentation was 64 years.

Results: The majority of patients presented with a painless lump. Histologically, all tumours were ductal in origin and all patients had lower than stage III malignancies. The majority of patients underwent mastectomy and axillary lymph node dissection. All male patients were commenced on adjuvant tamoxifen. The longest survival was 54 months with all patients remaining tumour-free.

Conclusion: Malaysian men are at risk of breast cancer and seem to have a better prognosis.

Keywords: breast carcinoma, male breast carcinoma, male breast lump

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INTRODUCTION

Male breast cancer (MBC) is a rare entity which is not well publicised, especially from the Asian perspective. This disease is thought to behave similarly to that of postmenopausal breast carcinoma in women. Therefore, diagnostic and therapeutic measures for the management of male patients have been extrapolated from female breast cancer (FBC). We retrospectively reviewed our breast surgery series from 2003 to 2007, and analysed those male patients who underwent surgery for breast carcinoma, in particular, to define their demographics, clinical presentations, tumour histological features and outcomes of treatment.

METHODS

During the five-year period from 2003 to 2007, a total of 375 patients underwent breast cancer surgery at our institution. This included six male patients (1.6%), two Malay and four Chinese (Table I). All MBC patients presented from their fourth decade of life, with a median age of 64.5 (range 42–84) years. Interestingly, there is a median delay in presentation of 13.5 (range 2–36) months. Patients who are younger seemed to present earlier.

RESULTS

Apart from one patient with gynaecomastia, no other hereditary or significant environmental risk factors were identified. The majority of patients (66.7%) complained of a painless breast lump. Others (33.3%) presented with bloody nipple discharge. Although only two patients had the complete triple assessment for breast cancer screening, all had a histological diagnosis prior to surgery. Overall, the malignancies were below stage III, with half of them staged as $T_2N_0M_0$ (IIa). Pathologically, all the men had tumours of ductal origin; one had the mucinous variant while others were diagnosed as having infiltrating ductal carcinoma. Tumours of grades I and II were equally distributed. All men had tumours demonstrating oestrogen receptor (ER) and progesterone receptor (PR) status positivity (range: ER 10%–90%; PR 10%–85%) but only half were C-erb-2 positive.

Four patients (66.7%) underwent total mastectomy and axillary lymph node dissection, and two out of the four were offered adjuvant chemoradiotherapy. Two other men with localised disease (infiltrating ductal carcinoma and mucinous carcinoma) were offered simple mastectomy. All patients tolerated tamoxifen well postoperatively. During follow-up, there was no lymph node involvement, no locoregional recurrences or distant metastasis reported. All male patients are still being followed up, with the longest survival being 54 months from time of diagnosis (Table II).

DISCUSSION

MBC is rare worldwide with a reported incidence of up to one percent.[1-3] In the Western literature, the incidence has not changed significantly over the past 50 years, compared to FBC. However, areas experiencing immigration fluxes

Table I. Demographics and clinical features of male breast cancer patients.

Patient	Age (years)	Race	Presentation delay (months)	Past medical or social history	Family history	Presenting symptoms/ signs	Biopsy done	Clinical stage (TNM)
A	76	Chinese	3	Smoker, alcoholic	Nil	Nipple discharge	Trucut	I ($T_1N_0M_0$)
B	54	Malay	2	Ex-smoker, Thalassaemia trait	Nil	Axillary pain	FNAC	IIb ($T_2N_1M_0$)
C	65	Chinese	24	Ex-smoker	Nil	Breast lump	FNAC	IIa ($T_2N_0M_0$)
D	64	Chinese	36	Gynaecomastia, Colorectal carcinoma	Nil	Nipple discharge Breast lump	Trucut	IIa ($T_2N_0M_0$)
E	42	Malay	2	Smoker	Nil	Breast lump	FNAC	I ($T_{1c}N_0M_0$)
F	84	Chinese	24	Nil	Lung cancer	Breast lump	FNAC	IIa ($T_2N_0M_0$)

FNAC: fine needle aspiration cytology

Table II. Tissue histology and treatment outcomes of male breast cancer patients.

Patient	Procedure	Histology	Gd*	ER (%)	PR (%)	C-erb-2	Lymph node†	Adjuvant therapy	Follow-up‡
A	Simple mastectomy	Infiltrating ductal carcinoma	I	90	10	−	Nil removed	Tamoxifen 20 mg/day	No recurrence. Alive at 6 months
B	Mastectomy axillary dissection	Infiltrating ductal carcinoma	II	50	50	1+	0/10	Tamoxifen 20 mg/day RadioTx ChemoTx (AC regime)	No recurrence. Alive at 54 months
C	Mastectomy axillary dissection	Infiltrating ductal carcinoma	II	95	95	−	0/24	Tamoxifen 20 mg/day	No recurrence. Alive at 36 months
D	Mastectomy axillary clearance	Infiltrating ductal carcinoma	I	10	80	2+	0/13	Tamoxifen 20 mg/day RadioTx ChemoTx (CMF regime)	No recurrence. Alive at 50 months
E	Mastectomy axillary clearance	Infiltrating ductal carcinoma	II	60	85	2+	0/34	Tamoxifen 20 mg/day	No recurrence. Alive at 41 months
F	Wide local excision	Mucinous carcinoma	I	+	+	−	Nil removed	Tamoxifen 20 mg/day	No recurrence. Alive at 32 months

Gd: tumour grade; *Bloom-Richardson grading; †number of axillary lymph nodes involved; ‡occurrence of tumour recurrence and disease-free-survival from diagnosis; ER: oestrogen receptor status; PR: progesterone receptor status; C-erb-2: oncoprotein product of HER-2 (neu) oncogene status; +: positive status; −: negative status; RadioTx: radiotherapy; ChemoTx: chemotherapy.

have reported an increase in MBC incidence.[3] Men present at an older age than women and MBC incidence increases with advancing age.[4,5] Due to a lack of disease awareness, in our series, MBC presented at a median age of 64.5 years which is comparable to other Asian series.[4,6] Nevertheless, in northern Pakistan, the majority of patients (> 58%) were less than 60 years of age.[2] In contrast, a Jordanian review of male breast disorders reported a median age of presentation at 39.0 years.[7]

The stigmata attached to men presenting with a breast lump as well as the lack of awareness of MBC may discourage them from seeking medical advice early. However, these men often died of causes unrelated to breast cancer unlike their female counterparts.[1] The aetiology of MBC remains elusive. Nevertheless, this condition seems to have the characteristics of a sporadic disease although familial trends have been observed. Men with BRCA-2 gene mutations are predisposed to develop breast cancer while those with BRCA-1 mutations are less at risk.[8] Important risk factors in the development of MBC include conditions of oestrogen-androgen imbalance such as testicular dysfunctions, obesity and liver dysfunction.[8-10] Environmental factor, such as exposure to ionising radiation, is a well-known risk factor in women as well as men. The latter has a longer latency in presentation, especially those involved in war or military settings.[4] Recently, gynaecomastia has been shown not to be a risk factor for MBC, in several series.[9]

The most common complaint of MBC is an eccentric areolar painless mass. Unlike Western men, Asians are more likely to have tumours > 3 cm in size at diagnosis.[2] The presence of bloody nipple discharge suggests an underlying carcinoma *in situ*.[8] In our series, 33.3% of men had nipple discharge with no associated nipple abnormality. In comparison to female patients, pain associated with nipple discharge is an early event and Paget disease is rare in MBC, with an incidence of 1%.[9] A delay in presentation can affect the stage at which the tumour is diagnosed. In our series, the men presented late for medical review, with a median delay of 13.5 months. Similarly, there was a four-month delay in presentation reported among Arabic men.[4] Furthermore, our patients had tumours staged between I and IIa. In contrast, a Jordanian population study noted that 57% of MBC cases present as a stage III disease.[7] With a low index of suspicion due to its rarity, both patients and doctors may fail to recognise the features of MBC.

At present, there is no algorithm or guideline available to screen men for breast cancer. The diagnosis of MBC can still be made using the present "triple-assessment" screening modality for female patients. Mammography (MMG), which confers high sensitivity (100%) and specificity (74%), can be performed if feasible. This can be complemented with ultrasonography, which confers a high negative predictive value in a normal MMG.[10] Fine-needle aspiration cytology (FNAC) is a useful diagnostic tool with sensitivity and specificity reaching 100%.[11] However, core biopsy is preferable to differentiate between tumour invasiveness and carcinoma *in situ*.[9] MBC and FBC are pathologically similar. As with female cancer, about 90% of MBC are invasive ductal carcinoma, even among Asian men.[2,4,9] Hormone receptor positivity is more frequent in MBC than in FBC. About 75%–92% of MBC is ER positive, and 54%–77% PR positive.[8]

Surgery remains the cornerstone of MBC treatment. For localised disease, modified radical or simple mastectomy can be offered. Axillary dissection is also performed in invasive disease. However, the emerging role of sentinel lymph node biopsy with its associated low morbidity seems promising in MBC.[9] Breast-conserving surgery with/without radiotherapy has been practised with mixed results. Currently, there is no consensus regarding the use of post-mastectomy radiotherapy, especially in early cancer stages.[12] The use of adjuvant hormonal therapy, i.e. tamoxifen, is well-tolerated and confers survival advantage in men, as a high proportion of men are hormone-receptor-positive.[9] There is yet insufficient data to conclude on the usefulness of aromatase inhibitors or trastuzumab in men with HER-2 receptor positivity. The benefit of adjuvant chemotherapy in MBC is not clearly established. Nevertheless, the use of anthracycline-based regimens and cyclophosphamide-methotrexate-and-5-fluorouracil (CMF) in node-positive MBC patients seemed to increase survival rates.

In our series, only two patients tolerated chemotherapy. Metastatic disease is managed similarly as in female cancers.[8,9] Studies have shown that the prognosis for MBC and FBC are comparable, once adjusted for age and disease stage. The overall five-year survival has been reported to be around 40%–65%.[8] The most important determinants of survival are stage of disease and lymph node involvement. In a Japanese cohort, the relative five-year survival rate in node-negative men above 60 years of age was 92%, and 47.5% for those with regional metastases.[1] Poorer survival rates are seen in men with increasing age, but this could be due to the cumulative effects of comorbidities in older men.[1,8]

MBC, although rare, remains an important disease which should be recognised and managed early. Malaysian men, like their female counterparts, are at risk of breast cancer. Based on our limited experience, men with breast cancer seemed to have a better prognosis. The late presentation of tumour warrants more health education for men living with breast lesion. The feasibility of screening methods for men needs to be explored. Without any evidence from large-scale studies, it is reasonable to extrapolate treatment options for male patients based on information from FBC trials.

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