



Male Breast Cancer (about 65 Cases and Literature Review)

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Authors' contributions

This work was carried out in collaboration among all authors. Authors RB, KS and AH designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors RB, KS and DE managed the analyses of the study. Author KS managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The male breast is a vestigial organ; it is rarely the site of malignant lesions. Male breast cancer accounts for only 1% of male cancers, and 1 to 2% of all breast cancers. The diagnostic is made later and the prognosis is worse than breast cancer in women.

From January 1980 to December 2019, 65 cases of male breast cancer have been recruited in the service of surgery of digestive cancer and liver transplantation AILE III of Ibn Rochd UHC in Casablanca. The frequency of male breast cancer was 0.5%; the average age was 60 years. The most common revelation mode was self-palpation of areolar breast nodule in 84% of patients and the meantime onset was 27 months. The average size of the nodules was 5 cm. The treatment was surgical in 57 patients or 87.6% and was radical for 49 cases and for cleansing for 8 cases; 50 patients received radiation and chemotherapy and 12 patients received hormone therapy. The follow-up involved 39 patients with 11 cases of therapeutic failure and 20 cases of recurrence or

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metastasis. The overall survival at 2 years was 59% and 25% cases at 5 years. At the same stage, the treatment is the same for both genders. Our study aims to analyze the male breast cancer in his epidemiologic, clinical, pathological, therapeutic and prognostic aspects.

Keywords: Breast cancer; male; diagnosis; treatment and prognosis.

1. INTRODUCTION

Male breast cancer is a rare pathology, less than 1% of human cancers with an incidence of 1/100000 [1–3]. Certain risks factors are incriminated in its occurrence.

The diagnostic and therapeutic management is inspired by its counterpart in women. His prognosis is worse than in women because of the diagnosis and treatment made in a later time. Our study aims to analyze the male breast cancer in his epidemiologic, clinical, pathological, therapeutic and prognostic aspects.

2. MATERIALS AND METHODS

This is a retrospective study of 65 cases of male breast cancer collected in the service of surgery of digestive cancer and liver transplantation AILE III, department of the general surgery of the Casablanca University Hospital center from January 1980 to January 2020. The criteria of inclusion were the male breast cancer confirmed by pathophysiology.

We exclude all patients with Gynecomastia, or breast inflammatory disease with absence of malignancy on pathophysiology.

3. RESULTS

In our series, the incidence of breast cancer was 0.51%, or less than 1% of male cancers. The peak age of male breast cancer occurrence is 71 years. The average age of our patients was 60 years. The revelation mode was self-palpitation of a retro areolar nodule of the breast in 84% of the cases. The period of consultation was 10 months, while the average time of development period was 27 months. Gynecomastia was found in 6 patients (9.2%).

Family cases among close relatives represent one of the most important risk factors with obesity. Constitutional mutations in the BRCA1 and 2 genes have been reported in 4/25 (16%) men with breast cancer with a frequent association with a high grade SBR and over

expression of the c-erbB2 gene in the tumors analyzed.

The average size of the nodules was 5 cm. In 24 cases or 36.9%, the tumor was superficially fixed and in 8 cases or 12.3% it was deeply fixed. Axillary lymphadenopathy was positive in 47 of cases (72%) and metastasis in 12 of cases (18%). Infiltrating ductal carcinoma was the most frequent histological type (80% of cases). The other histological type found is the invasive lobular carcinoma for two cases. The hormone receptors search was performed in 10 cases only, and was positive for estrogens in 08 cases (80%) and progesterone in all cases for 100% in the subgroup of our sample.

Table 1. Histopathologic characteristics of the patients with MBC

Histopathologic type	N	%
Invasive ductal carcinoma	52	80
Invasive lobular carcinoma	2	3
Other types	11	16.9

In our series, 57 patients or 87.6% underwent a surgical procedure (radical for 49 cases); 50 patients received radiation chemotherapy and 12 patients received hormone therapy. The follow-up involved 39 patients with 11 cases of therapeutic failure and 20 cases of recurrence or metastasis. The overall survival at 2 years was 59% and 25% cases at 5 years.



Fig. 1. Breast cancer; note the asymmetric of the volume of gland. SD: right breast SG: left breast asterisk: Areolar with skin retraction

4. DISCUSSION

The male breast cancer is rare. Its incidence varies between 0.5-1% according to the study carried out by Y. Métin et al and is 0.51 for our study [4]. The average age of onset for this disease is 60 years for our study while it is 65.3 years according to Benchelle et al. [5] and 52.5 years according to Brinton et al. [6]. Male breast cancer is most often revealed by the appearance of a retroareolar nodule which, due to the small breast volume, quickly spreads to the skin. In our study, this mode was the revelation of the cancer in 84% against 75% according to the study by Y. Metin et al. [4].

The diagnosis is often established at advanced stages than in women [7] with stages T4 more than T3 of the TNM classification while 2 or 3 cm of lesions in men can be associated with spread on the skin of the disease. In our study the average size of the nodules was between 3-5 cm, which corresponds to the stage T3 of TNM; Benchelle et al. report a T3 stage in 11% in their study [5].

The diagnosis is made by triple assessment: Clinical, mammography or ultrasonography, and core biopsy. Ultrasound-guided biopsy is preferred because it permits a definitive diagnosis of invasive breast cancer to be established. Mammography in men with breast lesions is an effective diagnostic technique with sensitivity of 92% and a specificity of 90% but its value could be limited depending on the size and the volume of the male breast [8]. Family cases among close relatives represent one of the most important risk factors especially with obesity. Constitutional mutations in the BRCA1 and 2 genes were reported in 4/25 (16%) men with breast cancer with an association with a high grade SBR and over expression of the *cerbB2* gene in the tumors analyzed in our study while according to Victoria M. Basham et al., the mutation in the BRCA1 and BRCA2 genes occurs in 15% in men with breast cancer [9]. This notion seems to be supported by the low over expression of the *her2neu* on *cogene* reported in 15.1% of cases by Rudlowski and al. *her2neu* is over expressed in about 15% of cases [10]. Gynecomastia does not seem to be a risk factor as suggested by Goss et al., which reports it in 36% of men in the general population of the same age versus 20% in case of breast cancer [11]. Infiltrating ductal carcinoma is the most frequent histological type, as in women (> 80% of

cases). Thus, the rate of this histological type was 96.4% in the series of K. Alaoui et al. [8], and 93.7% in that of H. Giordano et al. [7]. The other histological types are less frequent than in women, in particular the lobular type, very rare because of the male gland which is devoid of lobules. The pathophysiology factors of good prognosis (low grade and the presence of hormone receptors) are common in both sex compared to breast tumors in premenopausal women. MBC shows a higher estrogen and progesterone receptor expression as compared to women (90% ER, 81% PR in males vs. 60-70% ER or PR in females). In our study, the estrogen receptors were found in 80% in the subgroup of patients who benefited this research (10 cases out of 65 cases) and the progesterone receptors in 100% when they are found respectively in 83.8 and 81.1% in the other series [12].

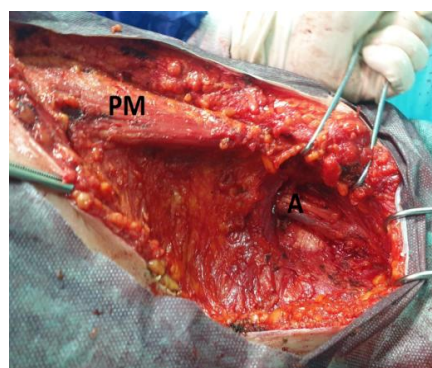


Fig. 2. Radical mastectomy; mammary tissues and pectoral muscle were removed with level 1 and 2 lymph nodes. PM=pectoral muscle A=axillary artery and vein

The treatment is similar to the women breast cancer due to the lack of prospective studies and the small size of the series reported. Surgery remains essential treatment of cure, or for cleansing gestures due to the skin invasion [2,13]. Mastectomy is still the standard treatment, more often performed than in women due to the low possibility of preservation [14]. Lymph node involvement is reported in 60% of cases, and skin extension gives pride of place to radiotherapy in the therapeutic arsenal (Fig. 2). For cases without a palpable axillary lymphadenopathy, the sentinel node is also used like the woman. The use of adjuvant therapy, which has been proven in women, is also indicated in men. Due to the usual high positivity (65 to 90%) (14 in the literature) of hormone

Table 2. Clinical manifestations repartition of patients with MBC

Clinical manifestations		Number of cases	%
Tumor size	(3-5) cm	45	69.2
	Inf. to 3 cm	20	30.7
Fixity	Superficially	24	36.9
	deeply	8	12.3
Axillary lymphadenopathy		47	72
Metastasis		12	18

Table 3. Pathologic and genetic repartition of patients with MBC

Pathological features	Total number of cases	Number of cases positive	%
Estrogen receptor	10	8	80
Progesterone receptor	10	10	100
HER2	25	4	16
BRCA1	25	6	24
BRCA2	25	6	

Table 4. Treatment and follow up of patients with MBC

Treatment		N=65			%
Surgical	Radical mastectomy	57	49	87.6	75
	palliative		8		12.3
Radiochemiotherapy		50		76.9	
Hormone therapy		12		18.4	
Follow up		n=39		%	
Deaths		11		28.2	
Reccurence or metastasis		20		51.2	
Survival over 2 years		23		59	
Survival over 5 years		10		25	

receptors. Hormone therapy is systematic and is based on tamoxifen, as well as medical castration with LH-RH analogs and chemotherapy with CMF or anthracyclines [5]. Studies have shown that overall 5-year survival varies from 43 to 79% in different series [15]. In our study, overall survival was 59% for 2 years and 25% for 5 years. Donegan et al. [12] reported a 5-year survival of 50.5% and 23.7% in 10 years. This difference is explained by the average of the development period before treatment and the evolution of the tumour at the time of diagnosis (TNM or AJCC stage), for our study, the average size of the tumours at the time of diagnosis was 5 cm whereas it was 2 cm for the study of Donegan et al. [12]. The study of factors influencing survival finds the same risk factors as in women [16,17].

5. CONCLUSION

Male breast cancer is rare. Its epidemiology and clinical characteristics do not differ much from those in women. The diagnosis is made at the

late stage most often with metastasis or complications. The prognosis is worse than in women, but at the same stage, survival is the same. The prognostic factors are the same, and survival appears to be increased when diagnosis and management are made at an early stage. Thus, the examination of the breasts and axillary areas must be systematic during the clinical examination of man, in particular in patients with metabolic and endocrine disorders such as diabetes, obesity, and hypercholesterolemia.

CONSENT

As per international standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard, written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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