Synchronous Primary Carcinoma of Breast and Ovary Versus Ovarian Metastases

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Seminars in Oncology

At times we encounter clinical problems for which there are no directly applicable evidence-based solutions, but we are compelled by circumstances to act. When doing so we rely on related evidence, general principles of best medical practice, and our experience. Each "Current Clinical Practice" feature article in *Seminars in Oncology* describes such a challenging presentation and offers treatment approaches from selected specialists. We invite readers' comments and questions, which, with your approval, will be published in subsequent issues of the Journal. It is hoped that sharing our views and experiences will better inform our management decisions when we next encounter similar challenging patients. Please send your comments on the articles, your challenging cases, and your treatment successes to me at dr.gjmorris@gmail.com. I look forward to a lively discussion.

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According to American Cancer Society statistics, breast cancer is the most common malignant neoplastic process and the second most common cause of death for women.[1]

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Ovarian cancer, despite having a lower incidence, represents an important cause of morbidity and mortality because it is usually discovered in advanced stages.[2,3] Concomitant synchronous tumors are rare, but can be explained in syndromes that heighten a woman's risk for both cancers. Metastases to the ovary from primary breast cancer are common, but metastases from extramammary primaries to the breast are very rare. Discrimination between primary breast carcinomas and metastatic tumors is usually accomplished by clinical and pathological evaluation, including immunohistochemistry.

Here we report two cases of synchronous carcinomas of the breast and ovary, juxtaposed with two additional cases of breast cancers metastasized to the pelvis. We have posed the following clinical questions to an international multidisciplinary panel: (1) Do these patients truly have synchronous primary carcinomas or metastases from one site to the other? (2) Are the combinations of proposed antineoplastic agents adequate to have activity in both cancers if they have separate pathologies? (3) What should be the optimal surgical intervention and follow-up in such cases?

CASE REPORTS

Case No. 1

A 54-year-old Indian woman presented with an 8-month history of pain in the lower abdomen with a heavy "dragging" sensation; she also complained of lower back pain without any neurological deficit. There was no history of palpable masses to her recollection. Outpatient computerized tomography (CT) scan detected an adnexal mass as well as a lump incidentally in the left breast; the patient was referred to a tertiary care hospital for further management.

Her surgical history had included vaginal hysterectomy for utero-vaginal prolapse 1 year prior. Family history was positive for her mother and two maternal aunts with histories of breast cancer, one at age 62 and the other in her 40s, but there was no family history of ovarian cancers.

On examination, there was a 3 × 3 cm, mobile lump in the upper outer quadrant (UOQ) of the left breast with a 2 × 2 cm, mobile lymph node in the left axilla. On abdominal examination, there was resistance in the hypogastrium and left iliac fossa. Her vaginal examination revealed irregularity at vault and a hard nodular mass in the pouch of Douglas.

CT scan of the abdomen and pelvis showed bilateral adenexal solid and cystic masses with omental thickening, peritoneal deposits, ascites, and a mass in the left breast and axillary lymph node (Figure 1). Mammography showed a high-density speculated 3 × 2 × 1 cm mass with internal calcification and surrounding architectural

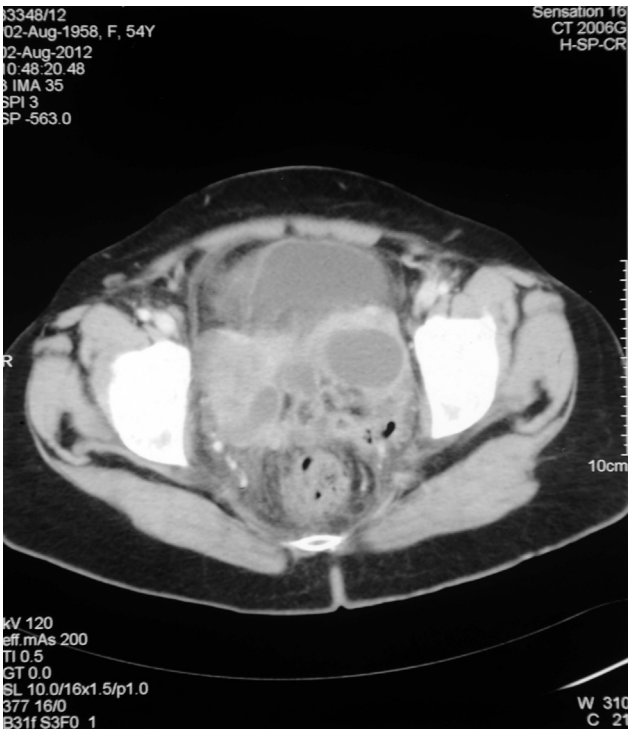

Figure 1. CT scan abdomen and pelvis (case 1) showing bilateral adnexal masses and peritoneal deposits.

distortion in the UOQ of the left breast (Figure 2). Panendoscopy and bone scan were normal.

Laboratory and pathologic investigations were as follows: CA-125 was 234 U/mL (range 0–35). Core biopsy from the left breast was reported as infiltrating ductal carcinoma, grade 2; both estrogen receptor (ER) and progesterone receptor (PR) were positive and HER2 neu was negative. Fine-needle aspiration cytology from the right adnexal mass showed papillary adenocarcinoma.

Considering the clinical and pathological details, a diagnosis of synchronous primaries in both the breast and ovary was made and she was started on neoadjuvant chemotherapy with a combination of paclitaxel, doxorubicin, and carboplatin.

She was given three cycles of chemotherapy and after palpable response in the breast, underwent left total mastectomy with axillary lymph node dissection; she also underwent bilateral oopho-rectomy and infracolic omentectomy as debulking surgery. Histopathology from the breast was reported as a sclerotic area measuring 3.5 × 3 × 2 cm, containing residual infiltrating ductal carcinoma, grade 2, with one of 15 lymph nodes involved with carcinoma. Immunohistochemistry (IHC) confirmed the phenotype as ER- and PR-positive and HER2 neu–negative (1+ by immunotherapy chemistry). Pathology of the ovaries showed poorly differentiated carcinoma with similar tumor deposits in the omentum. Lymphovascular emboli were present.

She was further given three more cycles of the same chemotherapy postoperatively. After the completion of chemotherapy, contrast enhanced CT of the abdomen and pelvis was within normal limits with no evidence of disease. CA-125 level was 8.9 U/mL. She was started on tablet letrozole 2.5 mg once daily and radiotherapy (RT) 35 Gy was given to the chest wall and 40 Gy to the draining area in 15 fractions over 3 weeks. Positron emission tomography (PET)-CT after 2 months of completion of radiotherapy was within normal limits.

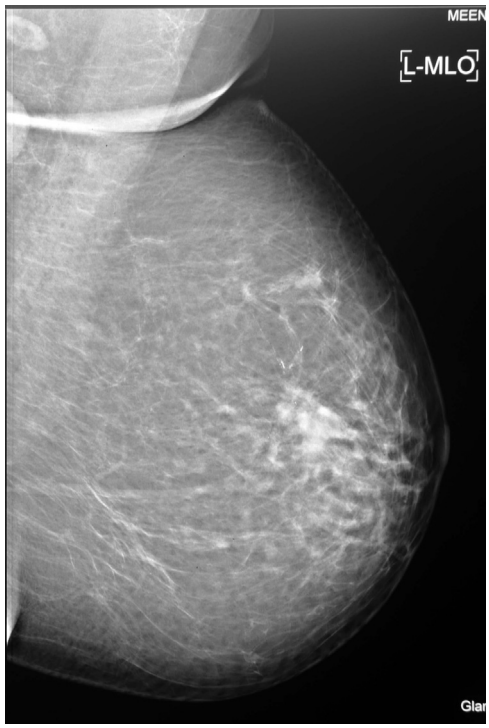

Figure 2. Mammogram of left breast (case 1) showing speculated mass with calcifications.