Male breast cancer: a rare case of synchronous bilateral invasive ductal carcinoma.

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Section: Breast imaging
Area of Interest: Breast, Lymph nodes
Procedure: Imaging sequences, Biopsy, Diagnostic procedure
Imaging Technique: Mammography, Image manipulation / Reconstruction, Ultrasound
Special Focus: Neoplasia, Metastases
Case Type: Clinical Cases
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Patient: 59 years, male

Clinical History:

A 59-year-old man presented to our hospital with a palpable mass in the right side of his breast. The physical examination revealed a non-mobile, painless lump in the right breast and a second similar mass in the contralateral breast. There was no history of familial breast cancer, solid organ tumour or hormonal treatment.

Imaging Findings:

Digital mammography was performed revealing a discrete, dense mass with spiculated margins eccentric to the nipple-areolar complex on both breasts (fig.1, 2a-b, 3, 4a-b). There were no associated axillary adenopathy, pathological calcifications, nipple discharge or retraction phenomena. A further work-up included a US examination of the breast. The imaging features included an irregular hypoechoic mass with angular margins, without any posterior enhancement/shadowing or internal vascularity on both breasts (fig.5a-c, 6a). The patient underwent ultrasonography-guided core needle biopsy of both breast masses (fig.5c, 6b). The histologic report confirmed the diagnosis of invasive ductal carcinoma bilaterally (fig.7a-d).

On the CT thorax/abdomen/pelvis with iv contrast and bone-scanning there were no signs of metastatic spread. Mastectomy bilaterally and sentinel lymphnode biopsy were subsequently performed, one lymphnode with mikrometastasis with no extranodal growth was found on the right axilla(fig.8a-b)[9, 10]. The patient was commenced on adjuvant hormone therapy with tamoxifen and radiotherapy on the right axilla.

Discussion:

Male breast cancer (MBC) is a rare neoplasm which accounts for 1.2–2% of all cancers in men [1-4]. Bilateral breast cancer accounts for only 0.5 – 1% of MBC and synchronous cancers, as in our case, are extremely rare [7]. The median age of MBC onset is 62-69 years, and is much later than that reported for female breast cancer (< 50 years).
The most important risk factors are family history and mutations of BRCA (primarily BRCA2)\[1, 2, 3\]. Other important risk factors are: Klinefelter syndrome, oestrogen or testosterone use, orchitis/epididymitis, obesity, lack of exercise, and exposure to radiation [2, 5, 6]. The majority of male breast tumours are invasive ductal carcinoma (85% to 95%), followed by ductal carcinoma in situ (5% to 10%) [9]. Among invasive carcinomas, 93.7% are ductal or unclassified carcinomas, 2.6% are papillary tumours, 1.8% are mucinous tumours and only 1.5% are lobular tumours [7, 9]. The most common type of male breast cancer is hormone receptor positive – 82%, 15% are human epidermal growth factor receptor 2 (HER2)-positive (young patients more likely), and 3% are triple negative [2, 3, 6]. The most common presentation of male breast cancer is a painless, firm subareolar mass. Other symptoms may include nipple retraction and/or ulceration and/or bleeding, axillary lymphadenopathy and gynecomastia [5, 7]. Imaging findings of MBC most often include a unilateral discrete mass with spiculated, angulated or microlobulated margins and increased vascularity at an eccentric location with respect to the nipple-areolar complex. Microcalcifications are rare but if present are usually fewer in number, coarser and less frequently rod-shaped compared to those seen in FBC. The additional presence of nipple retraction, skin thickening and axillary lymphadenopathy are also important secondary features of MBC [8].

Surgery is the keystone in the treatment of MBC (including modified radical mastectomy or total mastectomy [1-3]) with sentinel lymph node biopsy gaining wider acceptance among breast surgeons [3]. Radiotherapy, hormone therapy and chemotherapy constitute an essential part of the adjuvant therapy depending on the extent of tumour (T- & N-stage), hormone receptor status, age, performance status of the patients, and associated co-morbidities [2, 3, 5]. MBC has a less favourable prognosis compared with FBC [4, 5]. This might be due to poor level of awareness, delayed diagnosis, increased age of onset, increased co-morbidity and a more progressive stage of disease at initial presentation [2, 5, 7]. In conclusion, MBC remains a rare disease, and synchronous, bilateral male breast cancer, as it was noted in our case, an exceptional finding.

**Differential Diagnosis List:** Male breast cancer, synchronous neoplasm, bilateral, gynecomastia, abscess, sarcoma, metastasis

**Final Diagnosis:** Male breast cancer, synchronous neoplasm, bilateral.

**References:**

Ji Hyung Hong, MD, PhD, Kyung Sun Ha, MD, Yun Hwa Jung, MD, Hye Sung Won, MD, PhD, Ho Jung An, MD, PhD, Guk Jin Lee, MD, Donghoo Kang, MD, Ji Chan Park, MD, Sarah Park, MD, PhD, Jae Ho Byun, MD, PhD, Young Jin Suh, MD, PhD, Jeong Soo Kim, MD (2016) Clinical Features of Male Breast Cancer: Experiences from Seven Institutions Over 20 Years. Cancer Research and treatment 2016 Oct; 48(4): 1389–1398. (PMID: 27121722)


Description: Mediolateral oblique view of the right breast shows a subareolar eccentric irregular mass with spiculated margins. Origin: General Public Hospital of Haugesund, Norway
Description: Craniocaudal projection: the suspicious mass is in the retroareolar region.

Origin: General Public Hospital of Haugesund, Norway.
Description: CC projection, zoom in image: the spiculated margins of the mass are clearly seen.
Origin: General Public Hospital of Haugesund, Norway
Description: An eccentric irregular opacity is depicted in the subareolar area. Origin: General Public Hospital of Haugesund, Norway
Description: CC view: a suspicious nodule with irregular margins is better seen on this projection
Origin: General Public Hospital of Haugesund, Norway
Description: CC view, zoom in image: the mass is approx. 7mm in diameter and is located laterally to the areola

Origin: General Public Hospital of Haugesund, Norway
Figure 5

a

Description: A mass with angulated margins corresponds to the clinically palpable lump
Origin: General Public Hospital of Haugesund, Norway

b

Description: The size of the mass is 1,1 x 1,0cm
Origin: General Public Hospital of Haugesund, Norway
Description: An ultrasound guided core needle biopsy was performed.

Origin: General Public Hospital of Haugesund, Norway.
Description: A 1.0cm irregular mass is seen eccentric to the nipple-areolar complex. Origin: General Public Hospital of Haugesund, Norway

Description: A core needle biopsy was performed. Origin: General Public Hospital of Haugesund, Norway
Description: LEFT BREAST(IDC grad 1)
Magnification x 4:

Breast tissue with malignant infiltrating tumor (up is the malignant tumor, down is fibrous breast tissue and some dilated ductuli) Origin: General Public Hospital of Haugesund, Norway
Description: LEFT BREAST

P120:
an immunohistochemistry marker that helps to differentiate between ductal and lobular carcinoma: Ductal carcinoma shows membranous reaction, lobular carcinoma cytoplasmic reaction (in our case was membranous in both breasts). Origin: General Public Hospital of Haugesund, Norway
Description: RIGHT BREAST (IDC grad 1) estrogen receptor:

3+ intranuclear in 100% of the cells
(the same outcome to both breasts) **Origin:** General Public Hospital of Haugesund, Norway
**Description:** RIGHT BREAST

Progesterone receptor:

3+ intranuclear in 95% of the cells

(3+ intranuclear in 80% of the cells to the left breast) **Origin:** General Public Hospital of Haugesund, Norway
Figure 8

**Description:** 1 out of 3 lymphnodes with metastatic tumor was found (1/3, 2,0mm with no extranodal growth - pN1a).

(lymphocytes as dark small cells on the right - metastatic carcinoma on the left). **Origin:** General Public Hospital of Haugesund, Norway
Description: CKAE1-AE3 (a special marker):
Cytokeratin verified that there is metastasis (with brown colour), this type of antibody reacts with epithelial cells but does not react with lipid and lymphoid tissue. Origin: General Public Hospital of Haugesund, Norway.