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Gastric Metastasis of Breast Cancer Found on Routine Esophageal Variceal Screening

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INTRODUCTION

Esophageal varices are the most common fatal complication of cirrhosis. Screening with esophagogastroduodenoscopy (EGD) is recommended at initial diagnosis of cirrhosis and every one to three years depending on the patient's level of hepatic compensation and presence of varices. The incidence of metastatic cancer to the stomach is exceedingly rare, about 0.2 to 0.7%.[1] Among these occurrences, breast cancer, lung cancer, and renal cell cancer are the most prevalent. Symptoms of metastatic cancer to the stomach are atypical. They include epigastric pain, gastrointestinal hemorrhage, and dysphagia.

We report on a unique case of a female with cirrhosis presenting five years after achieving breast cancer remission for initial esophageal variceal screening. She underwent routine gastric biopsy for *H. pylori*, which incidentally showed metastatic breast cancer.

CASE REPORT

A 50-year-old female presented to her gastroenterologist in 2020 for routine screening for esophageal varices. She had a history of cirrhosis and invasive ductal carcinoma (T1c, N2, M0) diagnosed in 2014 status-post lumpectomy, adjuvant radiation, and chemotherapy. The patient had undergone four months of chemotherapy with doxorubicin and cyclophosphamide in 2014 prior to remission. She was then on maintenance therapy with tamoxifen beginning in 2015 with no signs of metastatic disease.

The patient had no early satiety, unintentional weight loss, or other concerning symptoms at the time of her endoscopy. EGD showed moderate portal hypertensive gastropathy with increased mucosal friability, normal esophagus, and no other gross abnormalities. Microscopically, an Indian file pattern with signet ring appearance primarily in the serosal, muscular, and submucosal layers was seen. Immunohistochemistry was positive for ER, CK7, GCDFP-15, and CK20. Biopsies of the mucosa showed large, uniform cells with prominent nucleoli and foamy cytoplasm. Routine biopsies taken for evaluation of *H. pylori* demonstrated metastatic breast carcinoma.

DISCUSSION

While the incidental finding of metastatic breast cancer during routine gastric biopsy is exceedingly rare, it is important to appreciate the diversity of diagnostic findings and the role immunohistochemical staining plays in differentiating primary gastric cancer from metastatic breast cancer. The overall incidence of metastatic cancer to the stomach is 0.2 - 0.7%.[1] Primary sites include breast cancer (27%), lung cancer (23%), renal cell carcinoma (7.6%), and malignant melanoma (7%). Additionally, average time between primary breast malignancy and metastatic disease is 50 - 78 months, with an average patient age of 75.6.

Endoscopically, breast cancer metastasis exhibits the following patterns: (1) localized, such as large ulcers/polyps, (2) diffusely infiltrating, and (3) extrinsic compression.[2] In the setting of breast cancer, immunohistochemical staining suggesting a breast origin typically will show positive markers for ER, PR, CK7, GCDFP-15, and negative markers for CK20, CA19-9, CDX-2.[3] Additionally, the presence of ERα combined with the absence of HER-2 ECD can suggest metastasis from the breast.

Key differences in the immunohistochemistry of our case versus standard metastatic breast cancer is the presence of CK20. While immunohistochemistry is a key part of the diagnostic process, this further highlighted the spectrum of possible findings that necessitates consideration of the patient's clinical picture as a whole.

In general, the risk of distant recurrence in patients who underwent endocrine treatment, such as tamoxifen, steadily increased over the next 15 years and correlated with tumor size, tumor grade, and lymph node status.[4] Annual risk of distant recurrence increased 3% each year for those with > 3 positive lymph nodes, 2% each year for one to three positive lymph nodes, 1% each year for negative lymph nodes with tumor grade 2 or greater, and 0.5 - 1.0% for all others. Our patient's findings were consistent with an annual risk of metastasis increasing 3% per year.

The heterogenous nature of tumor lesions, lack of endoscopic classification system that clearly can identify metastases, and variability in microscopy highlighted the importance of adequate biopsy sampling combined with immunohistochemical analysis as the only way to differentiate primary gastric cancer consistently from metastatic disease.[1-3] In addition, for patients with history of a primary malignant lesion, it is important to obtain histologic sampling of even subtle areas of mucosal abnormalities to detect the presence of metastatic disease.

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