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## CHARACTERISTICS OF BREAST CANCER IN MEN: A SINGLE CASE ANALYSIS AND LITERATURE REVIEW

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### **Abstract: -**

*Breast cancer in men is a rare condition. It accounts for 1% of all diagnosed breast cancers worldwide and 1.5% of cancers affecting the male gender. Its clinical and morphological features as well as management are more or less similar to those found in women. We report the case of a 55-year-old man who presented with a nodule in the UIQ of the right breast following a chest trauma a few months earlier. Histological examination revealed invasive ductal carcinoma, Grade II (2 + 2 + 2) as per Elston and Ellis, Stage II (pT2Nx) on excisional biopsy. A mastectomy with lymph node excision was carried out. There was no residual tumor and all the lymph nodes were non-metastatic.*

*Male*

*breast cancer is also often associated with a mutation in the BRCA2 gene. Mammography and histology are the key diagnostic examinations. Recurrence and risk of developing other cancers are increased, especially in cases of genetic mutation. Monitoring of patients with such condition is therefore necessary.*

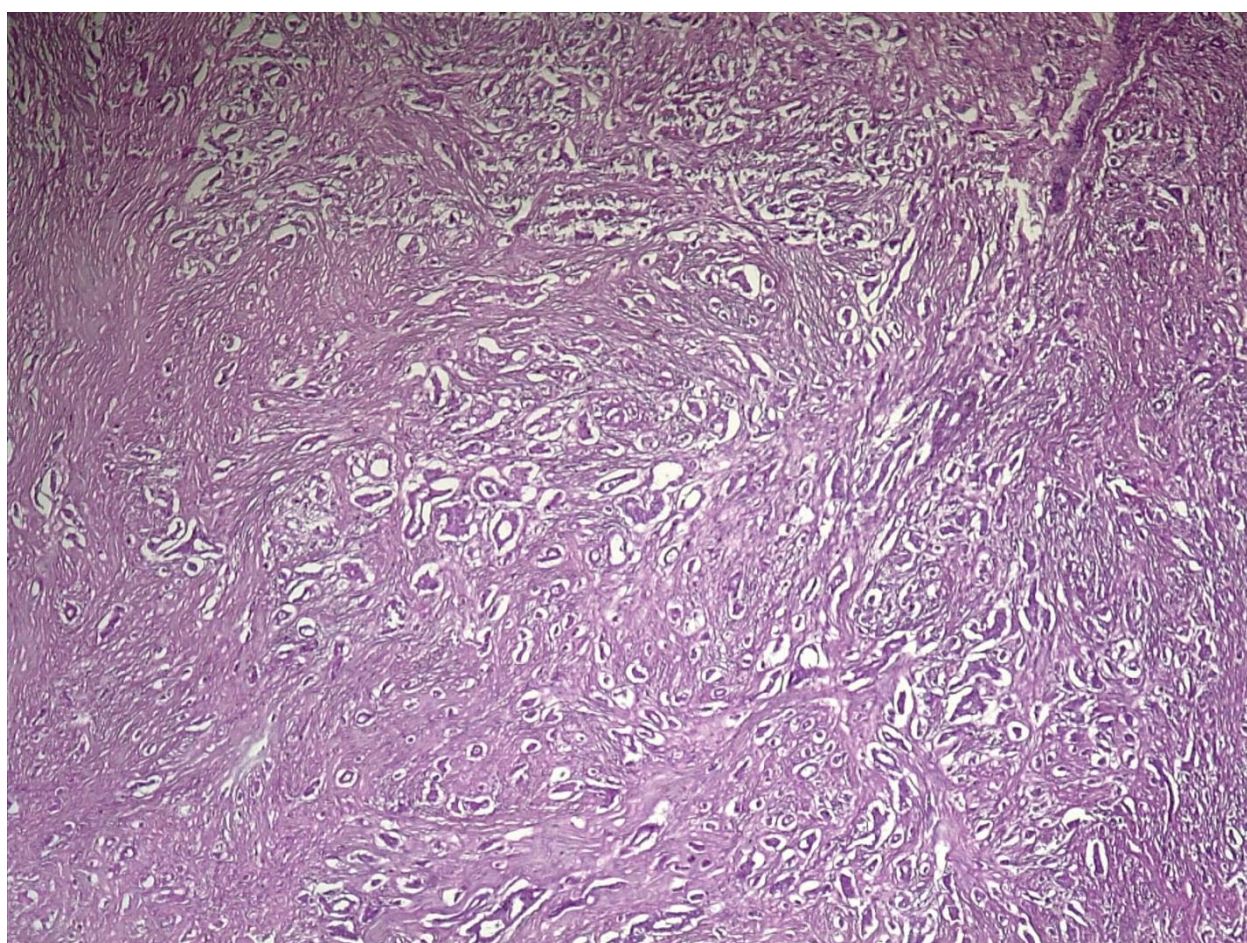
**Keywords: -** breast cancer, male, BRCA2, historical grade

## INTRODUCTION

Male breast cancer is a rare condition, accounting for less than 1% of all diagnosed breast cancers worldwide and around 1.5% to 2.5% of cancers affecting the male gender [1]. Its clinical features are somewhat similar to those found in women [2]. The diagnostic assessment system and staging used are the same for both genders [3]. This is the 8th case reported in Madagascar since 2010 following the case series study conducted by Raivoherivony ZI et al [4]. Our goal is to describe a case of breast cancer in a male patient and compare it with existing literature in order to improve its management.

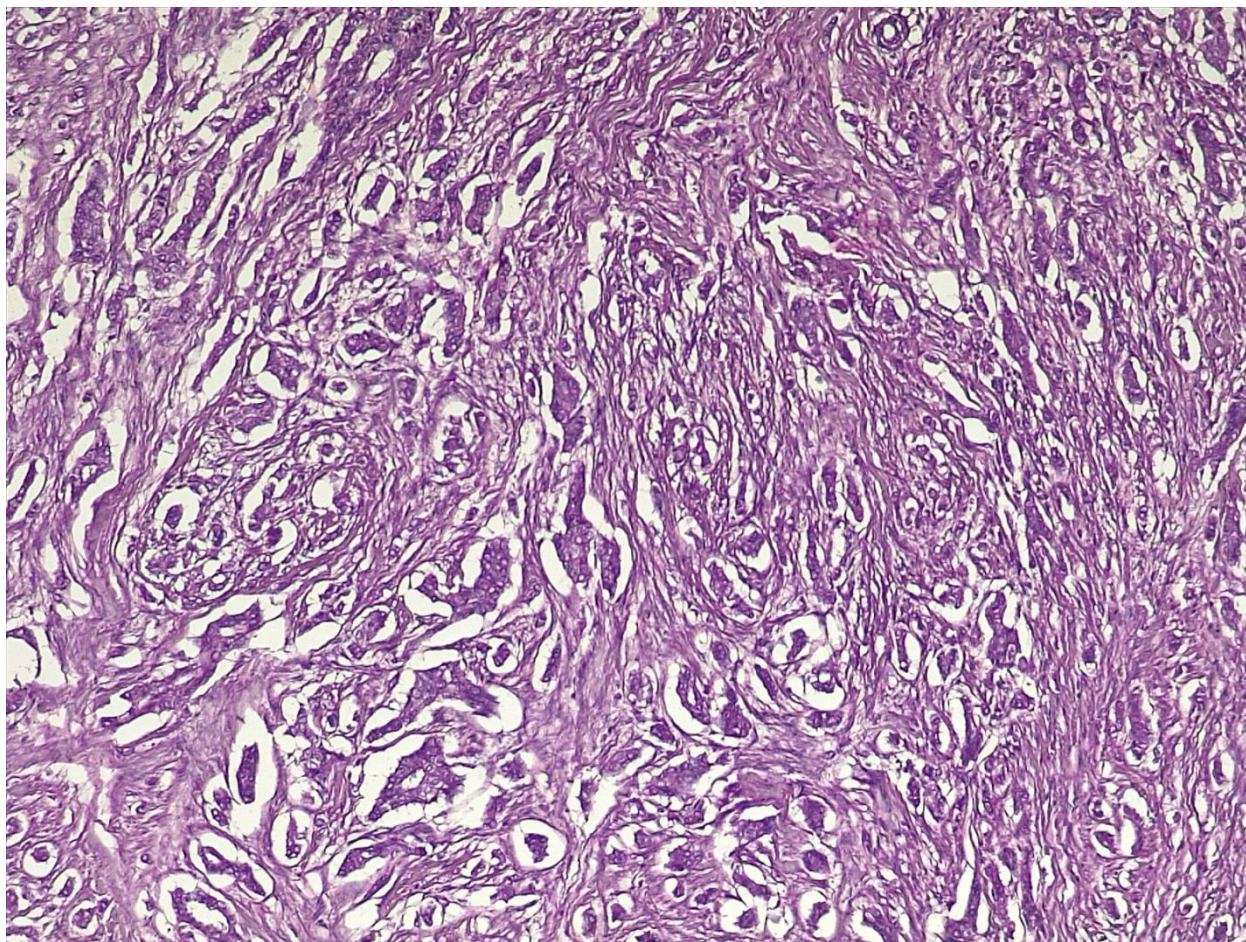
## OBSERVATION

Mr. R.T, 55 years old, presented with a swelling in the UIQ of the right breast, which has evolved for 18 months. It was discovered following a bone trauma on the right thorax. Clinical examination revealed a painful nodule in the right breast, attached to the deep tissue planes and adhering to the pectoralis major muscle. The left breast presented no abnormality. The excisional biopsy specimen, performed in February 2020, measured 5x3x2.5 cm with a whitish, ill-defined lesion, covering the entire specimen during the incision. On histological examination, we observed a carcinomatous proliferation of cells showing moderate cytonuclear atypia, most often organized in ductal shapes or in streaks or in clusters. We found 8 mitoses per 10 consecutive high-power fields. We found a fibrous stroma and an incomplete resection. The diagnosis of invasive ductal carcinoma Grade II (2 + 2 + 2) as per Elston and Ellis, Stage II (pT2Nx) has been suggested. After a mastectomy with lymph node excision, we found no residual tumor and all the lymph nodes were non-metastatic.



**Figure 1:** carcinomatous proliferation of cells showing moderate cytonuclear atypia, most often organized in ductal shapes. Pathology Departement of CHU-JRA 2020. (HE x200).





**Figure 2:** carcinomatous proliferation of cells showing moderate cytonuclear atypia, most often organized in ductal shapes or in streaks or in clusters. Pathology Departement of CHU-JRA 2020. (HE x400).

## DISCUSSION

Male breast cancer is a rare condition—accounting for less than 1% of all diagnosed breast cancers and around 1.5% to 2.5% of all cancers affecting the male gender [1]—which has significantly increased in recent decades [4]. In Western countries, male breast cancer appears 8 to 10 years later than in women, between age 60 and 65 [5]. Our patient, who was 55 years old, is younger but is consistent with the findings of Raivoherivony et al, whose patients have a median age of 45 [4].

As in women, there are several risk factors for developing breast cancer in men. One of these is bone trauma on the right thorax as observed in our patient [6]. Other risk factors include a history of breast cancer in a first-degree male relative [7], BRCA2 genetic mutation (with higher risk compared to the BRCA1 mutation) [8], increased estrogens/androgens ratio. There are other potential factors such as the Klinefelter syndrome, obesity, orchitis/epididymitis, finasteride, and prostate cancer treated with estrogens. In addition, it has been found that people with a history of liver disease are at greater risk due to the role of the liver in steroid and estrogen metabolism [9].

Clinically, our patient complained of a painful nodule in the upper inner quadrant of the right breast. According to the literature, breast cancer is manifested as painful subareolar swelling, nipple retraction or sanguineous discharge. If the mass is clinically palpable, no additional examination is necessary [10]. If the lesion is clinically suspicious, mammography should be preferred over ultrasound, with sensitivity and specificity of 92% and 90% respectively [11]. The tumor appears on the mammogram as a well-defined, hyper dense, lobulated mass with spiculated contours or as a distorted structure. Microcalcification is less apparent compared to female breast cancer. Mammography could not be performed on our patient.

Fine needle aspiration could provide adequate samples in many cases. However, a core needle biopsy offers a definitive histological diagnosis and can usually distinguish between invasive and in situ carcinomas. If inadequate tissue is obtained for diagnosis, an open biopsy should be performed [12].

Gynecomastia is the differential diagnosis, which affects 30% of men [13] and it is determined through anatomopathological examination.

The histological type in our study is invasive ductal carcinoma Grade II. According to the SEER data (Surveillance, Epidemiology, and End results), 93.7% of male breast cancers are ductal or unclassified, and only 1.5% are lobular [14] compared to 12 to 15% in women. This is because the male breast tissue has a rudimentary structure; it is not differentiated and does not lead to lobular formation. The other histological types are papillary (2.6%) and mucinous (1.8%) tumors according to Giordano SH. [15]. It is a tumor of Grade I from 12 to 20%, Grade II from 54 to 58% and grade III from 17 to 33% [16].

Breast cancer in men appears to have a poor prognosis than in women. Tumor size and lymph node involvement are two important prognostic factors in male breast cancer. Men with a tumor of 2 to 5 cm have a 40% increased risk of death compared to those having a tumor with less than 2 cm diameter maximum [17]. The tumor size in our patient was approximately 5 cm (stage pT2) but there was no lymph node involvement. In the study by Raivoherivony et al [4], tumor size did not exceed 4 cm but there were lymph node metastases.

In the case of lymph node involvement, there is a 50% additional risk of death than in the case of non-metastatic lymph nodes. In univariate analysis, hormone receptor negativity and tumor grade are associated with a poor prognosis. Male breast cancer caused by BRCA2 mutation occurs earlier and with a poorer prognosis [18]. In our case, we were unable to perform the hormone receptor assay or the BRCA2 mutation test despite our patient being younger.

Therapeutic strategies for breast cancer in men are similar to that in women [19]. At the early stage, most male patients are treated with radical mastectomy with axillary dissection or selective lymphadenectomy [20]. Lumpectomy is therefore not recommended [21]. Meanwhile, all other treatments, including surgical treatment (axillary dissection or sentinel node), radiotherapy, chemotherapy, hormone therapy (tamoxifen or anti-aromatase) and biotherapy (trastuzumab) can be added to the therapeutic arsenal.

The sensitivity and specificity of sentinel node biopsy are not yet well established due to the rarity of the disease. However, the study by Albo D et al, [22] suggests the indication of this technique in the management of breast cancer in men.

From an evolutionary perspective, male breast cancer survivors have a high risk of developing a second primary cancer such as a primary contralateral breast cancer with an absolute risk of 1.75%. Survivors, especially those experiencing genetic mutations, also have a high risk of developing melanoma or prostate cancer [23].

## CONCLUSION

Male breast cancer is a rare condition sometimes associated with a mutation in the BRCA2 gene. Mammography and anatomo-pathological evaluation are key examinations in its diagnosis. Lymph node involvement represents a poor prognosis factor. Recurrence and risk of developing other cancers are increased, especially in cases of genetic mutation. Monitoring of patients with such condition is therefore necessary.



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