

## Primary Occult Breast Cancer in A Male Patient: A Case Report and Brief Overview of Literature

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### ABSTRACT

Breast cancer is the most common female cancer, nevertheless it represents a rare entity in male patients; the presentation of breast cancer as a primary occult cancer in male patients is such a rare pathology that only case reports have been described. We present a 48 year old man who developed and axillary mass which resulted to be metastatic breast cancer, he was treated in the same fashion as female patients are treated.

**Keywords:** Male Breast Cancer, Primary Occult Cancer, Breast Cancer

### Introduction

Breast cancer represents in order of frequency the first cancer worldwide in females with 11.6% of total. Regarding mortality it accounts for 6.6% worldwide (followed by lung cancer, colorectal cancer, stomach a liver cancer) (Globocan, 2018; National Cancer Institute, 1975-2011).

Breast cancer in male patients relatively uncommon, (0.5-1% of all breast cancer and less than 1% in male cancer overall). The main risk factors in male population includes genetic mutations such as BRCA 2, CYP17, PTEN and CHECK 2, it is also related to Klinefelter syndrome in 3-7% of all cases of breast cancer in men (Anderson *et al.*, 2010). Other associated risk factors are consumption of estrogens and testosterone (Nahleh *et al.*, 2007) as well as cryptorchidic testis, obesity, epididymitis and thoracic exposure to radiation. (Fentiman *et al.* 2006).

Breast cancer is a disease caused by accumulation of multiple genetic aberrations (e.g. mutations, deletions, rearrangements...), 90% associated with somatic mutations and only 10% attributed to germline mutations (Bell, 2010). Histologic subtypes may be divided in ductal and lobular carcinoma, being ductal carcinoma the most frequent (about 80% of all cases); 85% of patient also features estrogen and

progesterone receptors (luminal subtypes), only 11% of patients overexpress HER2 Neu phenotype (Crew *et al.*, 2007; Sasco *et al.*, 1993; Yan-Hui *et al.*, 2016)

The most common clinical presentation of breast cancer in male comprises the growth of a single painless mass in the breast, the skin may be ulcerated, or the nipple retracted in 75% of the cases (Fentiman *et al.*, 2006)

Nevertheless, the presentation as a primary occult is extremely rare. Primary occult breast cancer is defined as the identification of axillar metastasis compatible with a breast phenotype without clinical or radiological evidence of a breast mass or calcification, it was first described by Halsted; the incidence in female is low (0.3 to 0.8% of all breast cancer), in male there are only case reports that describe the entity (Halsted, 1907; Metin Yalaza *et al.*, 2016; Ruixin *et al.*, 2017).

The diagnostic and therapeutic protocol does not differ from those of female patients; it should be tailored for every patient by a multidisciplinary team; when an axillary tumor is found the initial step is to perform tissue biopsy to determinate malignancy, once this is established the origin of the metastases must be determined by the probability of the origin, in this case breast, thorax, head and neck must be thoroughly inspected in search of a primary tumor; once the diagnosis of primary occult breast cancer the treatment is conducted according to the clinical stage (e.g. surgery followed by adjuvant chemotherapy plus radiotherapy). (Hong *et al.*, 2016; Patten *et al.*, 2013; Wang *et al.*, 2010).

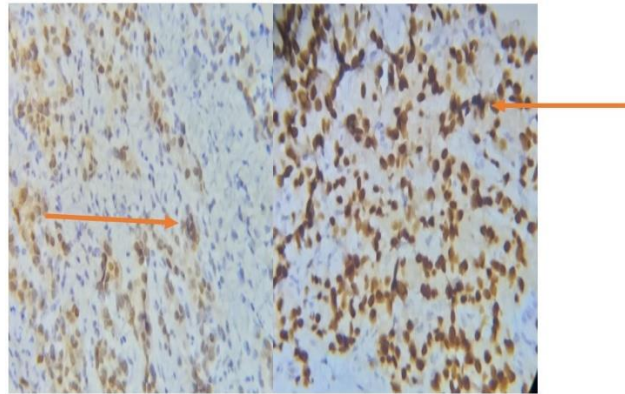
## Case Presentation

A forty-eight-year-old men presented to the office complaining of a progressive growing mass in the left axilla during the last 12 months; in the beginning the patient did not cared about the mass because of the small size and absence of pain, however the mass presented progressive growth and became painful. In physical examination the only finding was a fixed and matted mass in the left axilla measured 5x5 cm, there was only left nipple retraction (Fig. 1) but no clinical evidence of tumor activity in breast, thorax, head, neck, abdomen or inguinal regions. An incisional biopsy was performed in an office setting with pathology report of poorly differentiated metastatic carcinoma.



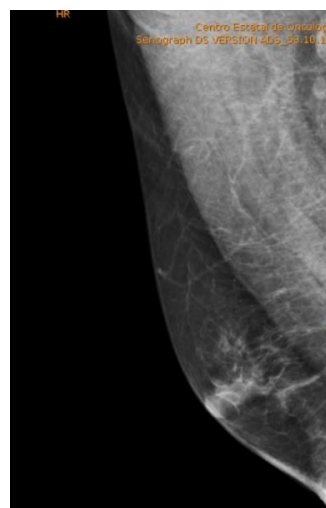
**Figure 1:** Left axillary matted and fixed nodes

Immunohistochemistry was performed on tissue (16) with estrogen receptor positive in 90% of staining, progesterone receptor staining 40%, PAN CK staining positive, CK positive, GATA 3 positive-intense, GCDFP-1 positive-weak, TTF-1 positive-weak, thyroglobulin positive-weak, CK 20 negative, CK 14 negative, Napsin negative, Her 2 Neu negative (Fig. 2 and Fig. 3).

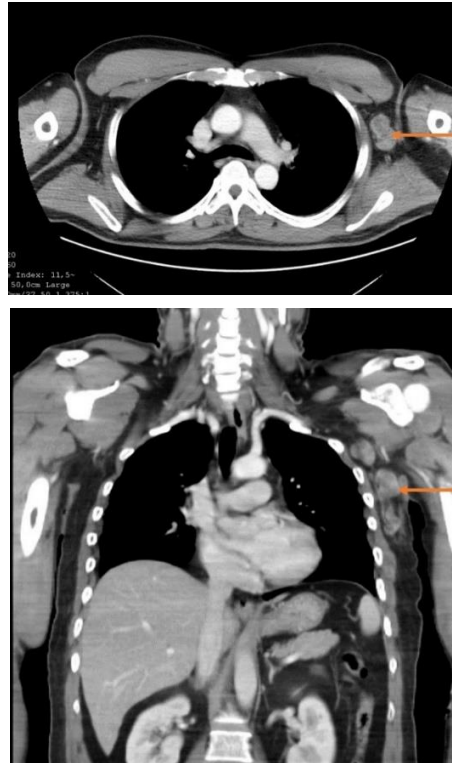


**Figures 2 and 3:** Immunohistochemistry

Mammography and axillar ultrasound were performed showing normal right axillar nodes and normal right breast; in the left axilla suspicious matted nodes were observed (i.e. irregular form, 4x2.5x1.5 cm, loss of cortex), a left infraclavicular suspicious lymph node was detected (Fig. 4) and sampled for histopathology with positive result for malignancy; the left breast was normal. Mammography for both breasts were reported as BIRADS2 (Breast Imaging Reporting and Data System), the BIRADS system comprises 7 scores ranged from 0 to 6, each one associated the presence or absense of anatomic alterations regarding architectural distortion, masses or calcifications, a score of 2 means benign changes with no probability of cancer by this method (American College of Radiology, 2003). A CT scan revealed only tumor activity in left axillar region (Fig. 5 and Fig. 6).



**Figure 4:** Left breast mammography, BIRADS 2



**Figures 5 and 6:** CT scan showing left axillary matted nodes

The diagnosis of breast cancer in stage IIIC was established and the patient went on neoadjuvant treatment with epirubicin followed by cyclophosphamide, clinical partial response was achieved (Fig. 7); the patient went to modified radical left mastectomy with left axillary dissection without complications (Fig. 8 and Fig. 9).



**Figure 7:** Partial clinical response to neoadjuvant chemotherapy

Pathology report reported absence of tumor in left breast, 10 left axillar nodes were reported with metastatic carcinoma- breast immunophenotype, the nodes were matted measuring 6x6.5 cm, lymphatic, vascular and perineural invasion were present, 5 nodes presented with capsular rupture; skin and nipple had no evidence of tumor.



**Figure 8:** Left radical modified mastectomy including axillary skin from biopsy site



**Figure 9:** Postoperative surgical site

Patient was given adjuvant treatment with radiation therapy at a dose of 50Gy in 25 fractions (Huang *et al.*, 2004), also tamoxifen was given at a dose of 20 mg PO qd. He has been monitored for 2 years without evidence of recurrence.

## Discussion

Male breast cancer is a very rare pathology that usually represents a diagnostic challenge due to its low prevalence, the risk factors for males are increased exposure to estrogen and reduced androgen, Klinefelter syndrome increases 14- to 50 fold the risk of breast cancer as well as BRCA1 and BRCA 2 mutations (Fentiman *et al.*, 2006; Anderson *et al.*, 2010) clinical presentation of male breast cancer is similar to that of females differing only that men age of onset is a median of 7 years later. the special feature of this case was not only the fact of a male breast cancer but that the clinical presentation corresponded to a primary occult breast cancer; few cases like this have been reported on literature and in all the patients a multidisciplinary approach with chemotherapy, surgery and radiation in neoadjuvant, radical and adjuvant sequence respectively. More than 90% of these tumors in men are positive to hormonal receptor making necessary to administer hormonal therapy. In this case the patient as survived 2 year free of recurrence and is under oncological surveillance. (Wang *et al.*, 2010; Sousa *et al.*, 2013).

## Conclusion

Occult primary breast cancer in men is a very uncommon disease that requires high grade of suspicion because the diagnosis is not considered and screen mammography in men is not used; the same considerations regarding diagnostic and treatment as for females are applied, some studies suggest a worse prognosis in males than in females stage by stage.

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