

Imaging of Male Breast Cancer

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ABSTRACT:

Breast cancer in men is a rare disease, accounting for less than 1% of male cancers. It most often manifests as a palpable mass at the nipple or areola. The diagnosis is based on clinical examination, mammography, ultrasound and biopsy. Mammography is the reference examination to visualize the lesion and assess its extent. Ultrasound allows to specify the solid or cystic nature of the mass and to guide the biopsy. MRI can be useful in some cases to complete the extension assessment or to look for multifocal or bilateral lesions. The treatment of breast cancer in men is mainly surgical. Radiotherapy, chemotherapy and hormone therapy may be indicated depending on the stage, grade and hormonal status of the tumor. The prognosis of breast cancer in men depends on several factors, including the delay of diagnosis, the tumor stage, the hormonal receptor status and the genetic status.

Keywords: Man, cancer, Breast, mammography, ultrasound, biopsy.

INTRODUCTION:

Breast cancer in men is a rare condition. It represents only 0.6% of all breast cancers, and less than 1% of cancer pathology in men [1]. Its main risk factors are pathologies responsible for hormonal disorders, a history of chest irradiation and a family history of breast cancer. Mammography most often shows a mass without calcifications. Ultrasound is useful for local extension assessment and allows detection of axillary adenomegaly. MRI is currently not indicated for the assessment of male breast cancer [4]. The prognosis is worse than in women, due to a diagnostic delay, a later age of onset and the small size of the gland, and lymph node invasion at diagnosis [3].

Epidemiology:

Breast cancer is the leading cancer in women with a rate of 23% and the leading cause of mortality, while in men it remains a rare disease estimated at approximately 1% of all male cancers and only 0.6 % of all breast cancers [4]. The average age of onset of breast cancer in men is around sixty. Indeed, its incidence increases with age [5].

Risk factors:

Most risk factors involve changes in the estrogen to androgen ratio. Thus a high risk is found in patients

with Klinefelter syndrome, testicular abnormalities, obesity, or cirrhosis. A history of thoracic radiation therapy also increases the risk of breast cancer. There is a family predisposition, with 20% of men suffering from breast cancer having a history in women of the first degree. Genetic risk may be due to mutations in the BRCA2 gene [1].

Histology:

The most frequently found histological type is non-specific infiltrating carcinoma, corresponding to nearly 90% of lesions. Ductal carcinoma in situ corresponds to 10% of lesions, of which 75% are of the papillary type. Lobular carcinomas are exceptional (1%) due to the absence of differentiation of terminal lobules in the male breast, and occur mainly in patients with Klinefelter syndrome. More than 90% of tumors are hormone receptor positive. The histological prognosis is similar to that of women [1]

Clinical:

The most common presentation of breast cancer in men is that of a non-painful indurated mass, most often eccentric. (Figure 1). There may be associated retraction, ulceration, or nipple discharge. Regional permeation nodules are possible [1].

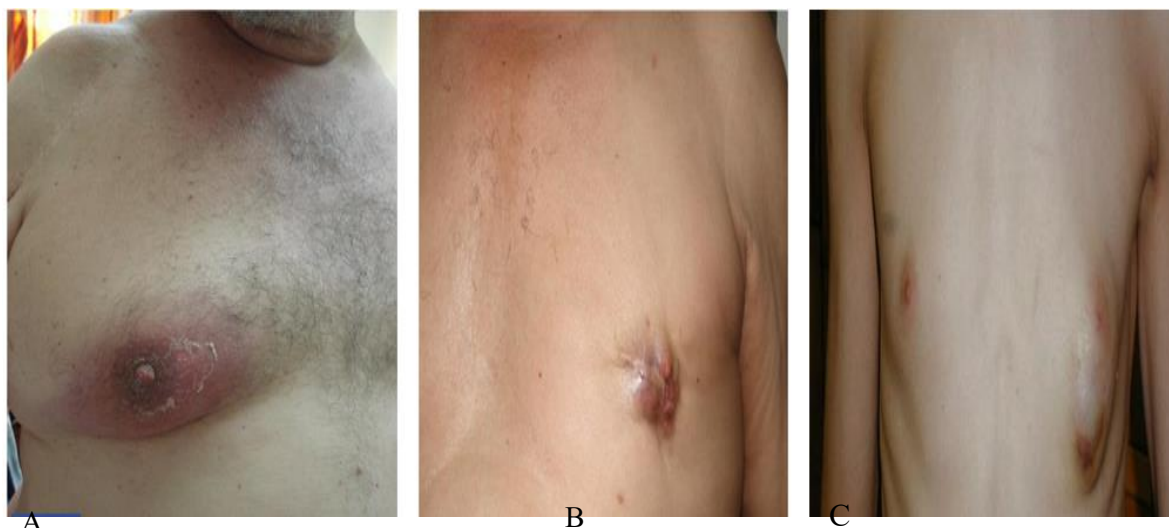


Figure 1 : Clinical aspects of breast cancer in men, A. Has mastitis; B: Nipple retraction, C: Budding mass

Imaging Techniques:

If a mammogram is necessary, the imaging techniques are the same as for women. A bilateral mammographic view may be sufficient, and it can be supplemented by other views, by enlarged and localized compression images and by an ultrasound [1].

Mammography:

Mammography most often shows a dense mass without calcifications. Its contours are most often spiculated, indistinct or microlobulated (Figure 2a,

2b.), but can be circumscribed due to the relative frequency in humans of papillary ductal carcinoma in situ (Figure 2c). The mass is readily of retro areolar seat. The presence of microcalcifications is rarer, they are generally coarser, more extensive, and more rarely linear. Nipple retraction, skin thickening and axillary lymphadenopathy may be associated. In the event of flow, exploration by galactography is technically feasible. The cancer is bilateral in 1 to 4% of cases, which justifies performing a bilateral mammogram even if the symptoms are unilateral [1,2].

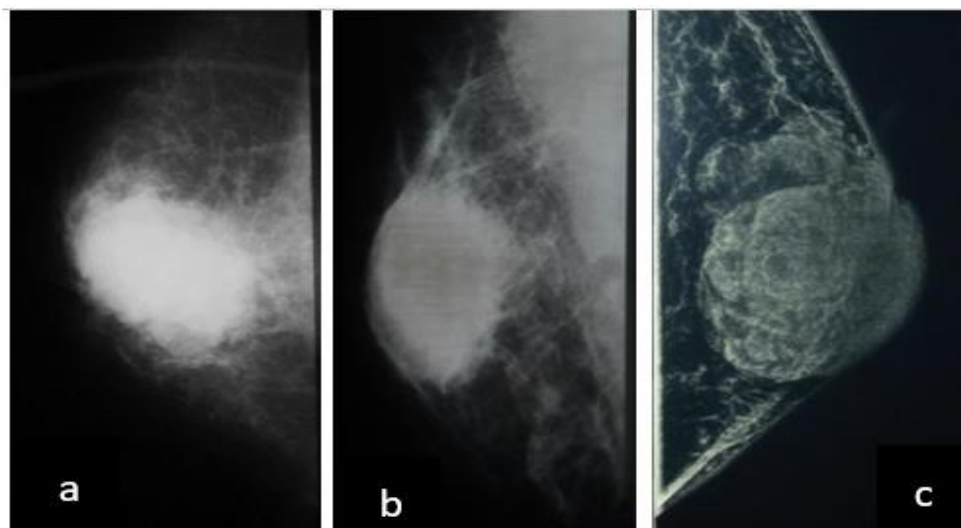


Figure 2: Mammography appearances of breast cancer. a. An eccentric, hyper dense, irregular mass, b. Oval mass, with lobulated contours. c. Lobulated, circumscribed mass.

Breast Ultrasound:

On ultrasound, the most frequently found appearance is that of an irregularly shaped, hypoechoic mass with angular, microlobulated or spiculated contours with variable attenuation associated with a peripheral halo (Figure 3a.). The posterior acoustic attenuation is inconsistent, because the frequent retro-areolar

position of the tumor makes this sign non-specific (Figure 3 b.). The cancer can also manifest itself in the form of a cystic-looking lesion, with a mural nodule indicating a papillary ductal carcinoma in situ, and therefore must be the subject of histological samples (Figure 3c.).

Ultrasound is useful for local extension assessment, making it possible to visualize the extension to the skin tissue, the nipple, the pectoral muscle, the possible presence of multicentric lesions, and to detect axillary

adenomegaly (present in up to 50% of cases).). Ultrasound is particularly useful for exploring deep masses that may be overlooked on mammography. [1, 2] (Figure3).

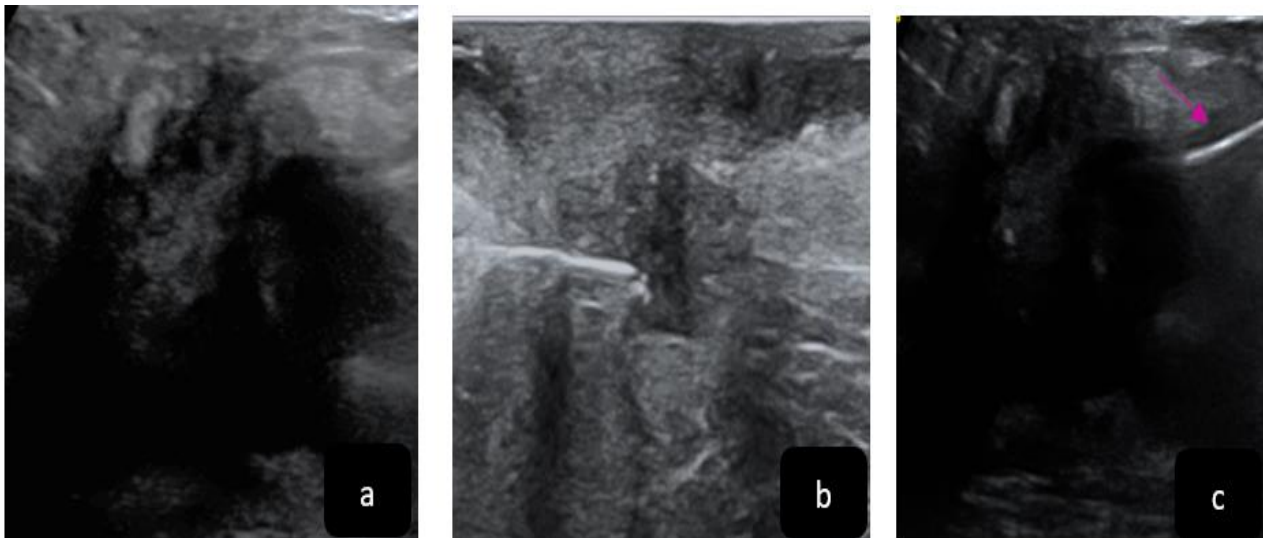


Figure 3. A. Hypoechoic mass, with speculated shape and contours. Mitigating, classified BI-RADS 5 of the ACR, B. Microbiopsy of the retro-areolar mass infiltrating the areolar plaque., C. Microbiopsy of the retro areolar mass infiltrating the skin covering.

Breast MRI:

The Breast Imaging Reporting And Data System (BIRADS) MRI criteria are applicable to humans. Typical cancer is Figure 2: Ultrasound aspects of breast cancer: a: retro-areolar mass, hypoechoic, with angular contours; b: retro-areolar mass, hypoechoic, with spiculated, attenuating contours, c: microbiopsy of the mass.

Present in the form of an irregular mass and enhances intensely and early with a washout phenomenon in late stages (type 3) [6]. No semeiological element is characteristic on MRI. There is no clearly established consensus indication for this examination for breast pathology in men. [1, 2]

Differential Diagnosis:

Metastases to the breast from extra-mammary lesions are rare. They most often come from lung cancer, prostate cancer, melanoma, lymphoma. They are often multiple, round in shape, well limited. [1].

CONCLUSION:

Breast cancer is rare and presents on mammography in the form of a retro-areolar mass typically eccentric in relation to the nipple. Imaging is also useful for guiding biopsies, for local extension assessment and for the search for axillary adenomegaly. The report of the imaging assessment can be presented as that of the imaging of the woman, using the BIRADS classification of the ACR.

Conflict of Interest:

The authors declare that they have no conflict of interest.

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