

## CASE REPORT

## Solitary Small Bowel Metastasis from Breast Cancer

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The common sites of metastasis of breast cancer are bone, lung, and liver, but gastrointestinal metastasis from breast cancer is rare. We experienced a case of solitary ileal metastasis from breast cancer. A 45-years-old woman presented with melena for several weeks. She showed no other abdominal symptoms. Colonoscopy findings showed an ulcerative mucosal lesion in the terminal ileum, and biopsy was performed. Pathologic examination revealed metastatic carcinoma, originated from breast. The tumor cells were positive for estrogen receptor and negative for Cdx-2.

She had had a previous medical history of bilateral breast cancer and undergone breast conserving surgery with sentinel lymph node biopsy for both breasts. The torso positron emission tomography scan at 19 months after surgery showed mildly increased uptake in the terminal ileum which was considered as inflammation. Finally, she was diagnosed with solitary ileal metastasis from breast cancer at 22 months after surgery.

**Key Words:** Breast, Gastrointestinal tract, Neoplasm metastasis

## INTRODUCTION

Breast cancer is the second most common malignancy in Korean women, metastasis occurs in 20-30% of these patients [1]. The common sites of metastasis of breast cancer are bone, lung, liver, and brain, but solitary gastrointestinal metastasis from breast cancer is extremely rare [2]. We experienced a case of solitary ileal metastasis from breast cancer.

## CASE REPORT

A 45-years-old woman presented with melena for several weeks. She showed no other abdominal or constitutional symptoms. The physical examination revealed mild abdominal distension with an alert mentality and stable vital signs. The laboratory data was within the normal range. Abdominal radiograph showed nonspecific multiple small bowel gases. Colonoscopy showed an ulcerative mucosal lesion in the terminal ileum (Figure 1), and biopsy was performed. Microscopic examination showed focal infiltration of neoplastic cells in intestinal wall. In Hematoxylin and Eosin stain, mucosal surface of epithelium was intact, but some tumor emboli infiltrations were

seen in lamina propria, which is the typical feature of metastatic carcinoma (Figure 2A). In immunohistochemistry (IHC), the tumor cells were positive for estrogen receptor (ER) (Figure 2B) and negative for Cdx-2 (Figure 2C), which indicates metastatic carcinoma from breast primary.

The woman had had a previous medical history of bilateral breast cancer and she had undergone breast conserving surgery with sentinel lymph node biopsy for both breasts. Both breast cancers were invasive ductal carcinoma (Figure 3A) and positive for E-cadherin (Figure 3B). The largest tumor was 1.9 cm at the greatest diameter and both sentinel lymph nodes were free of malignancy. The IHC stains for ER and progesterone receptor (PR) were positive in most of tumor cells and HER2 staining was negative. She then received adjuvant hormonal therapy with tamoxifen and GnRH agonist (Goserelin, Zoladex<sup>®</sup>; AstraZeneca, Macclesfield, UK) on and radiation therapy. The postoperative follow-up evaluation was done with breast sonography and mammography at 6 months intervals and with bone scanning at 1-year intervals. The torso positron emission tomography scan was performed at 19 months after surgery and mildly increased uptake was detected in the terminal ileum (SUV max = 5.7) (Figure 4A, B). We considered this originated from inflammation, and planned short-term follow up.

She was diagnosed with solitary ileal metastasis from breast cancer by colonoscopic biopsy at 22 months after surgery. We checked her whole bowels by capsule endoscope and could not find any other lesions. Retroperitoneal computed tomography (CT) showed thickening of the wall of terminal ileum

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and enlargement of multiple lymph nodes around them (Figure 4C). She wanted to have an operation in other hospital and

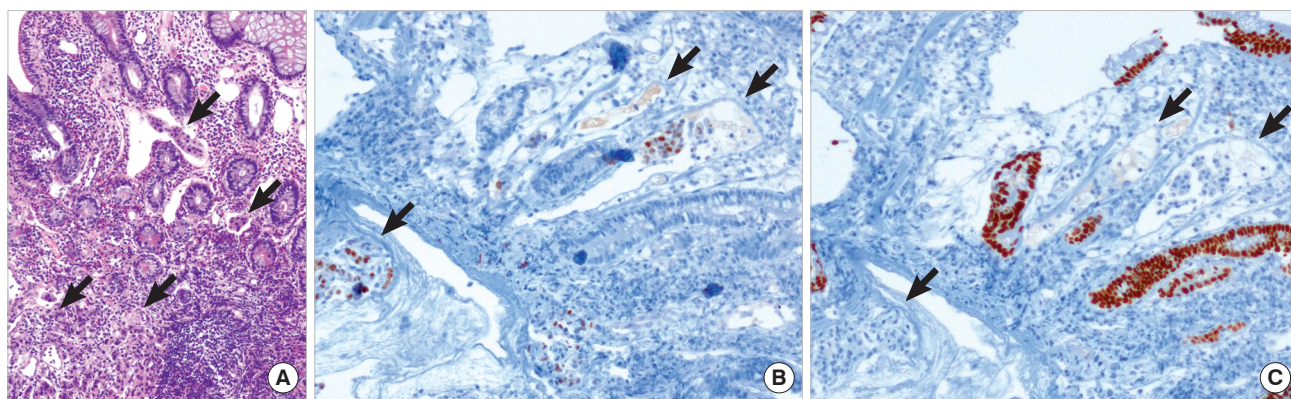


**Figure 1.** Colonoscopy showed ulcerative mucosa (arrow) in the terminal ileum.

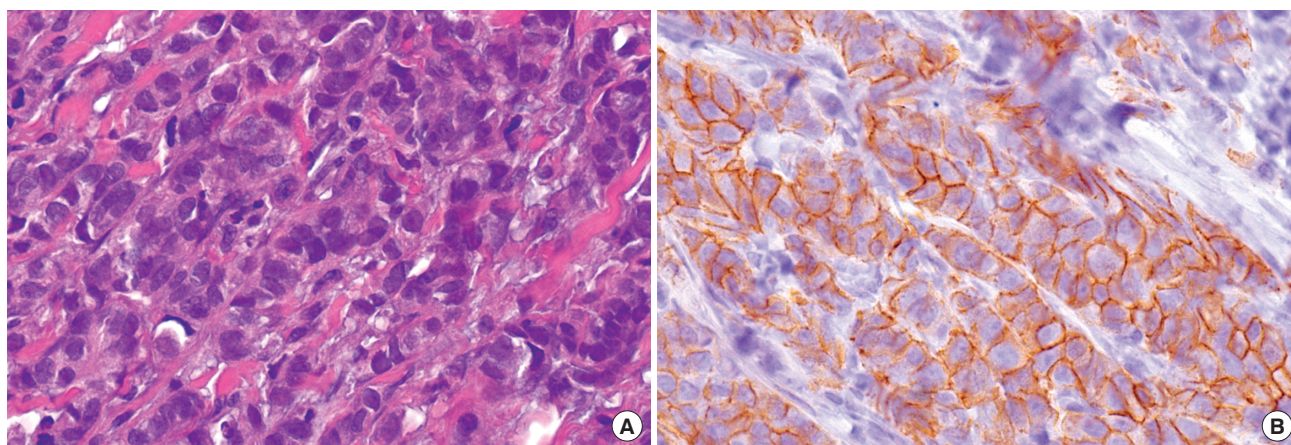
was transferred. We heard that she underwent hand-assisted laparoscopic ileocectomy, and then received chemotherapy.

## DISCUSSION

Small bowel malignancies make up only 1.1-2.4% of all gastrointestinal malignancies, and primary adenocarcinoma is the most common of all the small bowel malignancies [3]. Most small bowel metastases are from primary tumors such as malignant melanoma, colon cancer and cervical cancer, and metastasis from breast cancer is uncommon [4]. However, autopsy of patients with breast cancer revealed 15-16% of metastasis was found in gastrointestinal tract and the most common site of gastrointestinal metastasis was the stomach followed by the large bowel and small bowel [4]. Almost all the signs and symptoms of gastrointestinal diseases, including abdominal pain, diarrhea, gastrointestinal bleeding, intestinal obstruction, in-

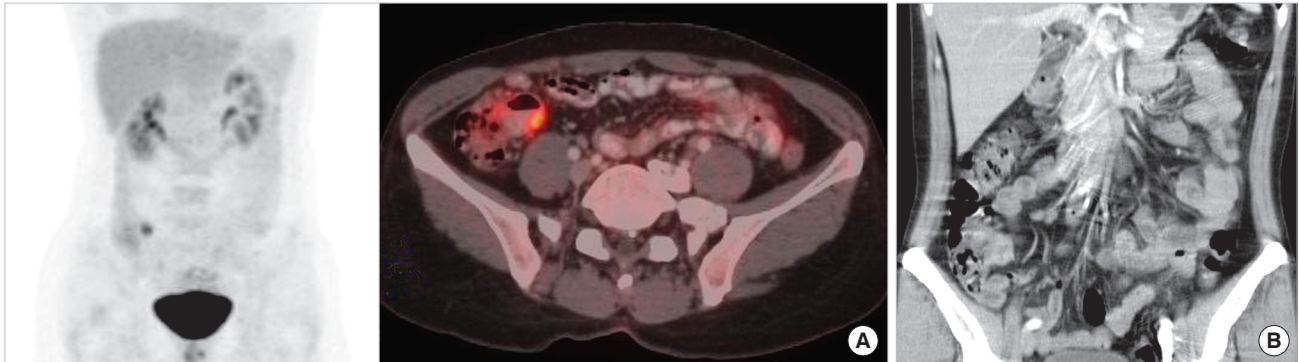


**Figure 2.** (A) Microscopic findings of terminal ileal wall showed tumor emboli infiltrations (arrows) in lamina propria lymphatic spaces, but intact mucosal epithelium (H&E stain,  $\times 100$ ). (B) The tumor cells (arrows) were positive for estrogen receptor; (C) negative for Cdx-2, a critical nuclear transcription factor for intestinal development (immunohistochemical staining,  $\times 100$ ).



**Figure 3.** (A) Microscopic findings of both breast revealed infiltration of malignant ductal cells. The primary invasive ductal carcinomas of breast shows well differentiation and no lymphovascular invasions (H&E stain,  $\times 200$ ). (B) The malignant cells are positive for E-cadherin (immunohistochemical staining,  $\times 200$ ).





**Figure 4.** (A) The torso positron emission tomography scan showed mild uptake in the terminal ileum (SUV max=5.7). (B) The retroperitoneal computed tomography showed thickening of the wall of terminal ileum and multiple lymph node enlargement around them.

tussusceptions and more, can be present in patients with metastatic small bowel malignancies [5-7]. This creates problems for making the differential diagnosis from other benign gastrointestinal diseases. A delayed diagnosis makes the treatment of metastatic cancer more difficult. In our case, if further examination, such as endoscopy, was performed when PET showed mild uptake in terminal ileum, more immediately, we may get better result, now. If there are suspicions of breast origin in diagnosis, breast specific IHC stains such as ER or PR and intestinal specific IHC stains such as Cdx-2 can be helpful.

In our case, primary breast cancer was invasive ductal carcinoma. But lobular carcinoma rather than ductal carcinoma and tumor with PR positivity rather than ER positivity has a propensity for gastrointestinal metastasis in patients with breast cancer [8,9]. The treatment options for small bowel metastasis from breast cancer are surgery, chemotherapy, hormonal therapy and radiation therapy depending on the cancer status.

In patients with breast cancer, metastasis to gastrointestinal tract is uncommon and its clinical manifestations are non-specific, which makes it hard to diagnosis correctly in one swoop. Yet having a suspicion of gastrointestinal metastasis from breast cancer and making an early diagnosis are the most important keys for the prognosis of metastatic breast cancer. Although it is uncommon for breast cancer to metastasize to the gastrointestinal tract, we should always keep in mind the possibility of

such metastasis in patients with a previous history of breast cancer.

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