

Breast injury as a manifestation of distant-metastatic ovarian cancer: a case report

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CASE REPORT

A 58-year-old female patient was admitted to a gynecological surgery unit from a gynecological chemotherapy unit because of right lower limb (RLL) vein thrombosis. In 2019, the patient was diagnosed with high grade serous ovarian cancer in both ovaries with dissemination in the peritoneal cavity. For prior patient treatment see [Supplemental Table S1](#) in supplementary online material.

During hospitalization the patient reported a major breast enlargement occurring within a few days and mentioned a breast injury occurring a month earlier. The left breast (LB) was enlarged, and the skin was flushed and warm; during physical examination a hard formation (5–6 cm) was found (Fig. 1, 2).

Ultrasound performed by gynecologist revealed right breast (RB) cyst, BIRADS-2, and suspected lesion in LB, BIRADS-4c (Fig. 3). For Mammogram and Magnetic Resonance Imaging (MRI) examination results see Table 1. Core-needle biopsy was performed. The histopathology examination confirmed ovarian cancer to breast metastasis (Fig. 4).

Two days after the biopsy, the patient began developing dyspnoea at rest with desaturation. Symptomatic treatment became ineffective. Patient died due to respiratory failure caused by lymphangitis carcinomatosa.

DISCUSSION

The most common distant metastases sites of ovarian cancer are the liver (37.49%), lymph nodes (29.36%), lung (28.42%), bone (3.74%), and brain (0.99%) [1]. Ovarian cancer to breast metastasis occurs only in 0.03–0.6% of all breast cancers [2]. Breast and ovarian cancer can occur simultaneously in BRCA1 and BRCA2 mutations, in hormone-mediated neoplasms, as a metastasis, and as independent tumors. In the presented case, therapeutic options were highly limited because of the patient's rapidly worsening condition. According to the Polish Society of Surgical Oncology, the treatment of breast metastasis should comply with the



Figure 1. Breasts of the patient front view



Figure 2. Breasts of the patient lateral view

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Table 1. Changes in the breasts and progression in imaging

Examination, date	Right Breast, right axillary fossa	Left Breast, left axillary fossa
CT — 12.02.2021	Lymph nodes in axillary fossa enlarged up to 15 × 8 mm	Lymph nodes in axillary fossa up to 9 × 9 mm
US — 9.05.2021	Single 5 × 4.5 × 5 mm focal change, subcutaneously, hypoechoic structure, probably cyst, BIRADS-2. Two architectonic structure disorders, 1–2 cm subcutaneously. In axillary fossa two lymph nodes, hypoechoic, oval, non-vascular 19 × 14 mm and 17 × 11 mm, like in steatosis	Oval structure between axillary fossa and left breast, non-vascular, heterogeneous echogenic structure, 28 × 19 × 25 mm, BIRADS-4c
Mammography — 10.05.2021	Compactions, ultrasound should be performed to verify	8 × 5 cm irregular shape lesion in upper lateral quadrant, neoplasm suspected. In left axillary fossa 25 mm highly saturated lymph node, BIRADS-4
MRI — 13.05.2021	Edema, skin thickened to 3 mm. After CM high saturation of breast parenchyma, according to type I curve. Pathological lymph nodes up to 2 cm, restriction of diffusion and pathological saturation after CM. BIRADS-0. Image of breast is probably caused by lymph retention. Biopsy should be performed to verify	Edema, skin thickened to 4 mm. After CM high saturation of breast parenchyma, single focal lesion according to type I curve. In lower lateral quadrant single focal lesion 9 × 8 × 7 mm. Pathological lymph nodes up to 2 cm, restriction of diffusion and pathological saturation after CM. In the largest lymph node of left axillary fossa, big non saturating after CM decay. BIRADS-0. Image of breast is probably caused by lymph retention. Biopsy should be performed to verify

MRI — magnetic resonance imaging with contrast medium; CT — computed tomography; US — Ultrasonography

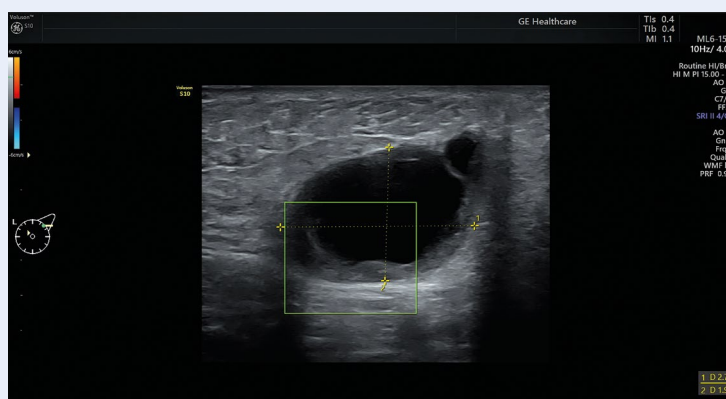


Figure 3. Ultrasound image of the left breast. A metastatic lymph node

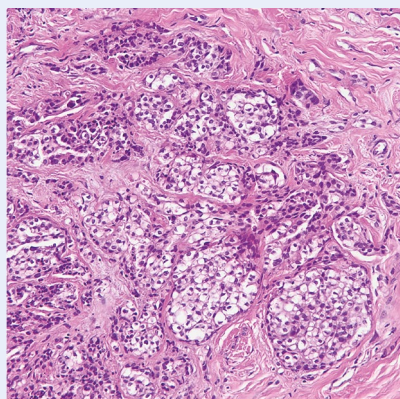


Figure 4. Core needle biopsy of the left breast — high-grade ovarian carcinoma, H&E 20x. Immunostaining positive for WT1, PAX8, ER and negative for GATA3 confirm metastatic ovarian cancer

treatment of the primary tumor. Surgical treatment may be performed either as cytoreduction, or for diagnostic purposes and in palliative setting if bleeding from a tumor is present [3]. As a breast is a rare site of distant metastases of ovarian cancer and the patient's general state worsened rapidly, we believe that ovarian cancer to breast metastasis deserves renewed attention. As an oncological gynecologist, one can pay close attention to clinical and radiological signs of the disease course and address it with other specialists, in concordance with the patient's general state to provide for the patient's best wellbeing.

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Conflicts of interest

The authors declare no conflict of interest.

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