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Case Report

A Case of Uterine Carcinosarcoma Detected Simultaneously with Breast and Colon Cancer (Triple Primary Malignant Tumor)

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Keywords
Breast cancer · Uterine carcinosarcoma · Colon cancer · Synchronous tumor · Triple primary malignancy

Abstract
Uterine carcinosarcoma, also known as malignant mixed Mullerian tumor of the uterus, is rare and rarely diagnosed simultaneously with cancers in other organs. We report a case of a 63-year-old woman who was simultaneously diagnosed with uterine carcinosarcoma, breast cancer, and colon cancer.

Introduction

Uterine carcinosarcoma is a rare cancer. According to surveys conducted in the United States, carcinosarcoma has an incidence of approximately 1–5 per 100,000 [1], and it is even more rarely diagnosed as synchronous with other cancers. Until today, there are few such cases among research articles written in English. Uterine carcinosarcoma is thought to be a high-risk variant of endometrial adenocarcinoma, which is associated with environmental and risk factors. Breast and colorectal cancers are also associated with these risk factors, and cases with concurrent onset are reported. Genetic and environmental factors can influence the simultaneous development of these cancers in patients, and patient cases may help to understand

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the pathogenesis of these cancers. We report a case of a 63-year-old woman who was diagnosed with uterine carcinosarcoma and breast and colon cancer during the initial workup for uterine carcinosarcoma.

Case Report

A 63-year-old Korean woman (gravida 3, para 1) visited the general gynecologist with a chief complaint of vaginal bleeding in October 2017. Her previous disease history was unremarkable, and her father had a history of stomach cancer. She was a postmenopausal woman with a body mass index (BMI) of 24.3. She had never received hormone therapy after menopause. She had had brownish vaginal discharge a few days before and vaginal bleeding 1 day before the gynecological visit. Ultrasonography revealed an approximately 6 cm-sized polypoid mass in the endometrium. Therefore, the patient was referred to our hospital for further examination and treatment. The liquid-based pap smear showed the presence of atypical glandular cells – favor neoplastic. The endometrial biopsy showed extensive necrosis and inflammation with a few small fragments of glandular tissue. The epithelium showed mild atypical change; however, the exact nature was difficult to evaluate due to severe inflammation. Additional tests were performed under suspicion of endometrial cancer. Abdominal computed tomography (CT) showed a suspicious endometrial cancer or malignant mixed Mullerian tumor (Fig. 1) and about 5.5 cm-sized depressed lesion in the right breast with irregular skin thickening. Results of the needle biopsy performed on the right breast tumor indicated fibrocystic change. During colonoscopy, several biopsies were performed, and a well-differentiated adenocarcinoma originating from the adenoma was found 35 cm above the anal verge. Positron emission tomography-CT showed pelvic, para-aortic lymph node metastasis and multisite pelvic bone metastasis along with uterine cancer, suggesting malignancy of the colon and right breast. Initial CA125 level was 595.2 U/mL (normal: 0.1–35) and carcinoembryonic antigen (CEA) level was 3,034.0 ng/mL (normal: 0.1–4.3 ng/mL). Therefore, in December 2017, surgery was performed under the diagnosis of simultaneous endometrial, colon, and breast cancer, which included total abdominal hysterectomy with bilateral salpingo-oophorectomy, bilateral pelvic lymph node dissection, omentectomy, cytology, segmental resection of descending colon with mass excision (by the general surgery team), and incisional biopsy of the right breast (by the general surgery team).

A histologic examination of the resected uterus revealed carcinosarcoma originating from the endometrium, with a tumor sized 7.5 cm (Fig. 2, Fig. 3). There was invasion of the cervical stromal connective tissue and involvement in the right adnexa. Metastasis (1 out of 1) was observed in the left pelvic lymph node. The carcinosarcoma was stage IV based on the International Federation of Gynecology and Obstetrics staging system, and grade 3. Segmental resection of the colon revealed a 4.5 cm-sized adenocarcinoma and no pericolic lymph node metastasis (0 out of 6). The colon cancer was stage I by the American Joint Committee on Cancer (AJCC) staging system. Invasive ductal carcinoma was found in the right breast biopsy.

There were no other post-surgery complications. On the 21st day of operation, modified radical mastectomy was performed on the right breast cancer. In a resected specimen, histological examination revealed a 4 cm-sized invasive ductal carcinoma, and there was no tumor in the sentinel lymph node. The breast cancer was stage IIIN by the AJCC staging system.

Concurrent chemoradiation therapy for uterine carcinosarcoma was indicated on the 37th day after initial surgery. Before therapy, the CA125 level was 923.0 U/mL. The patient received palliative radiation therapy (a total dose of 30 Gy in 12 fractions) for pelvic bone

metastasis, and was treated with paclitaxel combined with carboplatin 6 times every 3 weeks. Abdominal CT was performed 17 days after the end of treatment, and stable disease was observed. A whole-body bone scan showed progressive disease. The levels of CA125 and CEA were 689.0 U/mL and 13,873.0 ng/mL, respectively. This patient is currently considering additional palliative therapy.

Discussion

It is rare for multiple cancers to develop simultaneously in one patient. Cancer survivors are 1.29 times more likely to be diagnosed with other cancers than those who have never been previously diagnosed with cancer.

Uterine carcinosarcoma is a rare tumor, and synchronous cancer has been reported in only a few cases to the best of our knowledge. A case of synchronous uterine carcinosarcoma and infiltrating ductal carcinoma of the contralateral breast after tamoxifen treatment due to breast cancer has been reported [2]. A case of simultaneous diagnosis of the carcinosarcoma of the broad ligament, papillary serous cystadenocarcinoma of the ovary, and endometrioid adenocarcinoma of the endometrium was also reported [3]. In addition, synchronous large bowel adenocarcinoma and extragenital carcinosarcoma have been reported [4].

Uterine carcinosarcoma has similar risk factors to endometrial carcinomas [5]. These cancers are known to be associated with obesity, nulliparity, and the use of exogenous estrogen and tamoxifen. Contraceptives containing progesterone are known to be protective for these cancers. A history of pelvic radiation exposure is also a risk factor for the development of uterine carcinosarcoma. Breast and colorectal cancers are also associated with some of the above risk factors (i.e., hormonal imbalance, obesity, and metabolic syndrome). Furthermore, the presence of hereditary nonpolyposis colorectal cancer, as a genetic factor, is associated with cancer, such as colon and endometrial cancers [6]. In this case, the patient had a BMI of 24.3 and no specific risk factors associated with her cancers.

Uterine carcinosarcoma is difficult to treat and the treatment method is controversial. Depending on the patient's case, radiotherapy or chemotherapy is performed [7]. This patient had pelvic bone and lymph node metastasis of uterine carcinosarcoma; therefore, concurrent chemoradiation therapy was performed. At present, the progression of uterine carcinosarcoma among the 3 cancers seems to be the most important determinant for the prognosis of the patient.

In summary, a rare case of synchronous uterine carcinosarcoma, breast cancer, and colon cancer has been reported. Some environmental, molecular, and genetic factors may be associated with this case. By studying these cases, we would better understand the pathophysiology of these cancers.

Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

No potential conflicts of interest relevant to this article were reported.

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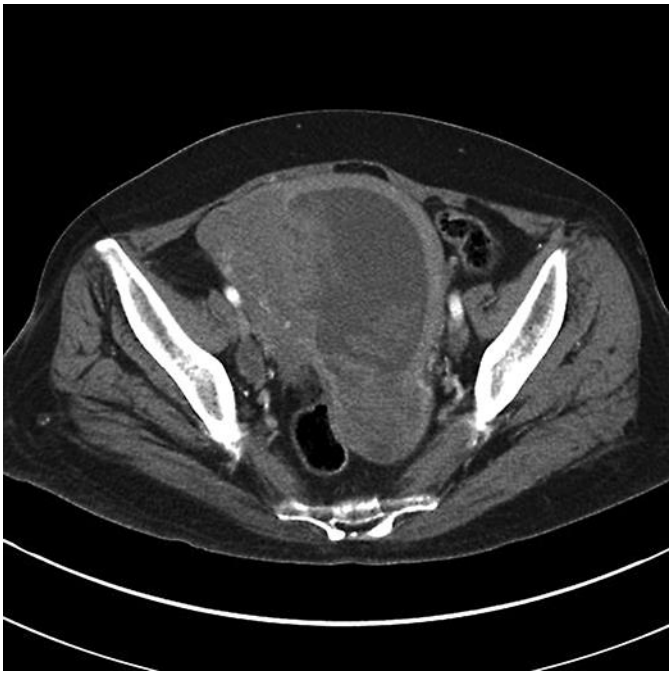

Fig. 1. Contrast-enhanced computer tomography. Heterogenously hypodense and ill-defined mass is seen in uterus.

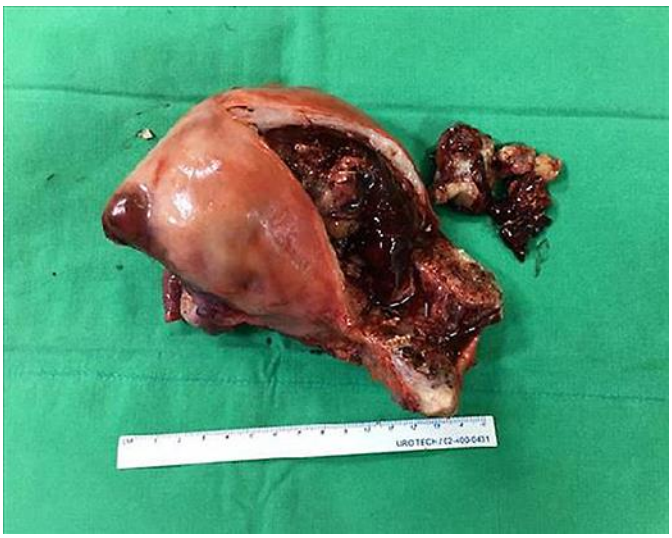

Fig. 2. Cut surface of the resected uterus.

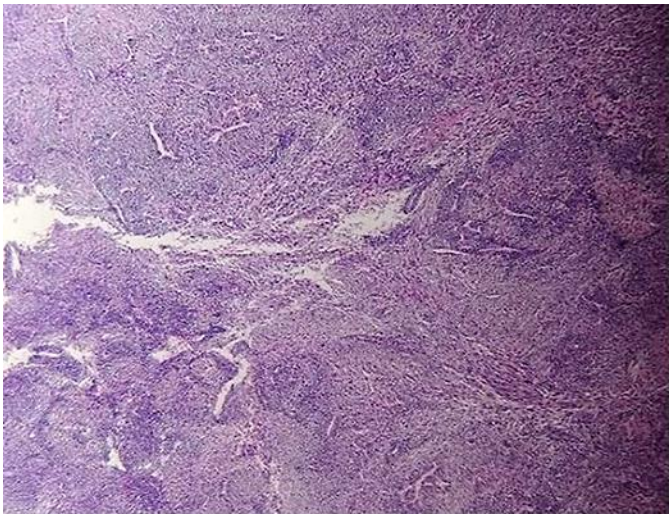

Fig. 3. Uterine carcinosarcoma components in uterus (H&E).