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*Case Report*

# Recurrent Breast Cancer Presenting as Ureteral and Colonic Metastases

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We described a 75-year-old female with recurrent breast cancer that presented as stenosis of the ascending colon and right hydronephrosis. The patient underwent a left mastectomy for breast cancer and a right mastectomy for metachronous breast cancer at the ages of 45 and 69, respectively. Histological findings showed primary invasive ductal carcinoma (scirrhous carcinoma). At the age of 73, she suffered from right hydronephrosis, which was suspected to have been caused by metastasis to the ureter. Two years later, stenosis of the ascending colon occurred. Right hemicolectomy and partial resection of the ureter were performed. Resected specimens revealed infiltration of tumor cells in all layers of the colon and the ureter which resembled invasive ductal carcinoma of primary breast cancer. Metastatic breast cancer can manifest itself in a variety of recurrences, including ureteral and colonic metastatic sites.

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**Keywords:** Breast cancer; Ureteral metastasis; Colonic metastasis

## Introduction

Bowel obstruction[1-12] and ureteral obstruction[13-15] are uncommon cancer manifestation secondary to metastatic diseases from breast cancer, although the sites of metastases are usually lungs, bones, brain, liver and pleura. We herein present a case with right hydronephrosis and stenosis of the ascending colon as a part of manifestation of disseminated recurrent breast cancer, and discuss this rare condition.

## Case report

A 75-year-old female was admitted to Nagasaki Prefectural Shimabara Hospital in March, 2006, complaining of abdominal distension since one month before admission. The patient's past history included a left mastectomy for breast cancer and a right mastectomy for metachronous breast cancer at the ages of 45 and 69, respectively. Histological findings of the mastectomy at the age of 69 revealed invasive ductal carcinoma (Figure 1). The status of hormone receptors showed positive for estrogen and negative for progesterone. Herceptest results were negative. Postoperatively, the patient underwent 6 cycles of CMF chemotherapy (cyclophophamide + methotrexate + 5-fluorouracil) and then received tamoxifen. At the age of 73, the patient experienced local recurrence in the chest wall and multiple bone metastases. Abdominal computed tomography (CT) demonstrated right hydronephrosis which was suspected to

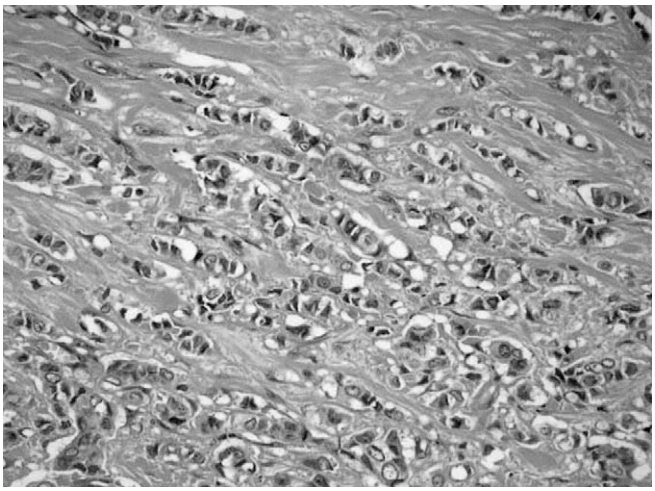

**Figure 1.** Primary breast cancer histologically showing invasive ductal carcinoma (× 200, H & E).

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have been caused by metastasis to the ureter. At that time, the patient stopped taking tamoxifen and began to take aromatase inhibitor. On admission, the results of complete blood count and serum electrolytes were within normal limits. Blood chemistries were as follows (range of standard values in parentheses): glutamic-oxaloacetic transaminase—43 IU/L (13-33 IU/L); glutamic-pyruvic transaminase —52 IU/L (8-42 IU/L); lactate dehydrogenase-242 IU/L (119-229 IU/L): alkaline phosphatase—1236 IU/L (115-359 IU/L). Tumor markers related to breast cancer were as follows (normal range in parentheses): carcinoembryonic antigen—159.2 ng/mL (0-5 ng/mL); CA15-3-exceeding 300 U/mL (<25 U/mL); NCC-ST-439—39 U/mL (<7 U/mL). ICTP was 42.6 ng/mL (<4.5 ng/mL). Abdominal CT demonstrated a thickened wall of the ascending colon without ascites and right hydronephrosis (Figure 2). Colonofiberscopy revealed the edematous colonic mucosa with melanosis coli (Figure 3). No tumor or ulceration was found, although colonic luminal stenosis was present. Biopsy specimens showed no definitive malignancy. Barium enema revealed irregular stenosis of the ascending colon (Figure 4). Bone scintigraphy showed multiple bone metastases. The clinical course, an elevation of tumor markers related to breast cancer and imaging findings suggested that the change in the ascending colon originated from the recurrence of the breast cancer. Laparotomy was performed 11 days after admission. At surgery, peritoneal dissemination was present despite the absence of ascites. Right hemicolectomy, partial resection of the right ureter and right oophorectomy were performed. Resected specimens histologically showed the infiltration of tumor cells, exhibiting a trabecular or nest-like pattern in all layers of the colon and the ureter (Figure 5), which resembled the in-

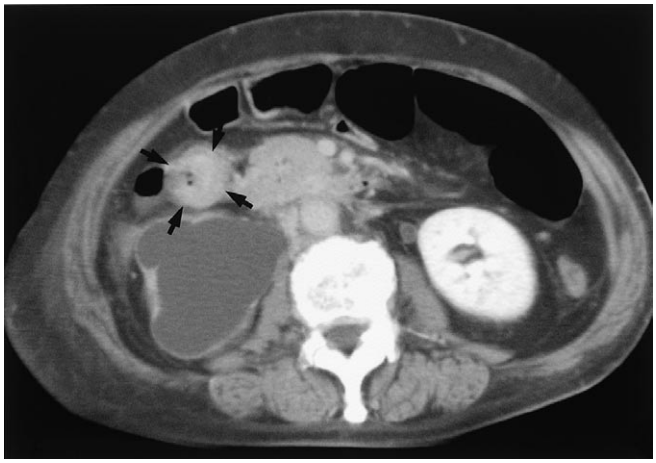

**Figure 2.** Abdominal CT showing a thickened wall of the ascending colon (arrows) and right hydronephrosis.

**Figure 4.** Barium enema showing irregular stenosis of the ascending colon.

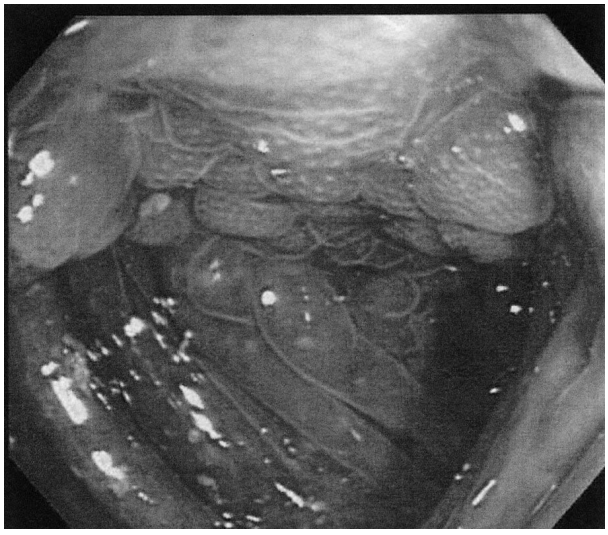

**Figure 3.** Colonofiberscopy showing an edematous colonic mucosa.

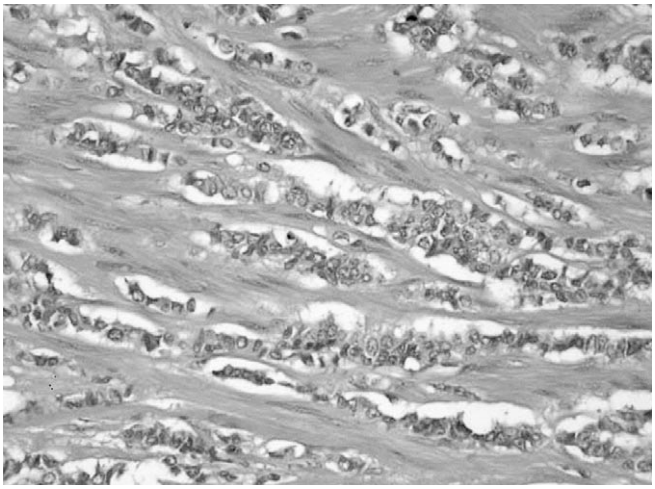

**Figure 5.** Resected specimens histologically showing invasive ductal carcinoma resembling primary breast cancer (× 200, H & E).

vasive ductal carcinoma of the breast that the patient had experienced at the age of 69. The right ovary was also invaded. The hormone receptors were strongly positive for estrogen and weakly positive for progesterone. Herceptest results were negative. Postoperatively, the patient underwent chemotherapy with Taxotere®.

## Discussion

Gastrointestinal (GI) metastasis is reported to occur in 4% to 18% of disseminated breast cancer patients.[16,17] Interestingly, among breast cancer patients with GI metastasis, the majority have invasive lobular carcinoma (ILC), although it is not the commonest type compared with invasive ductal carcinoma (IDC). As described above, most case reports were related to ILC, and IDC of the breast was seen in few reports. According to one analysis[18] on the difference in metastatic patterns among breast cancer cases, in which lobular and ductal carcinomas accounted for 359 and 2246 cases, respectively, there was no significant difference between the two types of carcinoma in the rate of metastasis to all lymph nodes, liver or central nervous system. On the other hand, the frequency of metastasis was significantly higher in lobular carcinoma than in ductal carcinoma regarding GI tracts (4.5% vs. 0.2%; $p<0.05$), peritoneum-retroperitoneum (3.1% vs. 0.6%; $p<0.05$), gynecologic organs, adrenal gland, bone-marrow and lung-pleura.[18] The mechanism leading to the difference in metastatic sites between ILC and IDC is still uncertain. Another clinical study noted no difference between ILC and IDC in the metastatic pattern.[19]

ILC metastasized to urinary tract significantly more frequently than IDC.[20] The study by Lopez-Martinez et al.[15] suggests that the frequency of metastasis to the urinary tract from breast cancer will be as high as 7.8%. In autopsy cases, Wilkinson et al.[21] reported that diffuse retroperitoneal and ureteric infiltration was seen in 88% of 8 patients with ILC, while it was seen in none with IDC.

When the breast cancer recurred in gastrointestinal tracts, we believe chemotherapy generally performs better than surgical intervention. Eitan et al.[22] reported that in cancer patients having had metastasis to abdomen or pelvis, those with optimal debulking survived longer than those with suboptimal one, and also the survival time was longer in those who had metastasis later than in those who had one earlier.

In conclusion, our patient eventually underwent surgical resection for colonic metastasis 2 years after the recognition of ureteral metastasis because the aromatase inhibitor therapy ceased to be effective. In our case, a right hemicolectomy was considered to be optimal debulking for secondary colonic malignancy from recurrent breast cancer. We have to be aware of gastrointestinal manifestation of breast cancer even if the patient's previous breast cancer revealed IDC.

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