CUTANEOUS METASTASIS OF OVARIAN TUMOR AFTER HYSTERECTOMY AND BILATERAL SALPINGO-OOPHORECTOMY: A CASE REPORT

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ABSTRACT

OBJECTIVES

Cutaneous metastases are a very rare presentation of ovarian tumors (OV). They occur in about 3.5 percent of cases. The prognosis of cutaneous metastases is not good despite recent treatment modalities. Researchers are looking for much more personalized treatments. The patient had a history of ovarian tumor, for which she had a hysterectomy and bilateral salpingo-oophorectomy. She presented with multiple cutaneous eruptions. The histopathology shows high-grade serous carcinoma of the ovaries. Immunochemistry is positive for cytokeratin 7, WT1, and CAX. She had developed left leg swelling, generalized edema, and complaints of dysuria and difficulty defecating. Many targeted therapies have been developed, such as inhibiting growth factor receptors and immunological treatments that induce cell death, opening the door to precision medicine.

KEYWORDS: *Ovarian Tumor, Hysterectomy, Salpingo -Oophorectomy*

INTRODUCTION

Cutaneous metastasis occurs as a result of high-grade, uncontrolled tumors. Cutaneous metastasis can coexist with ongoing ovarian tumors. It may also occur in ongoing ovarian tumors. Even though ovarian cancer is extremely uncommon in women, there is very little chance that it will spread to the skin. The incidence of cutaneous metastasis from ovarian tumors is 3.5%. "Cutaneous metastasis is mostly seen in the chest, followed by the abdominal wall, extremities, neck, back, scalp, pelvis, and face, respectively.[1] Cutaneous metastases are overt for years and then expressed at the last stages; the median survival rate is usually four months. There are several treatment options available, including chemotherapy to shrink the tumor, growth factor inhibitors to slow the progression, and surgery, which is effective early but less effective later.[2] A 48-year-old lady saw a dermatologist for a fresh rash with a plaque-like appearance and tiny nodules on her left inner thigh measuring 8 × 5cm. Despite having no dermatologic history, the patient had a complete hysterectomy, bilateral salpingo-oophorectomy, omentectomy, and lymph node dissection 16 months ago for stage IIIC ovarian carcinosarcoma. The carcinomatous component, mostly adenocarcinoma with seromucous, endometrioid, and mild high-grade serous characteristics, affected bilateral fallopian tubes, omentum, and parametrium with widespread lymph node metastases. A skin sample showed a nodular adenocarcinoma of the epidermis, dermis, and subcutaneous tissue, with metastatic carcinomatous features of carcinosarcoma. The carcinomatous component of initial ovarian carcinosarcoma and metastatic cutaneous adenocarcinoma included Pax8, WT-1, and ER-positive and p53 mutations.[3] Dermatological metastases from ovarian cancer are infrequent and usually arise in the umbilicus as Sister Mary Joseph nodules. Rarely occur extra-abdominal cutaneous metastases from ovarian cancer. Three patients at one institution had extra-abdominal cutaneous ovarian metastases. Skin involvement causes, histology, therapies, and prognosis in extra-abdominal cutaneous ovarian cancer metastases are discussed.[4] The prognosis of cutaneous metastases from ovarian tumors mainly depends on the stage at which the tumor is diagnosed. The combination of surgery and chemotherapy is usually more beneficial.[5] We are reporting the case of a 51-year-old lady who presented with serous carcinoma of the ovaries and who initially had generalized edema and cutaneous metastases.

CASE REPORT

A 51-year-old Asian woman diagnosed with carcinoma of the ovary was presented with a cutaneous lesion bilaterally on the breast. On examination, multiple

asymptomatic violaceous to erythematous papular eruptions with scattered nodules over the skin involving the breast and inguinal areas. The cutaneous lesions were initially present on the left iliac fossa and then appeared on the chest (Figure 1), followed by multiple lesions on other body areas. The patient has had swelling of the left lower limbs since 2021. Her physical examination shows generalized edema and lymphadenopathy. The patient also reported dysuria and difficulty defecating. CA125 levels in serum were 156 U/ml, and a CT scan revealed metastasis above the diaphragm. In 2016, she underwent bilateral salpingo-oophorectomy, omentectomy, pelvic node dissection, and total abdominal hysterectomy. After that, she underwent six cycles of chemotherapy with Carboplatin and paclitaxel. The patient was a silent carrier of metastatic carcinoma. A metastatic high-grade serous carcinoma in stage 4 was diagnosed through histopathological analysis, and immunochemical tests revealed that Cytokeratin 7, WT1, and PAX8 were all positive, as shown in Figure 2. Due to the location of the eruption of erythematous lesions that appeared on the breast, it suggested breast carcinoma, for which a biopsy was performed, but based on no axillary lymphadenopathy and no nipple discharge, the condition was ruled out.

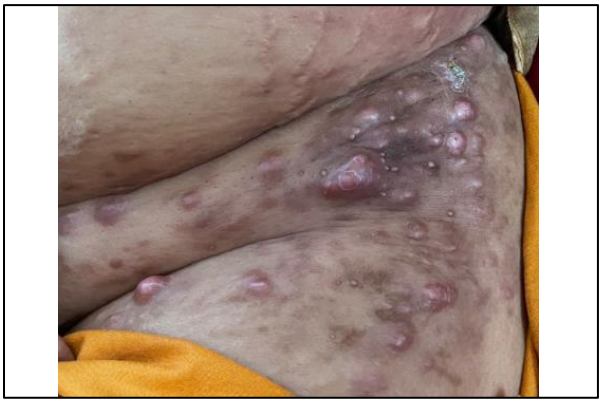

Figure 1: The cutaneous lesions on the body parts

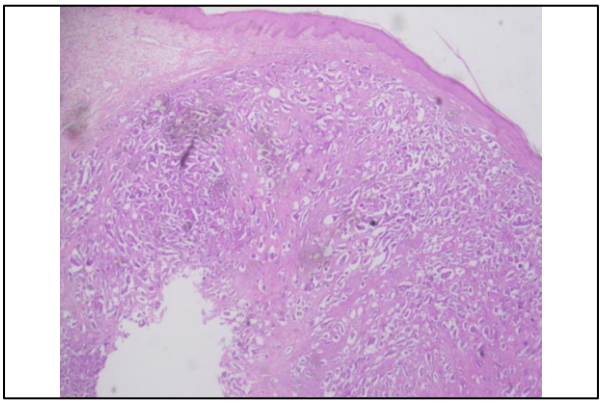

Figure 2: A Metastatic High-Grade Serous Carcinoma

DISCUSSION

Ovarian cancer (OC) is the eighth leading cause of death in women and the seventh most commonly prevalent type of malignant neoplasm.[6] The classification of OC is based on the likely origin of one of the three major cell types of the ovary: epithelium, stroma, and germinal cells.[6] The two types of ovarian tumor cutaneous metastasis are Sister Mary Joseph nodules (SJNs) and non-SJNs. SJNs are usually found near the umbilical region and are mostly associated with peritoneal metastases. Non-SJN skin metastases typically form around superficial lymphadenopathy and within surgical scars. Ovarian cancer skin metastases have a wide range of prognoses, depending on the heterogeneity of the stage of diagnosis and the timing at which they appear.[8] According to a study in England, cancer survival patients were studied in a prospective observational study by stage diagnosed from 2013 to 2017 and followed until 2020 to study the mean survival rate for each stage of ovarian tumors. The outcomes were as follows: At stage 1, nearly 95% of women who are diagnosed with cancer survive it for five years or longer. At stage 2, nearly 70% of women (around 70/100) will live five years or longer after being diagnosed with cancer. At stage 3, more than 25 women out of every 100 (more than 25%) will live five years or longer after being diagnosed with cancer. At stage 4, the likelihood of a woman surviving her cancer for at least five years after being diagnosed is approximately 15 out of 100 (nearly 15%).[5] A high-grade serous tumor of the ovaries is treated conservatively by surgery and chemotherapy. In surgery, the surgeon removes malignant tissues in a debulking procedure. Usually, total abdominal hysterectomy (TAH), bilateral salpingo-oophorectomy (BSO), mesenteric tissue removal, lymphadenectomy, and omentectomy are performed depending on the staging and grading of the disease.[9] A medical oncologist usually gives chemotherapy and shrinks the size of the tumor. It might be given after surgery, both before and after, or on its own, without surgery. Carboplatin (a platinum compound) and paclitaxel (Taxane) are administered. Some other chemotherapy drugs that help treat ovarian tumors are albumin-bound paclitaxel, Altretamine, Capecitabine, Cyclophosphamide, Etoposide, Gemcitabine, Ifosfamide, Irinotecan, Liposomal Doxorubicin, Melphalan, Pemetrexed, Topotecan, and Vinorelbine. The chemotherapy advised depends on the types and stages of tumors and the patient's conditions.[10] Recently, more targeted therapies have been developed for the treatment of OC. Molecularly targeted therapy is predicted to be a more potent and less destructive therapeutic approach for ovarian cancer. Anti-VEGF

(Vascular Endothelial Growth Factor) monoclonal antibodies and PARP (poly-ADP-ribose polymerase) inhibitors are now the two types of targeted medications approved and most efficient in treating ovarian cancer. The folate receptor, the RAS/RAF/MER system, the PI3K/AKT pathway, and immunological checkpoints are other possible therapeutic targets.[11] In high-grade serous ovarian cancer (HGSC), immune therapy fails, and further advanced approaches are applied. The techniques performed are immune functional assays and single-cell RNA sequencing transcriptional profiling of new HGSC organoid/immune cell co-cultures treated with a bispecific anti-programmed cell death protein 1 (PD-1) programmed cell death-ligand 1 (PD-L1) antibody against monospecific anti-PD-1 or anti-PD-L1 controls. The result of the study shows that alterations in both NK and a subgroup of T cells may be important in generating an efficient anti-tumor immune response, suggesting that immunological treatments capable of inducing such cellular state changes, such as BRD1 inhibitors, may be more successful in HGSC.[12] With recent advances, the prognosis for ovarian cancer is improving with each passing day. Researchers are getting much closer to personalized therapy by working on these molecules.

CONCLUSIONS

The finding in our case shows ovarian carcinoma metastasis to skin to breast and iliac region. Although this is very rare presentation and further studies is required to validate these findings.

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