

Case Report

A case of breast cancer found as metastasis to the duodenum

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A 58-year-old woman underwent left total mastectomy for invasive ductal carcinoma of the breast in 2002. In November 2007, the upper gastrointestinal endoscopy showed that an ulcer (~ 0.3 × 0.5 cm) was covered with white fur and surrounded by edematus tissue at the anterior wall of duodenal bulb. The follow-up pathological examination revealed that the morphology of the cells of duodenal cancer was identical to those of the breast cancer. Moreover, the immunohistochemical analysis on the tumor was positive for estrogen receptor, which confirmed the metastasis of breast cancer. The patient was treated with 12 cycles of FOLFOX4 regimen and achieved complete response.

Key words: Breast cancer, metastasis, duodenum

INTRODUCTION

Breast cancer is the most common malignancy in women, of which invasive ductal cancer is the most frequent type. Ductal carcinoma of the breast presents with various clinical manifestations. Intestinal metastasis is rare in cases of ductal carcinoma. Without a prior diagnosis of ductal carcinoma of the breast, the diagnosis of duodenum metastasis from breast cancer is difficult.

In this study, we reported a case where recurrent invasive ductal carcinoma of the breast was found metastasis to the duodenum. A 58-year-old woman underwent left total mastectomy in 2002. The follow-up pathological examination revealed invasive ductal carcinoma of the breast (Figure 1A) immunohistochemically positive for estrogen receptor (Figure 1B). The patient then underwent adjuvant chemo therapy for four cycles followed adjuvant endocrine therapy with tamoxifen for five years. In 2007, abdominal ultrasonography indicated right adrenal mass, abdominal lymph node and embolus of vena portae hepatis. Moreover the upper gastrointestinal endoscopy showed an ulcer (~ 0.3 × 0.5 cm) covered with white fur and surrounded by edematus tissue at the anterior wall of duodenal bulb (Figure 2) and the pathological examination revealed adenocarcinoma of duodenal bulb (Figure 1C).

Further computed tomography (CT) revealed a lesion in duodenum which invaded porta hepatis, head of pancreas, omenta bursa, peritoneum lymph nodes and right adrenal gland (Figures 3A and B).

Laboratory examination revealed that three tumor markers were greatly higher than the normal level: CEA, 30.19 ng/ml (0-10); CA-199, 131.90 U/ml (0-39); and CA-153, 21.80 U/ml (0-25). Blood chemical tests also showed elevated levels of liver enzymes and bilirubin.

After evaluation the neoplasm was found unsectable. Then the patient was treated as adenocarcinoma of duodenal bulb with FOLFOX4 regimen. After 6 cycles of chemotherapy, all the tumor markers were back to the normal level: the CEA, 9.17 ng/ml; CA-199, 32.04 U/ml; CA-153, 14.20 U/ml. The CT scan revealed most of neoplasm disappeared and only a nodule (2.0*1.5 cm) was left in right adrenal gland (Figure 3C).

Since the effect of chemotherapy was unexpectedly good, we wondered whether the neoplasm was primary from duodenum or metastasis from breast cancer. Accordingly, the pathologists diagnosed the tumor again and found that the morphology of the cells of duodenal neoplasm was identical to those of the breast cancer.

Moreover, the immunohistochemistry showed the neoplasm was positive for estrogen receptor (Figure 1D), which confirmed it to be the metastasis of breast cancer. The neoplasm was diagnosed as metastasis of breast cancer. Given these results, the patient underwent ano-

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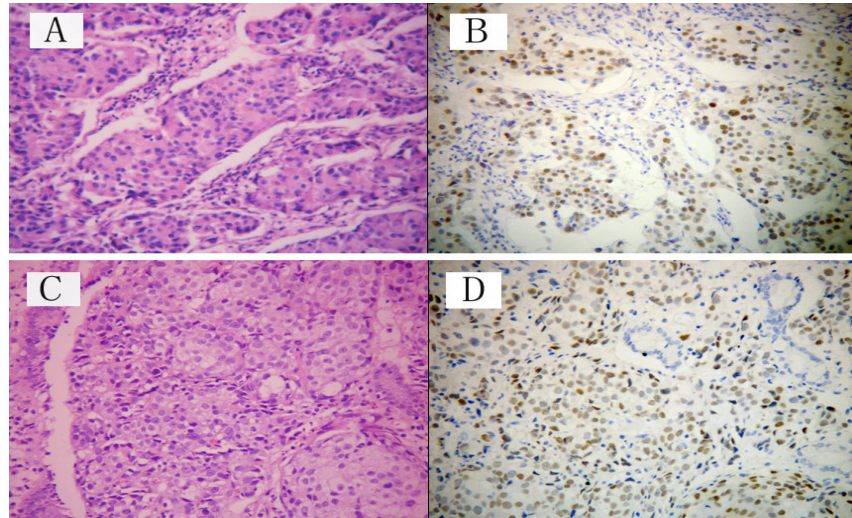


Figure 1. The H & E staining and immunohistochemistry of the tumor tissue. A: The H&E staining of the invasive ductal carcinoma of the breast (2002) B: The immunohistochemistry shows the tumor tissue positive for estrogen receptor (2002). C: The H & E staining of the tumor found at duodenum (2007) D: The immunohistochemistry shows the tumor tissue positive for estrogen receptor (2007).

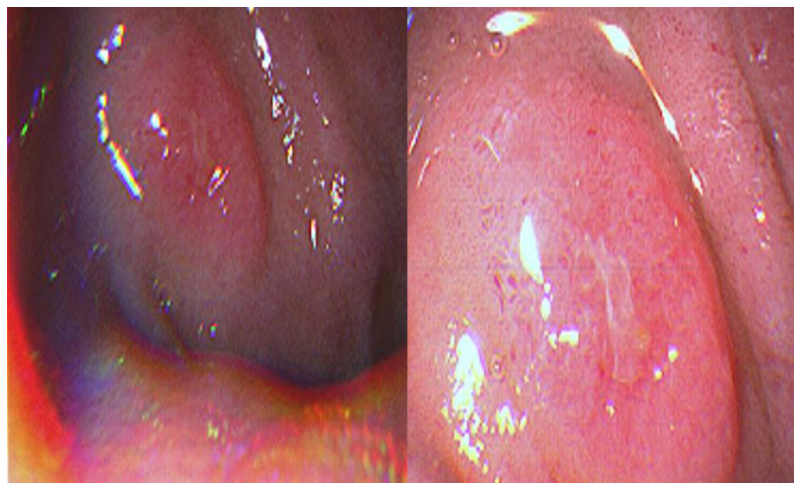


Figure 2. The ulcer (~ 0.3 × 0.5 cm) which was covered by white fur and surrounded by edematous tissue at the anterior wall of duodenal bulb showed by the upper gastrointestinal endoscopy.

ther six cycles of chemotherapy and achieved a complete response (Figure 3D).

Small bowel neoplasms comprise 0.1% of all malignancies, of which one third are duodenal, mainly primary (Houghton and Pheils, 1987).

Duodenal metastasis of breast cancer occurs at a low rate and there are only a few reported cases that duodenal metastasis of invasive lobular breast cancer Nihon-Yanagi et al., 2009; Kobayashi et al., 2004; Lottin et al., 2002).

Lobular infiltrating carcinoma seems to have a metastatic pattern different from the ductal type, with an apparent

predilection for the gastrointestinal tract (Lottin et al., 2002; Borst and Ingold, 1993; Harris et al., 1984).

Duodenal metastasis of invasive ductal breast cancer is extremely rare, but this possibility does exist. Thus, when a patient with primary breast cancer shows a neoplasm of duodenum, we should still compare the morphology of the cells of neoplasm with those of breast cancer. In addition, it is necessary to conduct immunohistochemistry staining for estrogen receptor and progesterone receptor.

The FOLFOX regimen of oxaliplatin and infused fluorouracil plus leucovorin is active and relatively safe for advanced colorectal cancer (Goldberg et al., 2004), which

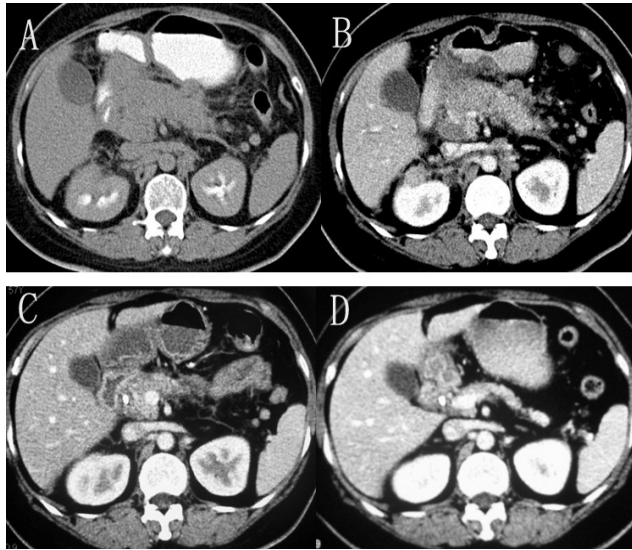


Figure 3. The CT scan of the tumor. A and B: The lesion in duodenum invaded porta hepatis, head of pancreas, omentum bursa, peritoneum lymph nodes and right adrenal gland. C: Most neoplasm disappeared and only a nodule (2.0*1.5 cm) left in right adrenal gland. After 6 cycles of FOLFOX4. D: All the lesions disappeared after 12 cycles of FOLFOX4

has been considered as a standard therapy for such patients. On the other hand, FOLFOX4 is usually not recommended for the breast-cancer treatment.

But in this case, the patient with duodenal metastasis of invasive ductal breast cancer treated with FOLFOX4 achieved a complete response, which can be explained in the following two ways. First, combinatorial regimens including oxaliplatin are effective for treating metastatic breast cancer Pectasides et al., 2003; Kouroussis et al., 2003).

Second, prolonged continuous infusion of 5-FU may improve the 5-FU efficacy and reduce its toxicity, thereby leading to a very good tolerability (Smith, 1996; Cameron et al., 1994). Moreover, alopecia, nausea-vomiting, diarrhea and mucositis of this patient was not severe and her liver function was significantly improved during the chemotherapy.

Since FOLFOX 4 appeared to be active and had a good tolerability in our case, this regimen might be considered as a standard therapy for the patients with advanced breast cancer in future.

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