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Research Article

HIGH-GRADE DUCTAL CARCINOMA IN SITU: A CASE REPORT OF BREAST CANCER IN A MALE PATIENT

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Abstract

Rationale: Breast cancer is a common pathology worldwide on female population, however, in male patients it has a very low incidence, and due to the delay in diagnosis, unfortunately when it is diagnosed, patients are admitted with a great progression of the disease, directly impacting on their survival. Patient concerns: A 78-year-old male patient with diabetes and hypertension who came for evaluation due to the appearance of a tumor on the right breast. Diagnoses: Histopathological study of the tumor was performed, which reported an infiltrating ductal carcinoma without specific pattern, associated with high-grade ductal carcinoma in situ with the next immunohistochemistry: 40% estrogen receptors, 70% progesterone receptors and HER 2 negative. Outcomes. The choice of treatment was the use of adjuvant hormonal therapy combined with surgical excision, however, due to the extent of tumor activity, survival is very low.

Keywords Ductal carcinoma, male patient. Breast cancer, HER, tamoxifen Case report.

INTRODUCTION

Breast cancer is the most common neoplasm worldwide among the female population; however, in male patients, it is still an extremely infrequent. Because of this, there are few studies of it, so all information related to this subject has been found mainly in retrospective studies that studied the behavior of this disease (Bonilla-Sepúlveda and Óscar Alejandro, 2021; Nemchek, 2018). Currently it is estimated that it has a prevalence between 0.2% and 1.5% of all tumors present in the male population, highlighting that in Latin Americanit has a much lower prevalence, approximately between 0.2 and 0.8%, with an incidence of 1. 8 men per year, in real numbers this means that it is present in less than one case per 100,000 men per year and within this percentage it is responsible for only 0.1% of deaths, compared to breast cancer in female patients, with an abysmal difference in the male: female ratio of 1:99 or 1:125. The average age of onset and diagnosis is 69.9 years, with a median age of 73 years (Gucalp *et al.,* 2018; Abdelwahab Yousef, 2017). Different risk factors have been described and identified for the occurrence of this neoplasm in men, such as some genetic diseases, metabolic diseases, environmental factors, trauma and family genetic load, however, all these culminate in the fact that the cornerstone for the generation of this cancer is the hormonal imbalance between estrogens and androgens (Ruddy and Winer, 2013).

CLINICAL CASE

A 78-year-old male, diabetic and hypertensive, who denies family history or hormone consumption. He presents a 5 years of evolution, with the presence of a tumor in the right breast, which was growing progressively, however, with an exceptional increase in the last 6 months and presenting signs of ulceration in recent weeks with intermittent bleeding, so he goes for evaluation to the internal medicine service.

He was admitted to the service and the physical examination revealed the presence of a tumor in the right breast measuring 15x10x8 cm with ulceration of 6 cm in diameter and bleeding at the touch. (Figure 1 and 2) A study protocol was initiated, performing laboratory studies with a report of chronic anemia without transfusion requirements, then a biopsy of this tissue was performed, with a report of malignancy, and it was decided to perform a surgical approach with a radical mastectomy (Figure 2), reporting in the pathological study an infiltrating ductal carcinoma without specific pattern, moderately differentiated without lymphatic or perineural infiltration, only with skin infiltration, associated with high-grade ductal carcinoma in situ with solid cribriform pattern, in the aerolar region and nipple, without identifying Paget's disease, with an immunohistochemistry presenting 40% estrogen receptors, 70% progesterone receptors and HER 2 negative (Figure 3), due this result it was decided to start chemotherapy, initiating tamoxifen and radiotherapy posterior of the surgical approach (Figure 4). However, once the medical treatment was started, the patient presented complications leading to his death.

Figure 1. Tumor on right breast with multiple bleeding ulcerations

Figure 2. Surgical specimen obtained from right total mastectomy with dimensions of 15x13x3 cm, with presence of retroaerolar tumor with poorly delimited borders, of firm consistency that infiltrates and ulcerates skin

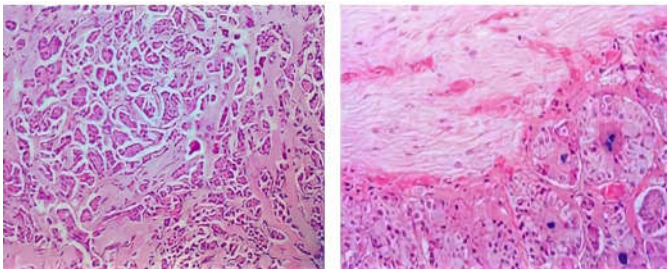

Figure 3. A) Hematoxylin and eosin stain characterized by infiltrating ductal carcinoma without specific pattern, moderately differentiated B) moderate desmoplasia and scarce lymphoplasmacytic infiltrate, without perineural invasion or necrosis.

Figure 4. Scar after surgical approach with right radical mastectomy

DISCUSSION

The occurrence of breast cancer in men in recent years has had a slight increase in the number of cases reported per year; however, it continues to be an extremely infrequent disease. Among the main risk factors studied for the appearance of this neoplasm, the genetic factor has a very important place, highlighting as one of the main causes Klinefelter Syndrome, which is an aneuploidy of the sex chromosomes with the presence of an extra X chromosome, which is clinically represented by male hypogonadism, small testes, dysgenesis of the seminiferous tubules, elevated gonadotropin levels, low serum testosterone, underdeveloped secondary sexual characteristics and male infertility, in conclusion, this disease leads to the presence of increased serum estradiol levels secondary to these testicular abnormalities. There are other types of mutations and chromosomal alterations, such as the mutation in the long arm of chromosome 13 (13q). But undoubtedly the most frequent mutation found is the mutation of a tumor suppressor gene known as BRCA 1 and BRCA2, being the BRCA2 mutation the most frequent in these cases, being present in 4 to 40% of the patients, having a cumulative risk of 6.8%, unlike the BRCA 1 mutation, which is present in 0 to 4% of the patients with a cumulative risk of 1.2%.Apart from the genetic diseases and mutations described, the hereditary factor has also been described, since 15 to 20% of male patients who go develop breast cancer have a family history of breast and ovarian cancer (Gómez-Raposo *et al.,* 2010; Khan and Tirona, 2021; Gao *et al.,* 2018). It has also been reported the importance of some environmental factors such as alcoholism, liver disease, obesity mainly with a body mass index (BMI) over 30 kg/m2, breast trauma and exposure to radiation. In conclusion, most of the risk factors are directly related to a great imbalance between estrogens and androgens (Mattson and Vehmanen, 2016).

The clinical presentation begin with skin changes, as the main clinical sign there is a tumor or nodule at the level of the breast, which has been described that in 70 to 90% of cases has a subaerolar location, and the approximate average size of these tumors are 3 x 3.5 cm in diameter, in addition to this, other clinical signs may occur with less prevalence, which are nipple retraction in 7 to 38%, skin ulceration in 14 to 22% and telorrhage in 4 to 15%; as for the laterality mainly has greater prevalence in the right breast (60%), followed by left breast (20%) and bilateral (20%). These tumors occur without any other added symptom or pain (Nofal and Yousef, 2019; Zurrida *et al.,* 2010). However, of all the cases reported, this type of cancer is invasive in 90% of the cases, in addition to the fact that most of the patients who come to seek medical attention are usually in an advanced stage, mainly with loco-regional manifestations, presenting skin metastases, affecting dermis or subcutaneous cellular tissue with lymph node extension, the most common site being the axillary lymph node chain, which indicates that the stage of this disease is rapidly progressive (Benassai *et al.,* 2020). Likewise, extension and support studies can be performed to offer us a more accurate diagnosis, starting this approach with breast ultrasound, reporting alterations mainly with spiculated and lobulated nodules in breast tissue. The mastography is another study that provides a good diagnostic value where the associated microcalcifications stand out. Like any other cancer, the definitive diagnosis and gold standard is the histopathological study, mainly performed by ultrasound-guided needle biopsy, or excisional biopsy, in the histological study we can recognize the different types, being the most common in prospective studies the infiltrating ductal variant, this is logical, because in the male breast tissue there is only ductal tissue. Within this study it is important to study the immunohistochemistry to evaluate the hormonal load and measure the levels of the hormonal receptor HER2, being the most frequent intrinsic subtypes luminal A and B, this is fundamental for making therapeutic decisions (Javidiparsijani *et al.,* 2012; Zehr, 2019). The treatment will then depend on the staging (Table 1) and on the hormonal expression to perform adjuvant therapies to the mainstay of treatment, which is surgery, with various approaches being the surgeon's decision. Then added to the surgical approach and the stage in which the patient is, these adjuvant therapies will be chosen, depending on the hormonal expression reported in the immunohistochemistry, because if it

is positive for estrogen receptors, the indicated treatment will be hormone therapy with tamoxifen; which is a selective estrogen receptor modulator which mechanism of action is based on its anti-estrogenic effect, blocking the action of this hormone which stimulates the development of tumor cells. But if it is negative for these receptors then the chemotherapy or radiotherapy will be chosen, mainly with doxorubicin, cyclophosphamide and paclitaxel schemes are used (Lin *et al.,* 2021; Eggemann *et al.,* 2020; Duso *et al.,* 2020).

Table 1. TNM staging of breast cancer and its percentage frequency found in hispanic patients. (Retrieved from: Bonilla-Sepúlveda OA. Cáncer de mama masculino en una muestra de población hispana. Estudio descriptivo. Rev Peru Ginecol Obstet. 2021;67(4). DOI: https://doi.org/10.31403/rpgo.v67i2369)

TNM (TUMOR)	Frecuency (%)
T1	0
T2	60
T3	0
T4	40
TNM (NODES)	
N0	40
N1	40
N2	20
N3	0
TNM (METASTASIS)	
M0	80
M (LUNG)	20

The prognosis of these patients is poor, mainly because of the low incidence of this, there is no screening protocol to prevent it which leads to a delay in diagnosis, so that at the time of diagnosis patients already have metastatic disease at the lymph node level and distance, mainly affecting lung and intestine, this leads to a survival of less than 5 years, with a mean survival of 1 or 34 months after diagnosis (Corti *et al.,* 2020; Pizzato *et al.,* 2021).

Conclusion

The aim of communicating this case was to highlight the clinical manifestations, diagnosis and treatment of a male patient in the eighth decade of life with breast cancer, due to the low incidence of this pathology in this gender.

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