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# **Uterine Metastases in a Diagnosed Case of Invasive Ductal Breast Carcinoma: A Rare Presentation**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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**Case Study**

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## **ABSTRACT**

Breast cancer is the commonest cancer among females and has a high propensity to metastasize, but gynaecological organs are rarely affected. We report a case where invasive ductal carcinoma of the breast metastasized to the uterus after initial management with curative intent. Our patient was on tamoxifen, which can cause endometrial hyperplasia and lead to a challenge in eventual diagnosis.

**Keywords:** Breast Cancer; uterine metastasis; invasive ductal carcinoma.

## 1. INTRODUCTION

Breast cancer is among the most common malignancies in females, treated with curative intent in the early stages. It is the leading cause of cancer mortality among females. Depending on the disease biology, breast cancer tends to metastasize. The most common sites are bones, liver, brain and lungs for invasive ductal carcinoma (IDC), whereas invasive lobular carcinoma (ILC) affects adrenal glands, bone marrow, gastrointestinal, genitourinary organs [1].

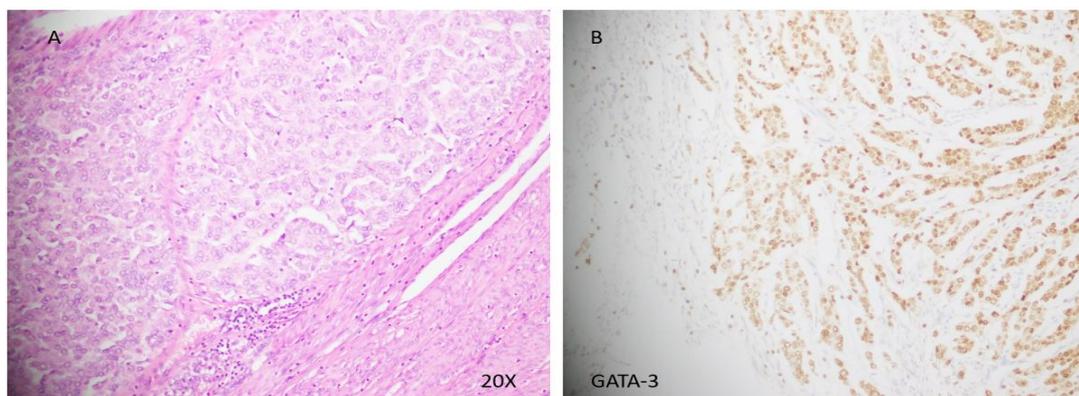
Metastasis to genital organs from primary breast cancer is rare, with the ovaries being the most affected site due to peritoneal spread. The involvement of other genital organs leads to a diagnostic dilemma [2-3]. We present a case of IDC metastasizing to gynaecological organs.

## 2. CASE

A 49-year-old Pakistani premenopausal married lady, having hypertension, diabetes mellitus and dilated cardiomyopathy, presented with a huge breast mass with axillary extension. Physical examination showed infiltrating ulcerating retro-areolar (RA) mass approximately 10 cm large, occupying almost the whole breast. The rest of the examination was unremarkable. The mammogram showed an irregular RA mass of 9 cm with skin thickening and nipple retraction with enlarged lymph nodes. Baseline metastatic workup, including computed tomography (CT) of chest abdomen pelvis and bone scan, was negative for metastasis. Histopathology of trucut biopsy from left breast showed invasive ductal

carcinoma grade II. Immunohistochemistry stains showed estrogen receptor (ER) 70%, progesterone receptor (PR) 40%, Human epidermal growth factor receptor 2 (HER2) was negative and Ki-67 of 10-15%. The axillary lymph node biopsy was positive for metastasis.

As per the multidisciplinary team (MDT) meeting recommendations, neoadjuvant chemotherapy followed by modified radical mastectomy (MRM) and radiotherapy/endocrine therapy. She received Adriamycin, cyclophosphamide, and paclitaxel-based chemotherapy followed by MRM and radiotherapy (40Gy in 15 fractions) to the left supraclavicular fossa and left chest wall. Eight months after starting Tamoxifen, she reported mild per vaginal bleeding. The transvaginal scan showed a 10 mm endometrial strip with mild free fluid. MRI pelvis delineated irregular lobulated lesion in the uterus (Fig. 2). After gynaecological consultation, dilatation and curettage were done. Histopathology showed poorly differentiated carcinoma, raising suspicion of breast metastasis versus primary uterine carcinoma. PET-CT scan showed hypermetabolic endometrial lesions without any local recurrence (Fig. 3). The case was re-discussed in the weekly gynaecology MDT meeting; the patient underwent abdominal hysterectomy and bilateral salpingo-oophorectomy. Final pathology showed poorly differentiated carcinoma of endometrium, tumour involved greater than half of the myometrium, and cervical stroma; the lymphovascular invasion was seen consistent with breast primary. Stains showed CK: Positive, p53: Positive, p63: Negative, Estrogen receptors: Positive, GATA-III: Diffuse positive, p16: Focal positive, PAX-8: Focal positive. (Fig. 1)



**Fig. 1. Section from myometrium shows a tumour comprised of sheets and trabeculae of moderately atypical tumour cells with rounded nuclei and prominent nucleoli (Fig A). These tumour cells are positive for GATA-3 immunohistochemical stain, which indicated the primary tumour of breast origin. (Fig B)**

Omental tissue had evidence of dystrophic calcification. Bilateral parametria were free of tumour. Bilateral ovaries and fallopian tubes were also free of Tumour.

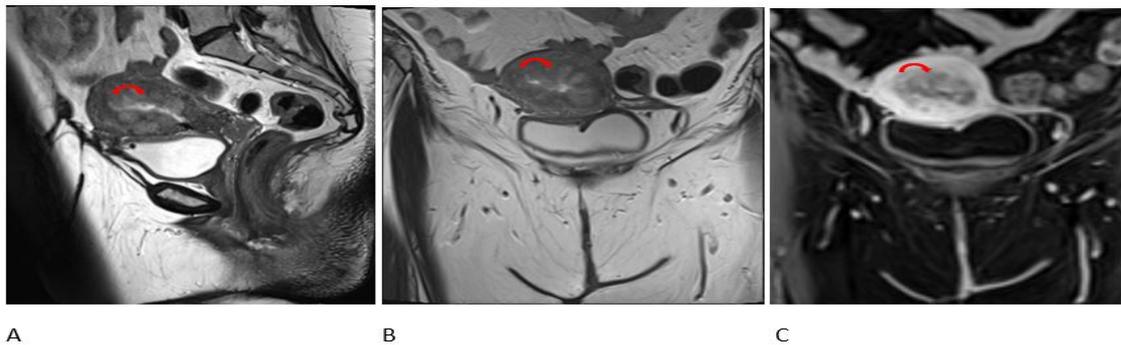
She has been commenced on letrozole and ribociclib and has been doing well for six months.

### 3. DISCUSSION

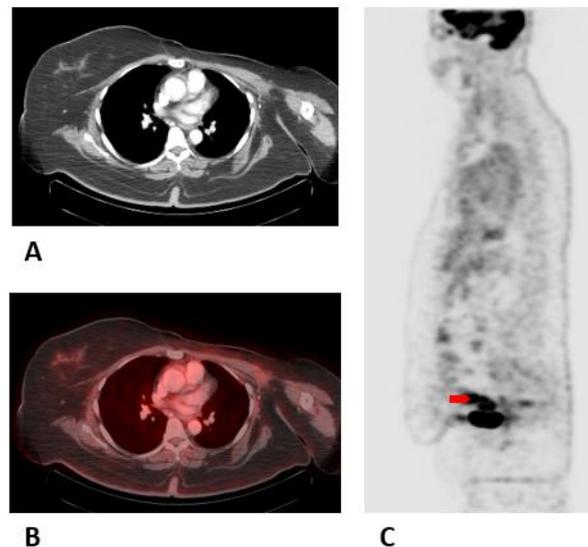
We have reported a case of IDC metastasizing to the uterus, which presented eight months of initial treatment with per vaginal bleeding while on Tamoxifen. The unusual, isolated metastases to the endometrial lining make this presentation unique. Genital metastases are rare entities

associated with breast cancer; mostly, ovaries are the most affected organs. Isolated uterine metastases are caused by hematogenous spread [4]. Endometrial involvement can be asymptomatic or present as abnormal uterine bleeding, as in our case [5].

Tamoxifen is vital in treating hormone-positive breast cancer, with a significant recurrence risk reduction and survival benefit. But it is associated with the risk of endometrial hyperplasia and malignant transformation in 2.7% of patients due to its agnestic effect on the endometrial lining [6-8]. As this patient was on Tamoxifen, abnormal uterine bleeding (AUB) posed a diagnostic dilemma.



**Fig. 2. Sagittal T2 (A), coronal T2 (B) and post-contrast T1 (C) MRI images through pelvis show irregular lobular mass lesions around the endometrial cavity and extending into the myometrium (red arrows)**



**Fig. 3. Axial CT/PET-CT (A&B) show changes of left mastectomy without any local recurrence. Hypermetabolic endometrial lesions were noted on sagittal PET only image (C) indicated by the arrowhead**

A comprehensive review done by Ayesha et al. from 1984 – 2017 reported 25 cases of endometrial metastases from breast cancer, 13 from ILC, nine from IDC, one apocrine, one metaplastic and one mixed [9].

The uterine metastases from breast cancer can pose a diagnostic dilemma; specific immunohistochemical stains shall be performed to differentiate uterine metastases from primary uterine carcinoma [10].

The ideal approach to isolated uterine metastases is still unknown; case reports are favouring treating with chemotherapy, but in case of a diagnostic dilemma, surgical intervention can be both diagnostic and therapeutic [9,11-12]. The prognosis following chemotherapy or surgery in such a case is still unknown [13]; our patient has been disease-free since surgery.

#### 4. CONCLUSION

In conclusion, AUB in patients with breast cancer on hormonal therapy should alarm physicians to look for primary uterine malignancy. While keeping uterine metastasis in the differential diagnosis is also crucial for early intervention and appropriate management. A keen histopathological analysis can help in reaching the correct diagnosis.

#### DISCLAIMER REGARDING CONSENT AND ETHICAL APPROVAL

As per university standard guideline, participant consent and ethical approval have been collected and preserved by the authors

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

#### REFERENCES

- Chikarmane S, Tirumani S, Howard S, Jagannathan J, DiPiro P: Metastatic patterns of breast cancer subtypes: what radiologists should know in the era of personalized cancer medicine. *Clinical radiology*. 2015;70:1-10.
- Mazur MT, Hsueh S, Gersell DJ: Metastases to the female genital tract: analysis of 325 cases. *Cancer*. 1984; 53:1978-1984.
- Di Micco R, Santurro L, Gasparri ML, Zuber V, Fiacco E, Gazzetta G, Smart CE, Valentini A, Gentilini OD: Rare sites of breast cancer metastasis: a review. *Translational Cancer Research*. 2019; S518-S552.
- Arslan D, Tural D, Tatlı AM, Akar E, Uysal M, Erdoğan G: Isolated uterine metastasis of invasive ductal carcinoma. *Case reports in oncological medicine*; 2013.
- Rahmani M, Nili F, Tabibian E: Endometrial Metastasis from Ductal Breast Carcinoma: A Case Report with Literature Review. *The American journal of case reports*. 2018;19:494.
- Fisher B, Costantino JP, Redmond CK, Fisher ER, Wickerham DL, Cronin WM, contributors N: Endometrial cancer in tamoxifen-treated breast cancer patients: findings from the National Surgical Adjuvant Breast and Bowel Project (NSABP) B-14. *JNCI: Journal of the National Cancer Institute*. 1994;86:527-537.
- Famoriyo A, Sawant S, Banfield PJ: Abnormal uterine bleeding as a presentation of metastatic breast disease in a patient with advanced breast cancer on tamoxifen therapy. *Archives of gynecology and obstetrics*. 2004;270:192-193.
- Piura B, Yanai-Inbar I, Rabinovich A, Zalmanov S, Goldstein J: Abnormal uterine bleeding as a presenting sign of metastases to the uterine corpus, cervix and vagina in a breast cancer patient on tamoxifen therapy. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 1999;83:57-61.
- Akhtar A, Ratra A, Puckett Y, Sheikh AB, Ronaghan CA: Synchronous Uterine Metastases from Breast Cancer: Case Study and Literature Review. *Cureus*. 2017;9.
- Braxton DR, Cohen C, Siddiqui MT: Utility of GATA3 immunohistochemistry for diagnosis of metastatic breast carcinoma in cytology specimens. *Diagnostic Cytopathology*. 2015;43:271-277.
- Huo Z, Gao Y, Zuo W, Zheng G, Kong R: Metastases of basal-like breast invasive ductal carcinoma to the endometrium: A case report and review of the literature. *Thoracic cancer*. 2015;6:548-552.
- Çift T, Aslan B, Bulut B, İlvan Ş: Unusual uterine metastasis of invasive ductal carcinoma: A case report. *Turkish Journal*

- of Obstetrics and Gynecology. 2016; 13:164.
13. Karvouni E, Papakonstantinou K, Dimopoulou C, Kairi-Vassilatou E, Hasiakos D, Gennatas CG, Kondi-Paphiti A: Abnormal uterine bleeding as a presentation of metastatic breast disease in a patient with advanced breast cancer. Archives of gynecology and obstetrics. 2009;279:199-201.

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