Case Report

Endoscopic Ultrasound-Guided Fine Needle Aspiration for Smooth Benign Appearing Esophageal Stricture Due to Metastatic Breast Cancer

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ABSTRACT
Metastatic breast cancer is an uncommon cause of esophageal stricture. We present an 80 year-old woman with past medical history of locally advanced breast cancer who admitted for evaluation of dysphagia. Barium swallow (i.e. esophageal fluoroscopy) demonstrated moderate irregular narrowing in the distal thoracic esophagus. Endoscopy revealed distal esophageal stricture with normal esophageal mucosa and computed tomography demonstrated thickened wall in the distal esophagus and the proximal stomach. Endoscopic biopsy of esophagus revealed no malignancy. Thus, we performed endoscopic ultrasound-guide fine needle aspiration (EUS-FNA) and cytological results were consistent with metastatic breast cancer. Diagnosis of malignant esophageal stricture due to metastasis from other primary is often challenging and requires a high index of suspicion. EUS-FNA is an alternative diagnostic technique in such cases when endoscopic biopsy fails to obtain adequate specimen.

Keywords: breast cancer; metastasis; esophageal stricture; endoscopic ultrasound; fine needle aspiration

Suzuki R, Singh H, Ramireddy S, Ross WA, Irisawa A, Bhutani MS. Smooth Benign Appearing Esophageal Stricture Due to Metastatic Breast Cancer. *Endosc Ultrasound* 2013; 2(1): 35-37

INTRODUCTION

Breast cancer can metastasize to various organs, including lymph nodes, lung, bone, liver and brain. While less common, metastatic breast carcinoma in gastrointestinal tract has also been reported.[1] Many of these lesions can appear years after treatment of the primary breast cancer and they can be confused with a second primary. Moreover, diagnosis of esophageal stricture resulting from metastatic breast cancer is often difficult, and most cases in the past have been diagnosed at autopsy or surgery.[2-6] Endoscopic biopsies often fails in determining the diagnosis and more invasive procedures may be required in some cases.[5] We present a case of breast cancer metastasis to the esophagus in which endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) established the diagnosis after benign result on endoscopic biopsy.

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Received: 2012-10-11; Accepted: 2012-11-23
doi: 10.7178/eus.04.006

CASE REPORT

An 80-year-old woman was admitted to our hospital for evaluation of progressive difficulty in swallowing to solids and liquids. Her past medical history was significant for locally advanced right breast cancer treated with modified radical mastectomy and adjuvant chemoradiation therapy 3 years earlier. Prior to this admission timing, her ascitic fluid was totally removed and showed malignant cells with estrogen receptor expression. Considering computed tomography findings with small nodular lesions on the peritoneum, peritoneum carcinomatosis due to recurrent breast cancer was suggestive. Serum cancer antigen 27.29 was 5.126 U/mL (normal range; 0-38 U/mL) at the time of admission. Barium swallow showed moderate fixed narrowing in the distal thoracic esophagus (Fig. 1). Distal esophageal stricture was found on upper endoscopy at 35 cm from the incisors extending to esophago-gastric junction at 40 cm with modest resistance to passage of the standard gastroscope (9.8 mm in diameter). Esophageal mucosa appeared to be normal (Fig. 2). Biopsy obtained from the esophageal stricture revealed no malignancy. Computed tomography showed thickened distal esophagus and proximal stomach

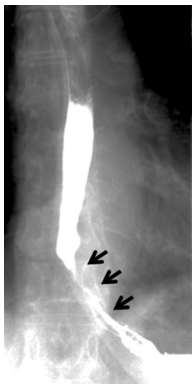

Figure 1. Barium swallow showing irregular narrowing in the distal esophagus (black arrow).

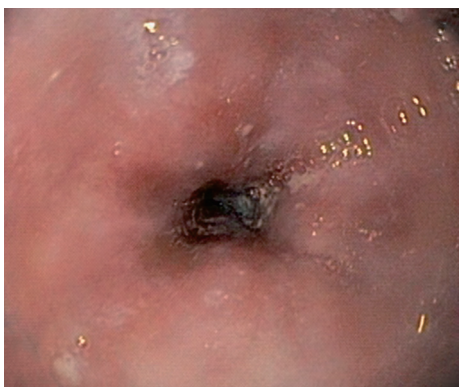

Figure 2. Computed tomography showing thickening wall in the distal esophagus (white arrow) as well as the proximal stomach. Massive ascites was also shown.

wall, mild intrahepatic biliary dilatation, massive ascites and right-sided hydronephrosis (Fig. 3). EUS with a 12 MHz mini-probe that was passed through the upper endoscope into the stricture was performed. It showed approximately 10 mm thickened esophageal wall disruption of the normal esophageal wall layer pattern (Fig. 4). Then, the linear echoendoscope was passed to the level of the stricture which also showed thickened esophageal wall consistent with an infiltrating process involving all the layers and penetrating into the adventitia. No extraluminal mass which might cause compression was observed. After confirming the absence of major blood vessels, EUS-FNA of thickened esophageal wall was performed with a 22- and 25-G needle (Fig. 5). Cytology results were consistent with metastatic breast cancer. Considering her poor performance status mainly due to inability to eat, chemotherapy was not indicated at that time. Therefore, we performed esophageal metallic stent placement and successfully relieved her symptoms.

DISCUSSION

Esophageal metastasis from other primary tumors is uncommon, but breast cancer is one of the most common cancers that can metastasize to the esophagus. Autopsy series have shown gastrointestinal metastases in 6%-33% of patients who died of breast cancer.[4] Esophageal metastasis typically presents with a long interval between the primary breast tumor diagnosis and treatment and its recurrence with esophageal involvement. Anderson *et al.* reported a mean

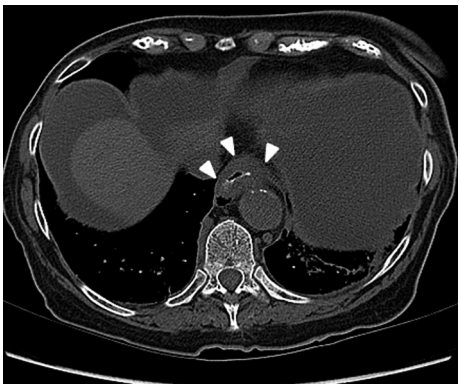

Figure 3. Upper endoscopy showing stricture was found in the lower esophagus starting at 35 cm and extending to 40 cm from the incisors with normal mucosa.

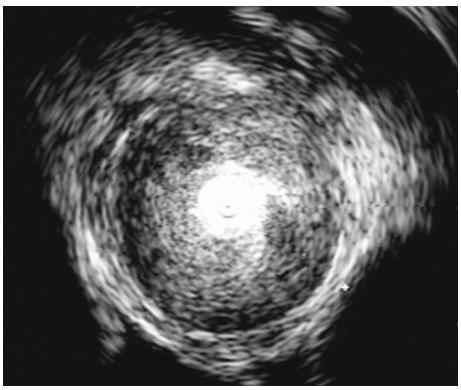

Figure 4. Endoscopic ultrasound with a 12 MHz mini-probe showed thickened esophageal wall without normal esophageal wall layer pattern.

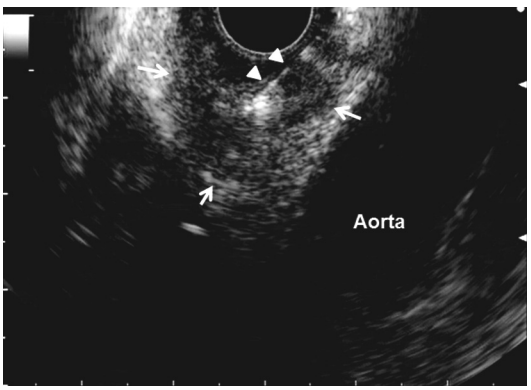

Figure 5. Endoscopic ultrasound showing the esophageal wall thickening (white arrow) and EUS-guided fine needle aspiration (white arrow head) was done.

time of 7.1 years from mastectomy to onset of dysphagia.[7] In our patient, symptoms of esophageal metastasis appeared 3 years after the breast cancer diagnosis.

The mechanism of esophageal involvement of breast cancer has been controversial, but periesophageal lymph nodes involvement through intra-mammary lymphatic channels has been suggested to cause esophageal obstruction. Additionally, in some cases, metastasis may cause intramural tumor deposition deeper to the mucosal layer. For this reason, endoscopic findings can show normal esophageal mucosa in many patients with esophageal stricture as in our case. In our case, EUS demonstrated thickened distal esophageal and proximal stomach wall which extended to the adventitia but no extraluminal structures (e.g., lymph node) which might cause compression were detected. Thus, intramural metastasis caused the stricture in our case.

Because of its intramural growth pattern, metastatic breast cancer to the esophagus often poses challenges in tissue acquisition. In most of the published cases, endoscopic biopsy failed to obtain adequate specimens.[8] Although there is limited data, EUS and EUS-FNA may be alternative techniques for biopsy-negative malignant esophageal stricture.[9] Sobel *et al.* reported that EUS-FNA was highly reliable for tissue acquisition in this situation. Esophageal wall thickening or subepithelial mass was noted in 5 patients using EUS and cytological evaluation of specimens obtained by EUS-FNA (using 22-G needles) confirmed breast cancer metastasis in 11 of 12 patients.[10]

Therefore, EUS-FNA should be done if the result may change management. In the present case, decision to place metallic stent was made based on the EUS-FNA result. In the case of esophageal carcinoma, radiation therapy with or without chemotherapy may improve the stricture itself. Metallic stent placement is an alternative for palliation if chemo- or radio-therapy is not done or if the patient does not respond to chemoradiation. On the contrary, the role of radiation therapy for breast cancer metastasis to the esophagus is not established. Therefore, symptomatic relief with stent placement may be the first reasonable choice.

In conclusion, breast cancer can recur years after the initial diagnosis. Dysphagia in these patients should raise the suspicion of metastatic disease of the esophagus. EUS-FNA can be an effective method for diagnosis of suspected breast cancer metastases to the esophagus when endoscopic biopsy is negative.

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