

A Very Rare Reason for Gastric Perforation, Caused by Gastric Metastasis of Breast Cancer: Case Presentation

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ABSTRACT

Breast cancer is the mostly seen malignancy of women. Breast cancer causes lung, bone, liver and brain metastasis. On the other hand, gastric metastasis of breast cancer is a rarely seen metastasis. For this reason, it may be misdiagnosed or diagnosed after its morbid or mortal complications occurred. This may also result as a delay of breast cancers primary treatment. If occurred the best tool is immunohistochemical panels especially gross cystic disease fluid protein 15 (GCDFP-15) for exact diagnosis. In our case, a gastric metastasis of breast cancer is presented which was admitted with the acute abdominal findings caused by its result as gastric perforation and diagnosed by GCDFP-15 immunohistochemical panel.

Keywords: Breast cancer, gastric metastasis, gastric perforation, gross cystic disease fluid protein 15 (GCDFP-15)

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Introduction

Breast cancer is the most common malignancy seen in women (1). Breast cancer generally causes bone, lung, liver and brain metastasis. Gastrointestinal system organ metastasis are rarely seen (2, 3). Especially, gastric metastasis of breast cancer is the rarely seen metastasis of breast cancer and it is very difficult to diagnose. The patients, who have gastric metastasis of breast cancer, usually suffer from nonspecific gastrointestinal symptoms like indigestion, anorexia, pyrosis, nausea and weight loss. For this reason, the diagnosis of gastric metastasis of breast cancer might be very difficult. Different reagents are needed to be used to help the diagnosis. Throughout all the immunohistochemical panel tools, gross cystic disease fluid protein 15 (GCFDP-15) is a panel tool which may show metastatic carcinomas caused by breast cancer (4). This immunohistochemical panel might make the diagnosis exactly definite. In our case, we presented a gastric metastasis of breast cancer, which is rarely seen, diagnosed by gastric perforation caused by the breast cancers metastatic tumor of stomach. Also, we tried to emphasize the importance of its diagnosis for further breast cancer treatment.

Case Presentation

A 42 years old woman patient consulted to the clinic with the complaints of a stomach ache which started suddenly and increased progressively. The patient had the diagnosis of breast cancer. A month ago, its liver and lung metastasis was determined. She had first cure of chemotherapy before two days. In her physical examination there was a widespread defense and rebound tenderness especially in the upper quadrants. In the laboratory examination, leucocyte was counted as $7.56 \times 10^3/uL$, C reactive protein (CRP) was counted as 2.81 mg/dl. In the abdominal computerized tomography, free air in the epigastric area was determined. As radiologically, it was reported as empty organ perforation. With all those findings emergent surgical exploration was planned. By laparoscopic approach, it was seen that abdomen was contaminated by gastrointestinal fluid. There were pseudo-membranes over abdominal organs. As seen in the laparoscopic exploration, there were multiple metastatic lesions on the liver also there were implants on the omentum. A perforation, approximately 20 mm in diameter on the fundus of stomach was detected. The fundic area was seen to be containing tumor. By this finding approach was converted to open laparotomy. On fundus of the stomach, it was determined a perforation field which was approximately 20 mm over the tumor structure (Figure 1). It was understood that the reason of the perforation was because of the tumor of fundus. Although total gastrectomy was suitable for the treatment of the perforation seeing that it was a large perforated area, because of the patient's bad general situation and hypotensive status, we performed a wedge resection with the help of linear staplers in order to finish the operation in a shorter time period. The patient was followed up in the intensive care unit for two days and after 10 days of hospitalization, she was

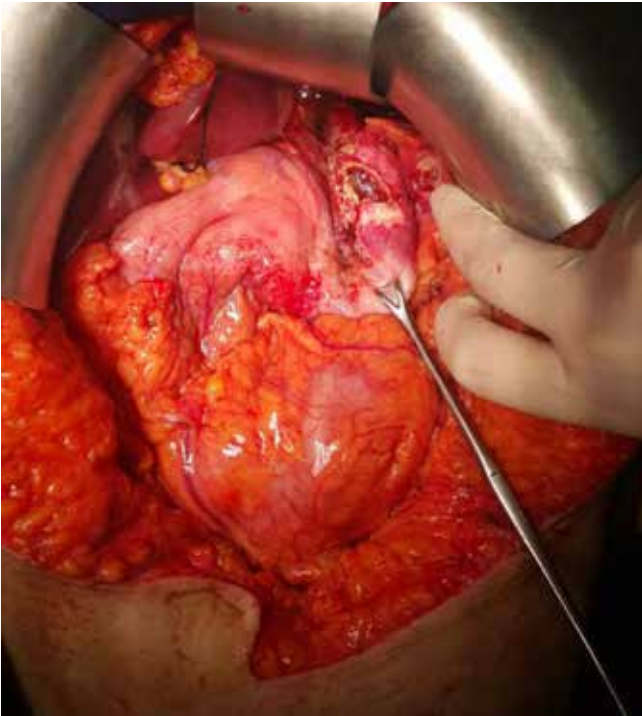


Figure 1. Intraoperative image of the 20-mm perforated area on the fundus of the stomach caused by tumor



Figure 2. Image of the macroscopic specimen of the stomach with perforation because of the tumoral mass

discharged and referred to medical oncology department for the further systemic chemotherapeutical treatment.

Pathologic results showed macroscopically, a 1.5x1.5 cm beige mass lesion with the perforation in the middle area was observed over the

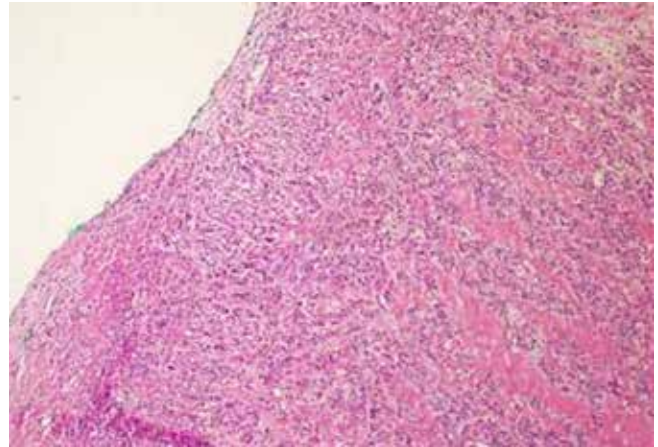


Figure 3. Pathological microscopic image of the specimen showing the involvement of all layers of the stomach including the gastric serosa (H&E x10)

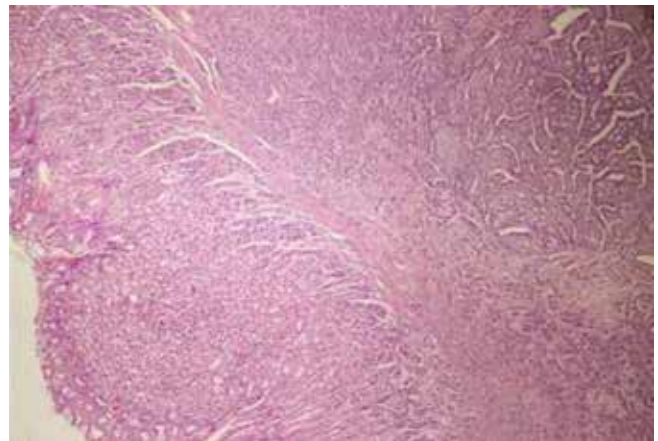


Figure 4. Pathological microscopic image of the specimen showing tumor cells in an infiltrative pattern and in some areas also forming glands, cords, or solid cell clusters (H&E x4)

14x9x4 cm gastric wedge resection material (Figure 2). The lesion was held in all layers of the stomach and the nearest surgical margin was 1 cm along. Microscopic examination showed tumoral infiltration involving all layers of the stomach including the serosa of the stomach (Figure 3). Tumor cells were generally in an infiltrative pattern and in some areas also formed glands, cords, or solid cell clusters (Figure 4). Tumor cells are generally large, with transparent cytoplasm. They did not have significant pleomorphism in the nucleus characteristics and they had vesicular chromatin. There were not any further characteristics all around the remnant stomach except chronical inflammation. An immunohistochemical panel was applied because of the breast cancer history and the circumference gastric area was not precancerous. It was seen highly nuclear positivity with estrogen receptor (ER) (Figure 5), focally weak nuclear positivity with progesterone receptor (PR) (Figure 6), focally cytoplasmic positive immunoreactivity with GCDFP-15 (Figure 7), intracytoplasmic reaction with CK 7 and positive membranous reaction with E-cadherin. There were not any positive reactions with CDX2, CK 20, chromogranin and synaptophysin. When the breast cancer history and immunohistochemical characteristics of the patient were evaluated together, it was diagnosed as gastric metastasis of breast cancer. Written informed consent was obtained from patient who participated in this study.



Figure 5. Immunohistochemical panel images showing highly nuclear positivity with ER (ER x20)

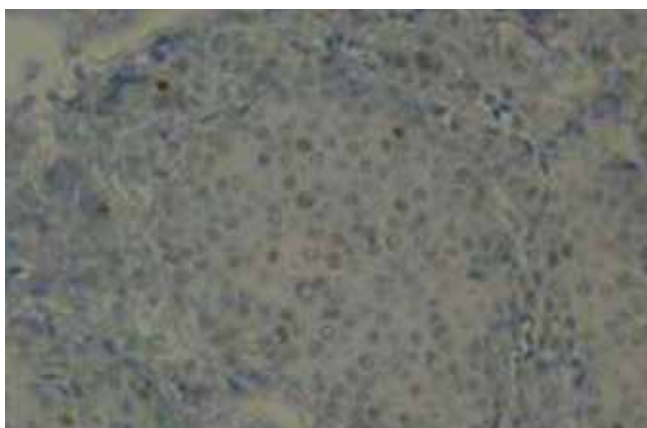


Figure 6. Immunohistochemical panel images showing focally weak nuclear positivity with PR (PR x40)



Figure 7. Immunohistochemical panel images showing focally cytoplasmic positive immune-reactivity with GCDFP-15 (GCDFP-15 x20)

Discussion and Conclusion

The gastrointestinal system organ metastasis of all types of cancer are rarely seen. After the lung cancer, breast cancer is the second type of cancer which causes gastrointestinal system metastasis (3). McLemore and his friends informed gastrointestinal system metastasis was seen only in 41 patients of the 12001 diagnosed as breast cancer (5). In another study, only 7 breast cancer patients, who had gastrointestinal

metastasis, were determined in which five of them had gastric metastasis whereas two of them had gastric and colonic metastasis at the same time (6).

The patients, who have gastric metastasis of breast cancer, usually suffer from nonspecific gastrointestinal symptoms like indigestion, anorexia, pyrosis, nausea and weight loss (7). But in our case, the patient was admitted with an acute abdomen caused by the gastric perforation of metastasis of breast cancer without suffering from the other symptoms that literature declared.

Breast cancer pathologic subtypes which had metastasis to the gastrointestinal system are often invasive lobular carcinomas more than invasive ductal carcinomas (8). Taal and his friends examined 51 breast cancer patients who had gastric metastasis and informed that 36 percent of these patients were invasive lobular carcinoma (9). Nevertheless, in our case, the pathological subtype of the breast cancer was invasive ductal carcinoma.

Gastric metastasis of breast cancer is generally presented with diffuse involvement of gastric wall which is expressed as linitis plastica (7). But in our case, it was a breast cancer's stomach metastasis in which the metastatic tumoral mass was located at one focal area, fundus of the stomach only, that also perforated from that focus.

An interesting situation was that lobular invasive cancers, which has gastric metastasis, contains signet ring shaped cells in pathologic examination and for this reason it was mistakenly thought that these patients might have a primary gastric cancer that is signet ring cell type gastric carcinomas (10). At this point, immunohistochemical evaluation can be used to distinguish primary gastric cancer from gastric metastasis of breast cancer (11). ER and PR receptors can be used to distinguish the metastatic breast cancer. In primary gastric cancers, it is determined ER receptor positivity at the rate of 12% and PR at the rate of 12%. However, ER and PR negative breast cancer has much potential for making metastasis and at metastatic focuses ER and PR receptor's negativities are seen at higher rates. For this reason, in immunohistochemical evaluation the ER and PR receptor's condition are inadequate to distinguish primary gastric cancer from gastric metastasis of breast cancer (12). Thus, in the immunohistochemical evaluation of breast cancer metastasis, mammoglobulin, which is special for breast gland and GCDFP-15 are used (13). In our case, in histopathological diagnosis of the tumor immunohistochemical examinations were evaluated in which ER and GCDFP-15 were highly positive and PR was weakly positive. Through all those tests, especially positivity of GCDFP-15 made us think the origin of the tumor was breast cancer.

Although surgical resection is the preferred treatment approach for primary gastric tumors in breast cancer's gastric metastasis, systematic chemotherapy is preferable as compared to surgical resection and may take part as the unique treatment choice (5).

Wrong diagnosis may cause unnecessary resection and delay for the prior treatment of the disease which may result unwanted morbidity and mortality. The distinction of this situation which is rarely seen in our daily clinical practice is very important. In breast cancer's gastric metastasis, surgical resection should be discussed only for palliation or emergency situations where acute abdomen develops as is in our case.

We presented a patient with breast cancer who developed gastric perforation due to gastric metastasis and admitted with acute abdomen clinic findings. In the literature, there is no case of gastric perforation

due to breast cancer gastric metastasis. It is important to remember gastric metastasis and its results in the presence of newly developed gastric symptoms in breast cancer patients or in emergency gastric pathologies that may be seen in patients with breast cancer. Immunohistochemical panels including especially the GCDFP-15 may be the best tool for exact diagnosis. Possible breast cancer may also be remembered in mind for the evaluation of the women whom primary gastric cancer has been just identified.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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