



Case Report

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Case Report: Ductal Breast Cancer with Endometrial Metastases

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Abstract

Breast cancer is the most prevalent cancer among women. The uterus is an atypical site, but up to 8% of cases can metastasize to this organ. Lobular carcinoma is the one that most frequently leads to metastasis in the uterus, most commonly in the myometrium, and the endometrium is a rare site. Currently, there are few cases described in the literature of ductal breast carcinoma with endometrial metastases. We describe a case of a woman with recurrence of invasive ductal carcinoma of the breast with multiple metastases, including endometrial polyp.

Keywords

Breast cancer, Endometrial polyps, Metastases

Introduction

Breast cancer is currently the most prevalent type of cancer among women, with an incidence recorded in 2020 of 66,280 new cases in Brazil. The most common sites of hematogenous metastases are lung, bone, liver and brain. The uterus is an atypical site for metastases [1,2].

Breast cancer metastases to the uterus occur in 3.8% of cases, being more frequent in the myometrium (63.5%), followed by the myometrium and endometrium (32.7%) and the isolated endometrium less frequently (3.8 %) [3].

The lobular subtype is less frequent among breast cancers, but it is the one that most commonly causes metastases in genital organs, with a prevalence of more than 80% of cases of metastases in genital organs [4].

Currently, there are few cases described in the literature of ductal carcinoma of the breast with endometrial metastases.

Case Report

A 62-year-old woman, diagnosed with breast cancer in 2009, clinical stage IA, whose pathological examination showed invasive ductal carcinoma with positive estrogen and progesterone receptors and negative for Her2. In the investigation, no metastases were evidenced. She underwent quadrantectomy and sentinel lymph node biopsy, with axillary dissection for compromised lymph node.

After surgery, the patient underwent chemotherapy with doxorubicin and cyclophosphamide (6 cycles) and adjuvant

radiotherapy. She used tamoxifen therapy from 2009 to 2014 and annual mammographic follow-up until 2014, when she was discharged for follow-up at the primary care unit.

In 2020, the woman presented weakness and emaciation, which during the investigation showed a liver nodule. Imaging exams revealed lesions in lung, liver, lymph nodes and bone. Liver biopsy confirmed that it was an invasive ductal carcinoma, immunohistochemistry showed positive estrogen receptor, negative progesterone and Her2.

As the patient complained of intermittent pelvic pain, she underwent transvaginal ultrasound which showed endometrial thickening (10.5 mm). The patient had no history of bleeding. She underwent hysteroscopy which removed 2 endometrial polyps from the uterine cavity. The pathological examination identified breast carcinoma in the endometrial polyps, which was confirmed by positive immunohistochemical analysis for mammoglobin and GATA3 (Figure 1).

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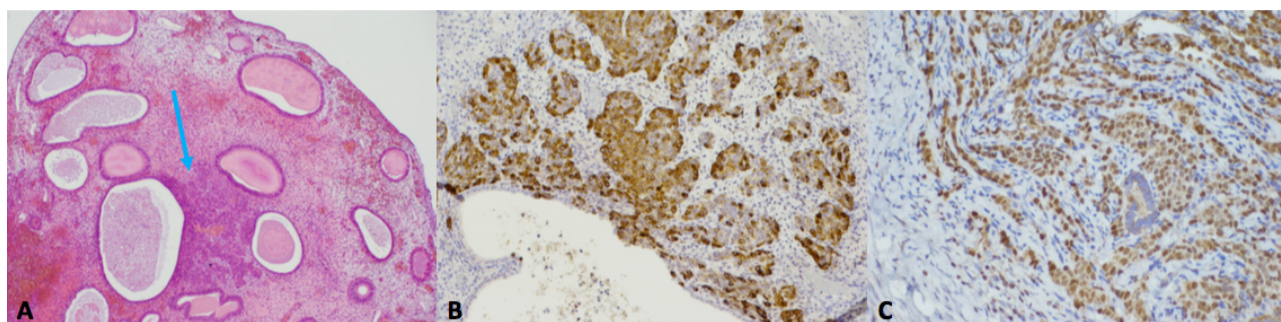


Figure 1: A) Breast carcinoma in endometrial mucosa polyp shown by the arrow; B) Positive immunohistochemistry for mamoglobin and C) Positive immunohistochemistry for GATA3, confirming the presence of metastases in this organ.

The patient is currently on palliative chemotherapy with carboplatin, paclitaxel, and quarterly zoledronic acid. She also performed a single dose of xeloda, with no good response.

Discussion

Breast cancer is the most common cancer worldwide and affects 29% of women. Ductal carcinoma is the most common histological type and represents 75% of cases, while the lobular type represents 15% of cases [5]. Six percent of women with breast cancer will have metastases, and approximately 30% will develop metastases after definitive treatment [5]. The most common organs affected by breast cancer are liver, bones, and lungs [6]. Uterine metastases often secondary to lymphatic invasion of the ovaries. And isolated involvement by metastases of this organ is rare and probably hematogenous [2].

The most common site of uterine metastasis from breast cancer is the myometrium, and involvement of the endometrium is rare. Endometrial involvement is associated with breast, colorectal, gastric and melanoma cancers and is also responsible for the reduction in life expectancy [7].

Endometrial polyps are rare sites for breast cancer metastases and such cases have been reported primarily related to the use of tamoxifen. The typical image of a polyp related to the use of tamoxifen is multiple cystically dilated glands with epithelial lining metaplasia, fibrous stroma, and periglandular stromal condensation [8]. Tamoxifen is the most used drug in breast cancer therapy. Studies suggest that endometrial polyps in women taking tamoxifen should be analyzed to exclude breast cancer metastases. Despite its antiestrogenic effect, tamoxifen may have a weak estrogenic effect in some organs and is associated with proliferative endometrial lesions, including simple, complex and atypical hyperplasias, polyps and adenocarcinoma [9,10].

It is important to differentiate between breast cancer metastases and endometrial carcinoma, as the treatments are completely different. As both are generally positive for estrogen and progesterone receptors, pathologists may choose immunomarkers such as PAX8 for endometrial origin and protein fluid from macroscopic cystic disease (GCDP15), mammoglobin, and GATA3 for breast origin to establish the differential diagnosis [7]. The patient in study was tested

for PAX8 negative and mammoglobin and GATA3 positive, indicating a primary breast site.

A study with 57 cases of endometrial metastasis from breast cancer showed that the GATA3 marker had the highest expression rate (82% of cases), showing good sensitivity to identify endometrial metastasis with greater sensitivity than the mammoglobin [11].

Another study with 261 autopsies of women with breast cancer, comparing the metastatic pattern of the ductal and lobular subtypes, did not observe a significant difference in the frequency of metastases between the subtypes, although there was a significant difference in relation to the site of involvement of the metastases. There was greater pulmonary involvement in the ductal subtype and in the lobular subtype greater involvement of the peritoneum, retro peritoneum, hollow viscera, genital organs, meninges and myocardium [12].

Although the lobular subtype is less frequent than the ductal one, it can present genital metastasis in up to 80% of cases and this can be explained by the small size and shape of the cells of this subtype, with low expression of E-cadherin, an adhesive protein, favoring thus the decohesion between the cells, making them able to migrate to areas of microanatomy more favorable to park [1,3].

Razia, et al. described 17 cases of breast cancer with metastases to endometrial polyps, eight of the lobular subtype, seven of the ductal subtype, one apocrine and one mixed (lobular and ductal). Of these patients, 12 had vaginal bleeding as a symptom [1]. Vaginal bleeding is the most common symptom reported in women with a tumor that affects the endometrium; some women may experience hypogastric pain, or endometrial involvement can sometimes be identified through routine gynecological examinations [7].

In a literature review carried out by Huo, et al, 13 cases of endometrial metastases from breast cancer were identified between 1985 and 2014, being 53.8% of the lobular type, 30% of the ductal type, 7.7% of the metaplastic type and 7.7% micro papillary type, 76.9% of which were positive for estrogen and progesterone receptors and 15.3% were negative for these receptors, one patient had no information about these receptors and only one was Her2 positive [13].

Conclusion

Endometrial metastases from breast cancer is a diagnostic challenge due to its low incidence. Endometrial thickening in women with a previous history of breast cancer should be investigated to exclude endometrial metastases.

Conflict of Interest

The authors have no conflicts of interest to declare.

Author Contributions

All the authors participated actively in the study, as follows: D.A. Yela and C.L. Benetti-Pinto were responsible for the final manuscript, R.M. Triglia was responsible for the pathological evaluation of the lesion and N.G. Gaspar collected the data and conducted the literature review.

Data Availability Statement

All data generated or analyzed during this study are included in this article. Further enquiries can be directed to the corresponding author. The patient in the study (case report) signed a consent term. This case report was approved by the ethics and research committee (number: 5.068.866).

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