

An Unusual Metastatic Site of Primary Advanced Ovarian Cancer Posing a Diagnostic and Therapeutic Dilemma - A Case Report

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Abstract

Although ovarian cancer usually presents in advanced stages; metastasis of ovarian cancer to the breast (MOCB) is a very rare event. It accounts for only 0.03–0.6% of all breast cancers. As of now, around 120 cases of MOCB have been reported in the literature. It is usually detected within two years from the initial diagnosis of primary ovarian cancer. MOCB is a cause of both diagnostic and therapeutic dilemmas for choosing an adequate systemic therapy over unnecessary surgeries. The case we confronted caused a similar kind of perplexion and is a novel one as it presented as a synchronous disease.

Case Details

A 24-year-old thin-built female with primary infertility presented to the outpatient department with a painless lump in the right breast for seven months and abdominal distension for two months. The patient had no family history of breast cancer and no history of previous breast pathology [1-3]. Clinical examination revealed a multi-lobulated 5 x 5 cm lump in the right breast not fixed to the skin with no palpable lymph nodes in the axilla (Figure 1). The patient had gross ascites and abdominopelvic examination revealed bilateral fixed adnexal masses-6-8 cm on right and 8 cm on left. Breast sonography showed multi-lobulated mass predominantly occupying the upper outer quadrant of the right breast comprising of a grossly ectatic ductal element with anterior margin reaching sub-cutaneous level with sub-centimetric right axillary nodes. Contrast-enhanced computed tomography (CE-CT) of the abdomen showed a malignant bilateral ovarian mass with ascites and omento-peritoneal thickening (Figure 2).

Tumour biopsy of breast lump showed features of adenocarcinoma and tumor cells showed PAX-8 positivity, ER 80 % positive, AR 80 % positive, Ki67 50 % positive and were negative for GCDPF15, PR, and HER-2 NEU. Further IHC on both pelvic and breast mass showed p16 and WT-1 positive and GATA-3 negative. The final treatment was planned based on primary ovarian malignancy with breast metastasis. The patient received 4 cycles of neo adjuvant chemotherapy (NACT) with paclitaxel 175 mg/m² and carboplatin AUC-5. The patient and relatives were counselled regarding BRCA mutation testing, but they could not afford it. Fertility preservation was not an option in stage

IV B disease. Post- NACT evaluation revealed a decrease in size of the breast lump. The biochemical response showed a fall in CA-125 from pre- NACT level of > 1000 IU/ml to post- NACT value of 548 IU/ml (Figure 3).

The patient underwent interval debulking surgery comprising of extra-peritoneal retro-grade total abdominal hysterectomy and bilateral salpingo-oophorectomy with supra-colic omentectomy, Para-colic peritonectomy, partial bladder peritonectomy, ascending colon growth wedge resection, and repair and removal of deposits on the bowel, bladder, POD and sigmoid mesentery and right simple mastectomy. The final histopathological report showed papillary serous carcinoma of the ovary with metastasis to the right breast. The



Figure 2: CE-CT –axial view showing adnexal masses.



Figure 1: The clinical picture of right breast lump (arrow).

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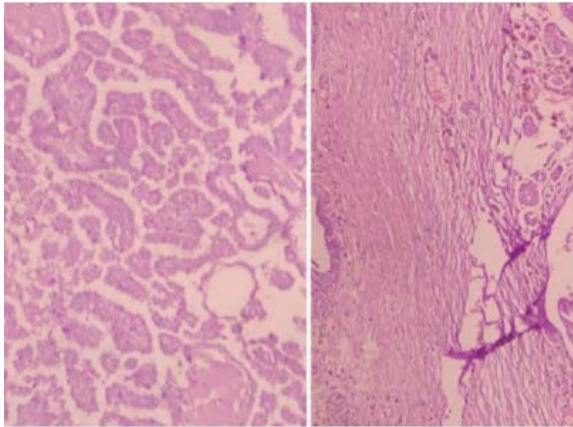


Figure 3: Histo-pathology of (A) Ovarian mass (B) Breast lump.

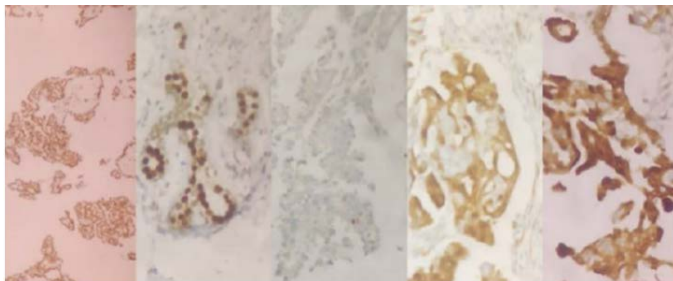


Figure 4: IHC on ovarian and breast tissue – WT-1, GATA-3, and P-16.

patient has completed platinum-based adjuvant chemotherapy and is currently on follow-up.

Discussion

The typical course of metastatic ovarian cancer is intra-abdominal spread manifesting as peritoneal carcinomatosis, whereas the most common sites of distant metastases are pleura, liver, lung, and lymph nodes. In a study of 4,051 breast cancer women, it was reported that the overall incidence of primary gynecologic tumor metastasis to the breast was 0.17%, and only 0.07% of metastatic disease was related to primary ovarian carcinoma. The diagnosis of MOCB is a clinical challenge as it presents with various clinical, radiological, and pathological findings and may be misdiagnosed as a primary breast tumour. Common Immuno-histochemical panels to distinguish mammary carcinoma (estrogen receptor, gross cystic fluid protein-15) from common metastases to the breast, including carcinoma of the lung

(thyroid transcription factor-1), malignant melanoma (S100, HMB45, Melan-A), and ovarian serous papillary carcinoma (Wilms' tumor 1) (Figure 4).

In patients with ovarian tumor-associated with breast metastases, serous papillary carcinoma is the most common histological type [4], comprising 72% of such cases. It has been reported that the most common form of clinical presentation is a solitary mass, while only 4% of women have diffuse breast involvement [5]. Furthermore, the most frequent location is the upper outer quadrant in 62% of patients [6], as described in our case. Currently, surgical management for secondary breast cancer is considered diagnostic and reserved as a palliative measure, together with radiotherapy, for patients who are unresponsive to systemic chemotherapy agents. The prognosis is generally poor as secondary breast cancer from ovarian cancer suggests concomitant disseminated disease. The survival times after breast metastatic disease secondary to ovarian cancer ranged from 13 days to 3.5 years, with a 1-year survival rate of about 40%, as opposed to a 4-year survival rate of 75% for patients with primary breast cancer [7].

Conclusion

MOCB recognition and accurate distinction from primary breast cancer are of crucial importance for the patient management and prognosis, allowing in some instances to avoid unnecessary surgeries (e.g., mastectomy, lymphadenectomy) and choose appropriate systemic chemotherapy.

References

1. Recine MA, Deavers MT, Middleton LP, Silva EG, Malpica A (2004) Serous carcinoma of the ovary and peritoneum with metastases to the breast and axillary lymph nodes: a potential pitfall. *Am J Surg Pathol* 28:1646-1651.
2. Caruso G, Musacchio L, Santangelo G, Palaia I, Tomao F, et al. (2020) Ovarian Cancer Metastasis to the Breast: A Case Report and Review of the Literature. *Case Rep Oncol* 13:1317-1324.
3. Hajdu SI, Urban JA (1972) Cancers metastatic to the breast. *Can* 29:1691-1696.
4. DeLair DF, Corben AD, Catalano JP, Vallejo CE, Brogi E, et al. (2012) Non-mammary metastases to the breast and axilla: a study of 85 cases. *Mod Pathol* 26:343-349.
5. Antuono L, Angela F, Luca N, Giovanni M, Enrico C (2018) Breast metastasis from ovarian cancer: A case report. *Rad Case Rep* 13:1166-1169.
6. Fulciniti F, Losito S, Botti G, Mattia DD, Mura AL, et al. (2008) Metastases to the breast: role of fine needle cytology samples. Our experience with nine cases in 2 years. *Ann Oncol* 19:682-687.
7. Moore DH, Wilson DK, Hurteau JA, Look KY, Stehman FB, et al. (1988) Gynecologic cancers metastatic to the breast. *J Am Coll Surg* 187:178-181.