

Male Breast Cancer: Diagnostic and Prognostic Features in Mali

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Abstract

Introduction: Male breast cancer is rare; representing 1% of breast cancers and less than 1% of all male neoplasia worldwide. We here analyzed the clinical, histological, therapeutic and prognostic characteristics of male breast cancer in Bamako, Mali. **Patients and methods:** A retrospective descriptive study was conducted on 14 male patients with breast cancer who visited two university hospitals in Bamako (Hospital Gabriel TOURE and Hospital du Point G) in Mali, from January 2005 to December 2018. **Results:** Male breast cancer represented 0.63% of all breast cancers and 0.23% of all male cancers. The following was observed: the mean age of 53 years (range: 23 - 82); a family history of cancer in 2; breast pain in 9; the average time to consultation of 8 years (6 - 24); gynecomastia found in 1; the tumor palpable in all 14 (size of 5 cm [3 - 10]); ulceration in 5. The most common histological type was non-specific infiltrating carcinoma with 92.8%. SBR II grade was found in 78.5% of cases. Of 8 patients with immunohistochemistry, hormone receptor positive was in 13 and Her2 positive was in 5. Metastases were found in 4, 2 pulmonary and 2 hepatic. Treatment: Neoadjuvant chemotherapy in 21.4%; radical surgery in 13 cases; surgery + radiotherapy in 2; surgery + hormonal therapy in 4. After an average follow-up of 36 months, 1 patient developed a lung metastasis and another patient had a lymph node recurrence. **Conclusion:** Male breast cancer was detected at relatively later stages. Physicians must be aware of this condition.

Keywords

Breast Cancer, Diagnostic Aspect, Male, Mali, Therapeutic Aspect

1. Introduction

Male breast cancer is a rare condition accounting for around 1% of all breast

cancers and less than 1% of all male neoplasms [1]. Its incidence has gradually increased from 0.86/100,000 inhabitants to 1.06/100,000 inhabitants over the past three decades [2] [3]. It is a pathology unknown to the general public, the diagnosis of which is often late making the prognosis more reserved [2] [4]. There are well-codified guidelines for therapeutic management in women, which is not the case in men given the small number of prospective randomized studies on this type of disease. Conservative surgical treatment rarely finds its place in the treatment of breast cancer in men, on the one hand, due to the small breast volume and, on the other hand, the easy acceptance of mastectomy. On the other hand, all the other treatments, surgical (axillary dissection or sentinel lymph node), radiotherapy, chemotherapy, hormone therapy (tamoxifen or antiaromatases) and biotherapy (trastuzumab) can be part of the therapeutic arsenal at our disposal to fight this rare form of cancer [5].

In Mali, there are no data describing the clinical characteristics as well as the treatments of men with breast cancer. This is why we undertook this multicenter study in order to describe the clinical, diagnostic, therapeutic and prognostic characteristics of breast cancer in humans in the general surgery departments of CHU Gabriel Touré, of Surgery B and of surgery A of CHU, from Point G in Bamako.

2. Methods and Patients

This is a descriptive retrospective multicenter study from January 2005 to December 2018, *i.e.* 14 years, bringing together the general surgery departments of CHU Gabriel Touré, Surgery B and Surgery A of CHU du Point G.

The inclusion criteria were male patients of all ages, presenting primary unilateral, bilateral, localized, locally advanced or metastatic breast cancer confirmed histologically and having benefited from treatment in the University hospitals of Point G and Gabriel Touré. The exclusion criteria were female sex, male patients with another breast lesion, inoperative medical files. Thus, we retained 14 files in total. The files were analyzed according to a pre-established operating sheet including clinical, paraclinical, therapeutic and evolutionary characteristics. The diagnosis of breast cancer was made by biopsy of the tumor, staging was established according to the new TNM classification.

The histopronostic grade was established according to the SBR-EE histological system (Scarf Bloom and Richardson), the immunohistochemical study to determine the status of hormone receptors, and the hercept test. Overall and specific survival was analyzed according to the Kaplan-Meier method. The statistical analysis of the data was carried out by the software Epi info 6.

3. Results

During the study period, we collected 14 cases of male breast cancer, representing 0.63% of breast cancers and 0.23% of cancers in men. The clinical, histological and therapeutic characteristics of the patients are summarized in **Tables 1-3**.

Table 1. Clinical, histological and therapeutic characteristics of patients.

Characteristics	N = 14
Average age (years)	53 (23 - 82)
Background:	
Family	2 (14.3%)
gynecomastia	1 (7.1%)
BMI:	
<25	7 (50%)
25 - 30	4 (28.6%)
>30	3 (21.4%)
Mode of discovery:	
Nodule	14 (100%)
Ulceration	5 (35.7%)
Retraction	4 (28.6%)
Flow	5 (35.7%)
cTNM:	
T0	0
T1	0
T2	2 (14.3%)
T3	3 (21.4%)
T4	9 (64.3%)
N0	8 (57.1%)
N1	4 (28.6%)
N2	2 (14.3%)
MO	11 (78.6%)
M1	3 (21.4%)

Table 2. Histological characteristics of patients.

Characteristics	N = 14
Grade SBR:	
SBR I	0
SBR II	11 (78.5%)
SBR III	3 (21.5%)
Receptors:	
RE+	7/8 (87.5%)
RP+	6/8 (75%)
HER2+	5/8 (62.5%)
Histological type:	
CINS	13 (92.8%)
CLI	1 (7.2%)

Table 3. Therapeutic characteristics of patients.

<i>Characteristics</i>	N = 14
<i>Treatment:</i>	
Mastectomy	13 (92.8%)
No surgery	1 (7.2%)
Radiotherapy	2 (14.3%)
Chemotherapy	12 (85.7%)
Hormonotherapy	4 (35.2%)

The average age of the patients was 53 years with extremes of 23 and 82 years. Alcoholism and smoking were found in 08 patients, *i.e.* 57.1% of cases. A family history of breast cancer was found in 2 patients (14.3%). Gynecomastia was found in one patient (7.1%).

The BMI was calculated in all of our patients, 25% of them were overweight and 25% were obese. The majority of patients (9/14) presented with breast pain. The average consultation time was 08 years (range: 6 - 24). The left breast was the most affected with 64% of cases. Ulceration was noted in 5 cases, *i.e.* 35.7% of cases (**Figure 1**). It was a palpable tumor in all patients with an average size of 5 cm with extremes of 3 cm and 10 cm (**Figure 2**) and retroareolar localization in 68% of cases. Breast discharge was present in 35.7% of patients, and hematic in 60% of cases. The most represented histological type was infiltrating carcinoma of the nonspecific type with 92.8%. Lobular carcinoma was found in 1 patient (7.2%).

SBR II grade was found in 78.5% of cases and grade III in 3 cases (21.5%). Immunohistochemistry was performed in 8/14 patients (57.2%). The estrogen receptors were positive in 7 patients (87.5%). Progesterone receptors were positive in 6 patients (75%) and HER2 overexpression was found in 5 patients (62.5%). Lymph node involvement was described in 6 cases (42.8%). Four patients were metastatic, 2 of which were pulmonary and 2 were hepatic. UICC stage III was the most common, accounting for 50% of cases. Thirteen patients (92.8%) underwent radical surgery (a Madden mastectomy). This mastectomy was associated with axillary dissection in 84.6% of cases. The postoperative course was complicated by infection of the lining in one patient and two cases of lymphedema.

Chemotherapy was performed in 12 patients, 4 as a neoadjuvant and 8 as an adjuvant. Hormone therapy was successful in 4 patients, or 35.2% of cases. Only 2 patients (14.3%) received postoperative radiotherapy.

The median follow-up of the patients in our study was 36 months with extremes of 6 to 60 months. Of all the patients, 11 (78.6%) are considered to be in complete remission. A case of lymph node recurrence was detected in our series 2 years after surgical treatment. One patient developed lung metastasis 3 years after surgical treatment. Overall survival was 78.6% after 12 months, 69.2% after



Figure 1. Tumour of the right breast.



Figure 2. Large right breast tumour and left gynecomastia.

24 months (including 2 patients lost to follow-up) and 42.9% after 60 months with 3 (21.4%) deaths and 5 lost of seen. We assessed survival as a function of stage and as a function of SBR histopronostic grade. The 5-year stage survival was 100% for stages I, 60% for stages II, 18% for stages III and 10% for stages IV. That according to SBR histopronostic grade was 45% for grades II and 20% for grades III.

4. Discussion

The frequency of breast cancer in men compared to all cancers in the male population is estimated to be between 0.2% and 1.5% [6]. Its frequency rate relative

to that of women is of the order of 1% with extremes ranging from 0.6% to 1.6% [6] [7]. The highest rates are found in some African countries [6]. In our study, it represents 0.23% of cancers in men and 0.63% of breast cancers of all sexes.

The average age of breast cancer onset in men is around 60, ten years later than in women [8]. Indeed, its incidence increases with age [7]. In our series, the average age is 53 years (23 - 82).

The etiopathogenesis of breast cancer in men is still unknown [8] [9]. Certain predisposing factors have been identified. These are mainly pathological situations with a common factor represented by an abnormality of hormonal metabolism related to relative hyperestrogenia or hyperprolactinemia [8]. The notion of family and genetic history is found in 5% to 10% of cases [3] [5]. This notion of “breast cancer families” is related to the existence of genetic mutations involving many genes, the most common of which are: BRCA1, BRCA2, p53 and c-erbB-2 [8] [9].

The contributing factors statistically confirmed by several studies are:

- A family history of breast cancer and especially breast cancer among the first degree collaterals [5];
- The existence of a mutation for the BRCA2 gene [9];
- Male infertility: it seems to increase the risk of breast carcinoma in men [10];
- Obesity, which is thought to be responsible for an increased conversion of androgens to estrogens by peripheral aromatization in adipose tissue [11].

Invasive ductal carcinoma is the most common histological type (70% - 95%) [5] [6] [7] [8] [9]. In our series, invasive ductal carcinoma was the predominant histological type with 92.8% of cases. Intra canal carcinoma is the second largest. Lobular carcinoma is virtually non-existent in men because lobules do not develop normally in the male breast. Lymph node invasion is found in 40% to 75% of cases [8] (42.8% in our series). This high rate is explained by the central topography of the cancer and the small size of the male mammary gland. Axillary invasion is correlated with tumor size and histological type.

The hormone receptors for progesterone (RP) and estrogen (ER) are more frequently positive than in women with often very high levels 65% to 90% of cases depending on the series [7] [8] [9] [12] [13], those with estrogen in 65% to 86% and those with progesterone in 67% to 80%. In our series, in the 8 patients where they were sought, the rates were 87.5% for RE and 75% for RP.

The most frequent clinical presentation is a hard, retroareolar, painless swelling in 68% to 85% in the literature [14] [15] and it is represented in 68% of our patients. Breast cancer in men seems to have a worse prognosis than in women [13], but this is due to a later discovery and therefore at a more advanced stage in men. The mean consultation time reported by studies conducted by Tounon de Lara [14] and Mohammed [16] are 22.5 months and 24 months respectively. On the other hand, in our series, this period was 192 months with the extremes of 2 and 24 years. This could be explained by the lack of awareness of this disease which leads to delayed diagnosis in man.

The therapeutic indications depend on the histological type of the tumor, the lymph node involvement, the clinical stage of the affection and the general condition of the patient: curative treatment is used for localized tumors, however, in the forms invasive with metastatic spread, the treatment is palliative aimed at a better quality of life [17].

Surgery is the first-line treatment, it is based on a modified radical mastectomy with axillary lymph node dissection according to Patey [17]. Due to the small size of the mammary gland in men and the rapidity of tumor extension, conservative surgery is rarely indicated [7].

To our knowledge, no prospective trials have been performed in humans with adjuvant therapy [18].

However, given the average age of the patients, the many diseases often associated, the frequent and elevated positivity of hormone receptors, hormone therapy is offered as a first-line treatment [7] [8] [9] [12] [13]. The reference molecule is tamoxifen, used as an adjuvant treatment [18]. But in our study hormone therapy was performed in 35.2% of cases. No patient received targeted therapy (trastuzumab) although HER2 overexpression was found to be present in 5 patients. This would explain by the high cost and the inaccessibility of the treatment.

Given the frequent involvement of the skin and/or the nipple, as well as the frequency of axillary lymph node involvement, locoregional radiotherapy is very often indicated at the level of the wall and the scar [19]. Chemotherapy is considered part of both curative and palliative treatment. The protocols used are comparable to those adopted for cancer in women. It is most often a combination chemotherapy [8].

The prognosis depends on several clinical, histological and biological parameters [8]: International Union against Cancer (UICC) clinical stage, histological type, lymph node involvement, SBR grade, vascular emboli and hormone receptor expression.

The prognosis depends on several clinical, histological and biological parameters [8]: the clinical stage of the International Union against Cancer (UICC), the histological type, lymph node involvement, the SBR grade, vascular emboli and expression hormone receptors. Breast cancer in men is said to have a worse prognosis than that in women [13]. However, survival is similar to that of female breast cancer when comparing survival rates corrected for excluding deaths from intercurrent disease or second cancer. In our series, we assessed survival as a function of stage and as a function of histopronostic grade SBR. The stage of progression is an important factor in survival in breast cancer in men, it decreases with increasing stage. We noted a decrease in survival time as a function of the histopronostic grade of SBR.

5. Conclusion

Breast cancer in men is a rare and serious entity, the incidence of which is said to

be sharply increasing in people over the age of fifty. In sub-Saharan Africa, this rarity coupled with ignorance and recourse to traditional medicine that the diagnosis is made late, doctors must be aware of this condition.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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