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Male breast cancer: histological characteristics

Câncer de mama masculino: características histológicas

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ABSTRACT

To investigate the types of male breast cancer, in order to obtain a better understanding, being applied in this study a bibliographic search using the main online search tools for indexed scientific and/or clinical articles, such as: Public Medical Literature Analysis and Retrieval System Online (PubMed), MedScape, Scientific Electronic Library Online (Scielo) and Journal/Author Name Estimator (JANE). Articles published between 2010 and 2020 were considered. Not discarding articles published in previous years with great relevance. Incomplete studies that do not present the necessary information to approach the theme proposed in the work will be excluded. Subsequently, there will be a selective reading of the abstracts of these bibliographic materials found, based on the proposed theme and combinations of descriptors. To analyze the results, information will be collected using a note card with the following information: title, year of publication, authors and considerations of the article. Then the content will be analyzed and used for the development of the study. The aim of this study is to develop knowledge to promote an intervention and precaution project to be applied in a health unit with the objective of promoting a better quality of life for individuals with male breast cancer.

Keywords: Breast cancer, Carcinoma, Male, Neoplasm, Pathology.

1 INTRODUCTION

Male breast cancer is a rarely mentioned but vital pathology, although information on the disease is limited because it is considered rare. In Brazil the number of cases recorded in DataSUS between 2013 to 2021 are 719 (DataSUS, 2021), this incidence is still small compared to the size of the Brazilian population where the main factors responsible are the lack of knowledge about the pathology and low demand for treatment. In this case, it can be suggested that gynecomastia is benign, because the mammary is more common in men, and its histological characteristics are more transparent, consistent of an adipose tissue with few conductors of small areolar complex.

The pathological features include concentric channels in and around the breast lobes, surrounded by a dense collagen-rich matrix. These channels are lined with myofibroblasts and red blood cells. Male breast cancer is usually diagnosed at a more advanced stage than in women, they are different, but there are several similarities in susceptibility, and family history, tumor size, histological grade, and axillary lymph node involvement, where treatment and prognosis show similarities.

The BRCA 1 and BRCA 2 genes are the main genes related to the genetic syndrome of breast and ovarian cancer in women. Considering the existing base analysis, it checks for mutations that can lead to breast and ovarian cancer. According to doctor Fabiana Tonelotto, head of the mastology service at the Cancer Hospital 3 (HC3), of INCA (National Cancer Institute José Alencar Gomes da Silva) warned that whenever there is a case of breast cancer in a man, it is necessary to evaluate all the women in the family, because there may be a BRCA genetic mutation, which increases the risk of having the disease.

Most male breast cancers are classified as ductal, male tumor, and hormone receptor cancers, with a higher percentage of positivity for estrogen receptors.

Obesity is a frequent cause of hyper estrogen related endocrine conditions and often related as a risk factor in breast neoplasia.

With the molecular classification of breast cancer with four phenotypes (RE + / luminal, normalsimile, HER2-positive and basal), representing different expression profiles, thus being inherited at the molecular level of these tumors. Establishing these phenotypes allows tracing patterns.

The methodology in what concerns, bibliographic review of articles and references, to obtain knowledge and information to research, observing the type of procedure, histological type,

axillary lymph nodes and the biological expression of breast tumor in prognosis and therapy. This study aims to investigate the types of male cancer, showing the histological part, in order to obtain a greater understanding and knowledge.

1.1 MALE BREAST CANCER

For Da Costa et al., (2019), male breast cancer exists with a lower proportion due to being more common in women, the pathological neoplasic characteristics that affect a large female population, denotes that breast cancer in men is rare, and therefore is not as reported in the literature.

The literature suggests that genetic factors have an influence on the development of male breast cancer and its great majority has been reported as coming from mutations in tumor suppressor genes such as BRCA 1 and 2, being BRCA type 2 the most common in men and characteristic of more aggressive tumors (SILVEIRA, et al., 2016). Generally breast tumors in men are diagnosed in stages III or IV probably due to the patient's late search for medical help (BONFIM, et al., 2013). Considered the most incident neoplasm in women, breast cancer also affects men, in rarer phenomena, but with some aggravating factors that make it more lethal, mainly due to late diagnosis, compared to the female diagnosis (LOPES, et al. 2011).

The rarity of the disease makes all possible contributions to the literature are important to understand the mechanism of the disease and confirm the precepts adopted as truths today, comparing the development and treatment of male breast cancer to female, despite many differences existing in both, so the question of analysis of male cancer is whether the prognostic factors found in the disease are the same as for females, which today we consider as true (VIEIRA, L. at el., 2005).

The cancer usually begins with a small nodule that, over time, can grow to large proportions and thus, subsequently, can spread to areas in the vicinity of the breasts, such as in the muscles and skin, as well as in the arm, and can also spread to other vital organs such as liver, brain, lung, and spine (DA COSTA et al., 2019). In male cancer, since the breast is small and the nodules are internal to the nipples, it becomes difficult to remove only the breast part, requiring total mastectomy with the removal of a ganglion.

The indicated treatment for breast neoplasia in men encompasses an initially surgical approach, encompassing complete resection of the breast tissue, including the nipple and axillary emptying. In advanced cases it may be necessary to use grafts because of the difficulties of the initial closure after surgery. As for radiotherapy, studies are still limited, but it is commonly

indicated for men after mastectomy, because of the nipple or dermal involvement. Chemotherapy can have a curative or palliative character, and its adjuvant approach is indicated in younger patients with lymph node invasion or high risk and poor prognostic factors. In addition, chemotherapy is indicated to improve quality of life, survival rate, and response in patients with metastatic disease. On the other hand, hormone therapy should be indicated only in cases in which tumors show positive response to hormone receptors (DE SANTANA ARAUJO, et al., 2019).

The pathological features include concentric channels in and around the breast lobes, surrounded by a dense collagen-rich matrix. These channels are lined with myofibroblasts and red blood cells. Male breast cancer is usually diagnosed at a more advanced stage than women, they are different, but there are several similarities in susceptibility, and family history, tumor size, histological grade and axillary lymph node involvement, treatment, and prognosis show similarities.

Male breast cancer behaves like female breast carcinoma, following similar patterns of local invasion and metastasis. Almost all histological types of breast carcinomas in women have also been reported in men.

The BRCA 1 and BRCA 2 genes are the main genes related to the genetic syndrome of breast and ovarian cancer in women. Considering the existing base analysis, it checks for mutations that can lead to breast and ovarian cancer. According to doctor Fabiana Tonelotto, head of the mastology service at the Cancer Hospital 3 (HC3), of INCA (National Cancer Institute José Alencar Gomes da Silva) warned that whenever there is a case of breast cancer in a man, it is necessary to evaluate all the women in the family, because there may be a BRCA genetic mutation, which increases the risk of having the disease.

Cancer is understood to be the result of a genetic error that enables the transformation of a normal cell to the form of a malignant cell, categorically resulting from hereditary influences or, also, caused by physical/environmental, biological and chemical agents (CARRARA et al., 2009),in continuity, it is understood that breast cancer (BC), if diagnosed early, is a categorically treatable disease, and such a discovery is the fundamental key for the individual to be able to survive the disease (DA COSTA et al., 2019).

Mutation in the tumor suppressor gene p53 may be associated with male breast cancer at a prevalence similar to cases of this neoplasm in the female population, the same prognostic factors demonstrated in female breast cancer apply to male breast cancer, axillary lymph node involvement, correlation of histological grade and expression of estrogen and progesterone receptors.

Family history represents an important factor in the study of cancers in general, including male breast cancer, having a relationship with increased risk of breast cancer in men, due to the rarity of situations evidently linked to family history and male breast cancer, it becomes difficult to interpret studies that address this reality, with superficial conclusions, such as that the mutations in BRCA 2 are related to most inherited cancers in men (SILVEIRA, et al., 2016).

The low demand of men for health services is a recurrent and historical characteristic making them more susceptible to developing diseases, they postpone a necessary treatment especially due to prejudice, which deeply affects their quality of life (AMARAL et al., 2017). Survival to cancer is placed as a condition in which the individual has the ability to live with and recognize their condition to be cured, therefore, the low demand of men for health services affects them mortally (DA COSTA et al., 2019).

The fact that this neoplasm is rare in the male population and that they stay away from health services, subjected to thoughts of invulnerability and other factors, allow the disease to become more aggressive. Most of the time, the diagnosis is made at more advanced ages and stages, when compared to women, as a result of the low clinical suspicion, both from the patients and the health team. This reflects that earlier detection is needed for the rapid implementation of treatment and a better prognosis (DE SANTANA ARAUJO, et al., 2019).

Overall survival is lower in men, possibly because they tend to be older, with comorbidities and late diagnosis. Survival after 5 and 10 years is 90 to 84%, respectively, in lymph node negative disease, compared to 65 and 44% for lymph node positive disease, but when comparing disease at the same clinical stage, overall survival is similar between men and women.

The literature is still lacking in scientific data to define individualized protocols and standards of conduct for the approach to male breast cancer (DE LIMA, et al., 2015). Considered a collective health problem, cancer is one of the diseases that causes the most deaths in the world. The large number of new cases has as a consequence the change in lifestyle of the world population.

1.2 DUCTAL CARCINOMA

Gynecomastia is the most common benign pathology in men, characterized histologically by a more hyalinized stroma. Pseudoangiomatous stromal hyperplasia (PASH) is a benign condition associated with gynecomastia and is found on biopsy in 20% to 47% of symptomatic cases. Male breast cancer accounts for only 1% of all breast carcinomas (VOINEA et al., 2018).

The pathological features include channels in and around the breast lobules in a concentric arrangement and surrounded by a dense stroma, abundant in collagen. These channels are lined with myofibroblasts and erythrocytes (LATTIN; GRANT et al.., 2013).

Invasive ductal carcinoma (IDC) accounts for the majority of cases, the histological features can be diverse, some tumors are organized as well-formed glands in strands, clusters or trabeculae, while others have an infiltrative pattern with a lack of stroma.

Ductal carcinoma is the most common histological subtype in men as well as in women. However, in women this histological type corresponds to 70-75% of cases, while in men 85% of cases are ductal carcinomas, the presence of estrogen receptors, androgen and progesterone is also higher in males, a factor that was observed in the reported case when performed the immunohistochemistry of the patient (PARZIANELLO et al., 2014). The histological characteristics have a greater predominance of the invasive ductal type, consistent with the literature, which shows that 90% of breast tumors found in men correspond to this histological type (FREITAS AMS, et al., 2008).

It considers the tumors developed in papillary carcinoma, ductal carcinoma, ductal-papillary carcinoma and tubular carcinoma, as more well differentiated invasive breast carcinoma, characterized by well formed tubules or alveoli, with malignancy such as nucleoli, anisocytosis, atypical mitoses, presence of secretion and neutrophilic infiltrates, loss of tubule-alveolar structure, increased tissue irrigation, characteristic of breast tissue (ALMEIDA, et al., 2017).

The pathological features include an irregular tumor with small cells dispersed by fibrous connective tissue or single row cells arranged in linear filaments that infiltrate the stroma. According to LATTIN; GRANT et al. (2013), the second most common subtype is Papillary Carcinoma, showing proliferation of neoplastic cells with fibrovascular nuclei without myoepithelial cells.

2 CONCLUSION

It was observed that only multi-institutional collections, literature reviews, studies and case discussions, the rarity of the disease makes all possible contributions to the literature important so that we can better understand the mechanism of the disease. Men's knowledge about the existence of the disease and information about the clinical manifestation collaborate to early treatment. Given the scenario the male breast cancer ends up being little explored, because of its rarity, presenting a management strictly based on the disease in which it commits women.

The literature suggests the genetic factors that have an influence on the development of male breast cancer, and the vast majority of them have been reported to come from mutations in tumor suppressor genes such as BRCA1 and 2, BRCA type 2 being the most common in men and characteristic of more aggressive tumors.

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