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Male Breast Cancer Associated with Prostate Cancer: A Case Report

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1. Abstract

Male breast carcinoma is a rare diagnosis and represents 1% of all breast cancer diagnosed each year. Although rare, male breast carcinoma incidences appear to be increasing over time. In contrast, prostate cancer is the second most common cancer in men worldwide.

In this article, we present a patient diagnosed synchronously with metastatic male breast cancer and prostate cancer. By presenting this patient with a synchronous diagnosis with metastatic male breast cancer and prostate cancer, we speculate on possible cancer etiologies and risk factors.

2. Introduction

Male breast cancer is a rare diagnosis and accounts for 1% of all breast cancers diagnosed each year. Although rare, the incidence of male breast cancer seems to be increasing over time [1]. It is a pathology that is not well known by the general public and its diagnosis is often late, which makes its prognosis more reserved [2,3]. This condition is less well known from a biological and therapeutic point of view [4]. Its management is not yet standardized and is mainly based on that of women. In contrast, prostate cancer is the second most common cancer in men worldwide [5]. In this article, we present a patient diagnosed synchronously with metastatic male breast cancer and prostate cancer.

3. Observation

A 68-year-old man, father of 4 living children, hypertensive under treatment, admitted to our facility for management of a left breast nodule with nipple retraction evolving since 6 months. The clinical examination revealed a mass taking all the left breast of 5x5cm, mobile versus deep plan with a nipple retraction and inflammatory signs. The axillary region was characterized by the presence of a 2 cm mobile and painless adenopathy; the tumor clinically classified T4N1MX.

Mammography revealed 2 opacities of the SG QSE with irregular contours and amorphous micro calcifications with architectural disorganization and thickening of the skin covering. The complementary ultrasound examination showed 2 irregular hypoechoic heterogeneous masses with micro calcifications measuring 35x24mm and 28x35mm respectively at the level of the ESQ and astride the EQ of the GS, as well as a homolateral axillary adenopathy measuring 23x14mm. The examination was classified as BIRADS 2 on the right and BIRADS 5 on the left.

A biopsy of the tumor was in favor of an invasive carcinoma of non-specific type, SBRII, of immunohistochemically profile LUMINAL B with RH+, Ki 67 at 60% and HER2+(3). Neoadjuvant chemotherapy was indicated. The extension workup came back without any particularity. The patient benefited from 7 courses of neoadjuvant chemotherapy and a double block of the HER2 pathway.

Post chemotherapy clinical examination revealed a 4x2cm retro areolar mass, mobile versus deep plan with a nipple retraction without axillary ADPs (Figure 1). Post chemotherapy ultrasound revealed a heterogeneous hypoechoic lesion of polylobate contours attenuating posteriorly and highly vascularized on color Doppler measuring 32x13mm at the level of the left breast QSE. This lesion reaches the retro areolar plate and is associated with a significant infiltration of fibro glandular tissue all around and a left axillary ADP with irregular cortex in places, measuring 11mm.

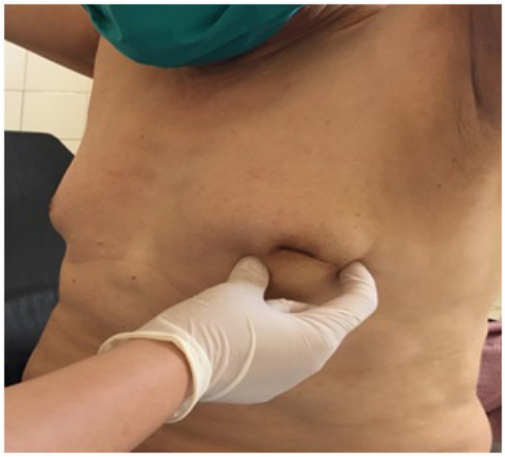

Figure 1: Clinical examination revealed a 4x2cm retro areolar mass in left breast, mobile versus deep plan with a nipple retraction

The patient underwent a radical treatment: left patey with a mastectomy associated with an axillary curage (Figure 2), with the anatomopathological result of an invasive breast carcinoma of non-specific type measuring 5cm of long axis, SBRIII with presence of high grade in situ component and vascular emboli. The nipple and its base are infiltrated. The nearest healthy limit is less than 0.5 cm. The axillary curage was 7 positive nodes out of 8 nodes removed with capsular effraction.

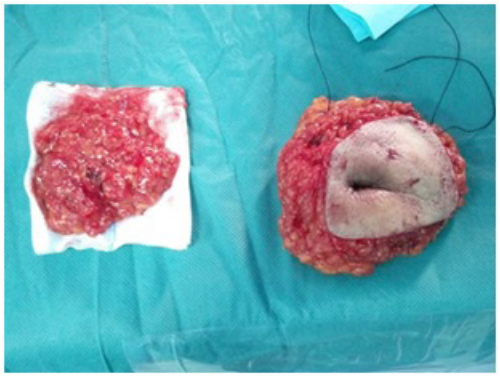

Figure 2: Left mastectomy associated with an axillary curage

Immunohistochemistry revealed 70% ER, 5% RP, HER2: 2++, FISH study was not done due to lack of resources. The CT scan revealed bilateral pulmonary nodules and micro nodules that could be related to secondary locations. The bone scan revealed secondary locations in the costal, vertebral, scapular, sacroiliac and femoral areas. A total PSA was requested as part of the systematic screening for prostate cancer, which came back positive at 12ng/ml. Subsequently, a prostate MRI was requested which revealed suspicious prostate nodules. The patient underwent a prostate biopsy. Histological analysis of the biopsied elements revealed the presence of a minimal focus of prostatic ADK. After discussion in the onco-urology staff, the decision was made to continue the treatment of the breast cancer, to put the patient on LHRH analogues and to plan prostate radiotherapy after the treatment of the breast cancer. The genetic study in search of a genetic predisposition was not done due to lack of investigation means.

4. Discussion

Male breast cancer is a rare condition representing in Western countries 0.5 to 1% of breast cancers and 0.4 to 1.2% of all male cancers [6]. The first description dates back to 1307 and was made by an English surgeon, John of Arderne [7]. Its incidence has increased significantly over the last 25 years [8], from 0.86 per 100,000 to 1.08 per 100,000. [1,2]. In Morocco, the incidence of breast cancer in men according to our two national registries (Rabat Cancer Registry and Cancer Registry of the Greater Casablanca Region) is estimated at 0.8-1%. In Western countries, the age of onset is approximately between 60 and 65 years [6], i.e. about 8 to 10 years later than in women [9, 10], which encourages us to take a greater interest in this cancer entity for earlier management. In our case, the age of the patient was 68 years, which is close to the age of other series in the literature. The etiopathogenesis remains unknown, given the rarity of this disease [8]. Male breast cancer is probably caused by the concomitant effects of various environmental and genetic risk factors [7,8]. Klinefelter's syndrome, thoracic irradiation, cryptorchidism and testicular atrophy may increase the risk [8-11]. Family history increases the risk of breast cancer as it does in women. In general, according to J.R. Weiss [12], a family history of breast cancer in a first-degree male or female increases the risk by two to three times. BRCA2 mutations in men are estimated to be between 4 and 16% [13]. Hence, genetic counseling should be offered in each case.

Male breast cancer presents in most cases as a painful subareolar swelling, nipple retraction or bloody discharge [14]. This clinical presentation corresponds to that of our patient. The average diameter of the mass is 3.0 ± 3.5 cm [7,11-13]. The delay between the first symptoms and the diagnosis is later than in women [15];Given the lack of awareness of this cancer in men whose appearance of a nodule in the breast does not incite the same concerns as in women. Similar to breast cancer in women, the diagnosis is made by a triple evaluation: clinical, echomammographic, and histological after a biopsy at the trucut, the same conduct was adopted in our structure [14]. Mammography is an effective diagnostic method with a sensitivity of 92% and a specificity of 90%; however, it remains of limited use because of the differences in size and volume of male breasts [15]. The retroareolar topography and the low thickness of glandular tissue explain the high frequency of advanced T4 forms [15, 16]. In our case, the tumor was diagnosed at an advanced stage, which is consistent with the results of the literature. The staging is always based on the TNM classification. As in women, the extension work-up includes the same investigations [15-17].

Virtually all known histologic types of breast cancer have been identified in humans. Invasive ductal carcinoma is the predominant subtype in about 70% of cases [7,16], medullary, tubular, papillary, small cell and mucinous carcinomas constitute less than 15% of cases [17,18]. In our case it was a ductal type as well. In

the Surveillance, Epidemiology and End Results (SEER) database of the National Cancer Institute between 1973 and 2005, 92% of the 5494 male breast cancers were hormone receptor positive [19], which is the case in our patient. The data on grade and HER2 status are missing and contradictory [20,21]. The lymph node involvement, in comparison with what is observed in women, is characterized by higher rates, which is found in our patient [22].

The surgical option chosen by the majority of authors, as well as in our institution, is radical treatment, as well as more extensive procedures, either deep with the removal of a more or less important part of the pectoralis major muscle, or superficial, sometimes with the use of a covering flap, in particular of the dorsalis major [7,23]. The role of conservative treatment remains limited: 8.6%. Indeed, technically, conservative treatment can only be performed in specific situations, essentially for small tumors in a favorable environment allowing removal in a healthy area, for example when there is gynecomastia; in other situations, the central location, the proximity of the areola, and the insufficiency of tissue that can allow remodeling after lumpectomy, make conservative treatment difficult, or even unreasonable, both from an aesthetic and a carcinological point of view. 24] Adjuvant treatment is essentially based on radiotherapy, given that lymph node involvement occurs in 90% of cases [7], combined with hormone therapy, since 73% of male breast cancer cases are hormone-sensitive [1,20]; chemotherapy is sometimes used in cases of resistance to hormone therapy or in patients with negative hormone receptors. The prognosis depends on several parameters: clinical stage, histological type, lymph node involvement, SBR grade, vascular emboli and hormone receptor expression. Genetic counseling should be offered to most male breast cancer patients based on their increased risk of BRCA mutations, particularly in the context of a family history of breast or ovarian cancer; in the absence of BRCA testing, the risk of breast cancer in family members of male breast cancer patients is known to be high, particularly if other family members have been diagnosed with prostate cancer or other BRCA-related cancers [25,26].

Tumors are considered synchronous when the cancers occur at the same time or within 2 months of each other. This patient was diagnosed synchronously with a rare cancer, metastatic male breast cancer, as well as prostate cancer. Prostate cancer is the second most common cancer diagnosis in men. This raises interesting questions about the origins and pathogenesis of these 2 cancers. Prostate and breast cancers are generally hormone-dependent tumors and have remarkable underlying similarities, including etiology, epidemiology, and therapeutic approaches. It can be assumed that this patient carries a mutation predisposing him to malignancies. In our situation the genetic study was not done because of lack of investigation means.

5. Conclusion

This is a challenging and rare case of male metastatic breast cancer with synchronous prostate cancer. To our knowledge, there are few case reports with concordance of breast and prostate cancers reported previously. The entire diagnostic and therapeutic approach to breast cancer in men is still almost entirely based on randomized studies, which does not yet allow us to properly analyze this cancer entity, which continues to increase and take its place among the tumors that also affect men. The association with prostate cancer is very rare and should make us wonder about the risk factors of genetically associated cancers.

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