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CASE REPORT

An Unusual and Unfortunate Presentation of a Gastric Adenocarcinoma

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ABSTRACT

Gastric adenocarcinoma is the third leading cause of mortality worldwide. Although it is a relatively infrequent neoplasm in North America, it is associated with a high mortality rate. Gastric adenocarcinoma is believed to result from inflammation of gastric cells leading to peptic ulcers which then progresses to cancer. Our case highlights a rare presentation of a rapidly growing gastric adenocarcinoma, originally unseen on endoscopy a month prior, and later appearing as a large circumferential mass. Initially the H. pylori and biopsy results in negative findings for adenocarcinoma, however, a month later

the biopsy results were positive for gastric adenocarcinoma. Gastric adenocarcinomas are usually insidious and presents initially as non-specific symptoms such as dyspepsia, nausea, and early satiety. The initial workup consists of an EGD and EUS for localization, tissue biopsy, and determination of tumor size/depth as well as locating regional lymph nodes. Our case highlights the emphasis of frequent surveillance and close follow-up of patients who have increased risk factors for gastric adenocarcinomas as these cancers can often be missed and are fatal.

Key words: Gastric adenocarcinoma, Prevalence of gastric cancer, Surveillance of gastric adenocarcinoma, Risk factors and treatments of gastric cancer

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INTRODUCTION

Until the mid-1990s, gastric cancer was the most-common cause of cancer related mortality across the world.¹ As more information about the risk factors of gastric cancers have become available and subsequent research has been conducted, many improvements including eradication and prevention of H. pylori have reduced the incidence and improvement in overall survival rates^[1,2,3,4]. Gastric adenocarcinoma risk factors are influenced by behavior patterns such as obesity, GERD, smoking, and diet (i.e. processed meats or increased salt intake)^[1,4,5,6]. Genetic risk factors include age, gender, family history and ethnic race^[4]. Overall, it is known that gastric cancers are rare prior to the age of 40 and the prevalence of these tumors increases in the seventh decade of life^[7]. In addition, there is a gender discrepancy as female patients have lesser risk of developing gastric cancer earlier in life compared to men due to the protective effects of estrogen^[1,5,8]. Later in life, 10-15 years post menopause these incidence rates equalize between males and females^[1,5]. In the United States, minority populations, specifically Asian Americans and Hispanics, have a

higher prevalence of gastric adenocarcinoma and patients who have a family history of gastric cancer have a 4.5-fold increased risk of gastric cancer occurring during their lifetime^[1,9]. By classifying these risk factors in patients who are high risk vs. low risk of developing gastric cancer, we can accurately identify and have proper surveillance to identify gastric cancer at earlier stages^[6,9,10,11,12]. In this case report, we present a patient who had significant gastric adenocarcinoma risk factors with an EGD performed a month prior at a previous hospital which showed no signs of cancer. The patient then presented to our facility with a gastric outlet obstruction and was found to have advanced gastric adenocarcinoma.

CASE REPORT

An 83-year-old female with a past medical history significant for hypertension, gastro-esophageal reflux disease (GERD), abdominal aortic aneurysm, coronary artery disease status post percutaneous intervention in 2018, dementia, and significant tobacco use history of 50 years presented for abdominal pain. On arrival, the patient stated that she was having trouble keeping down food and was not able to swallow any of her pills. She stated she had recurrent episodes of nausea, vomiting, and worsening abdominal distention for the last two days. On a physical exam, she was moderately distressed with diffuse abdominal tenderness, abdominal distention, normal bowel sounds, and no rebound guarding.

Through further history, the patient stated that she was discharged from a different hospital for similar symptoms eleven days prior. Prior medical records noted that the patient had an Esophagogastroduodenoscopy (EGD) performed which revealed a small hiatal hernia, thick fluid in the proximal stomach with a stricture in the mid-body mucosa with one identifiable ulceration. Biopsies were noted to have benign gastric body-type mucosa with mild gastritis without evidence of malignancy and mild inactive chronic gastritis without *Helicobacter pylori* (*H. pylori*) infection. The patient was then discharged home with a proton-pump inhibitor (PPI) and reported to follow up with a gastroenterologist as an outpatient.

Due to the patient's symptoms acutely worsening on arrival to the hospital, a computed tomography of the abdomen with contrast was performed and revealed marked gastric distention with circumferen-

tial mucosal thickening of the pylorus and narrowing of the contrast column, likely representing gastric outlet obstruction (Figure 1). The patient initially refused an NGT tube due to concerns of discomfort. Later in the patient's hospital course, an EGD was ordered due to recurrent symptoms of abdominal discomfort. The following day, an EGD revealed large amounts of retained food contents in the gastric body and a circumferential distal gastric body mass with erythema, edema, and ulceration (Figure 2-3). It is likely the significant mass which was causing profound narrowing at the incisura and was responsible for the patient's gastric outlet obstruction symptoms.

Lab studies during the hospital course were significant for normal CA 19-9, negative HER-2 marker, and an elevated CEA at 9.4 ng/mL (normal < 3.0 ng/mL). Pathology from samples taken during EGD from both the body and incisura of stomach resulted as focal poorly differentiated carcinoma infiltration in lamina propria. Biopsies were negative for *H. pylori*. Histochemical stain from the biopsies revealed large gastric-type tumor cells infiltrates as individual cells or small clusters in lamina propria with high grade nuclear grade and Immunohistochemical stains were positive for both CK7 and CDX 2 concerning for gastric adenocarcinoma (Figure 4).

Given her diagnosis, the patient was transferred to a tertiary center for further workup for further endoscopic ultrasound to perform a fine needle biopsy. The EUS and fine body biopsy revealed circumferential edema and stenosis of the distal body/proximal antrum corresponding to gastric wall thickening. The mass was noted to be about 6mm thick in diameter. A biopsy further confirmed a gastric adenocarcinoma. She was then referred to outpatient oncology for further management.

DISCUSSION

Gastric cancer continues to be one of the most lethal cancers worldwide with a 5-year survival rate of less than 25%^[1,4,10,11]. Early gastric carcinomas lack a specificity of symptoms such that 80 to 90% of patients who ultimately are found to have gastric cancer present when they already have locally invaded or metastasized cancer^[3,13]. Unfortunately, in this case our patient did not experience alarming symptoms such as anorexia, weight loss, or early satiety until her tumor burden was significant^[1,6,7]. Currently, the best strategy to re-



Figure 1 Ulcerated circumferential non-bleeding mass found in the pre-pyloric region

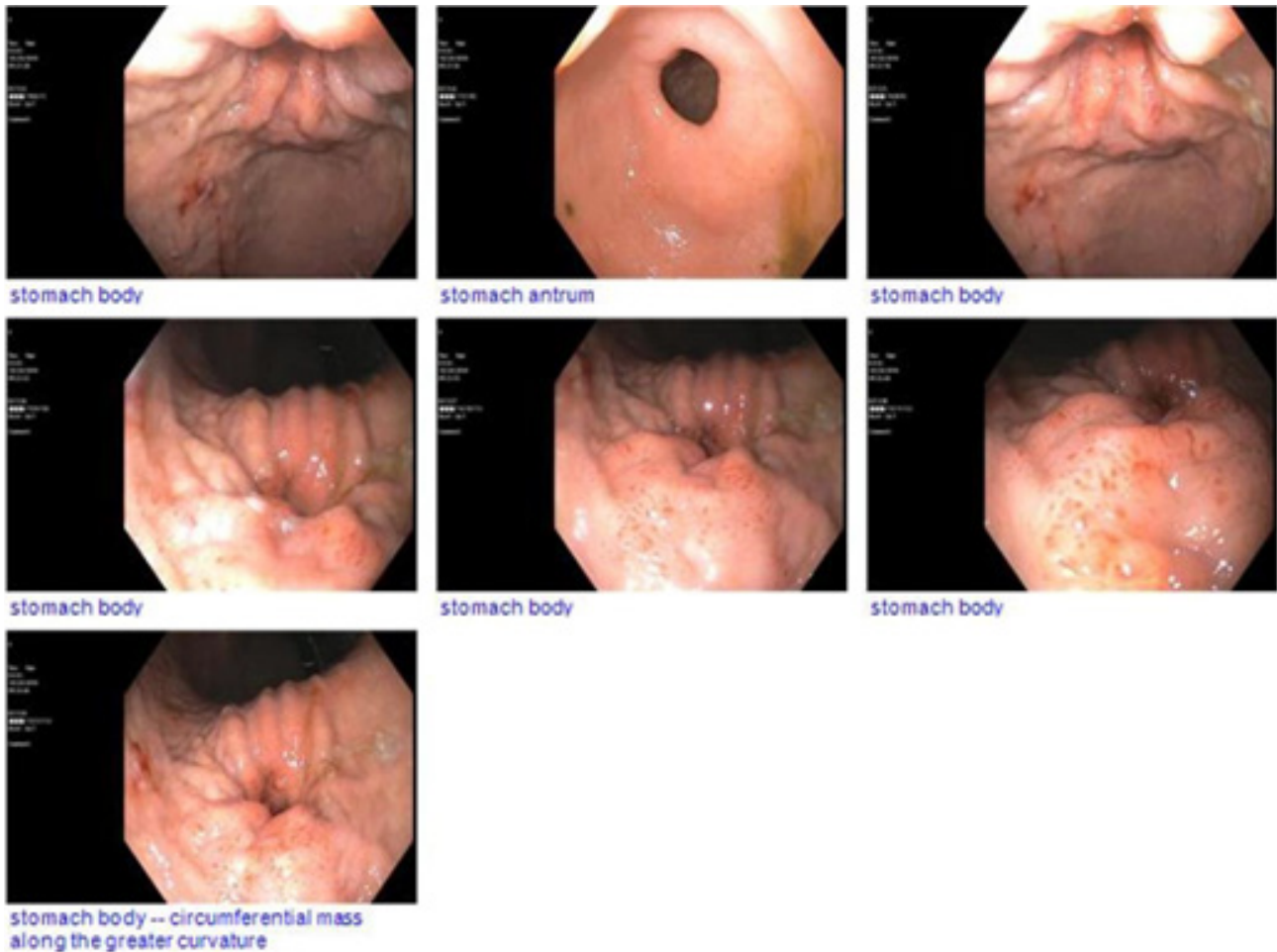


Figure 2 EGD findings of a circumferential mass along the greater curvature.

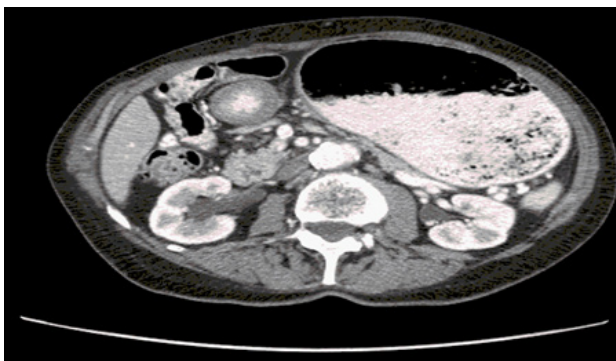


Figure 3 CT scan of the abdomen and pelvis with oral contrast showing gastric distention of the stomach filled with fluid.

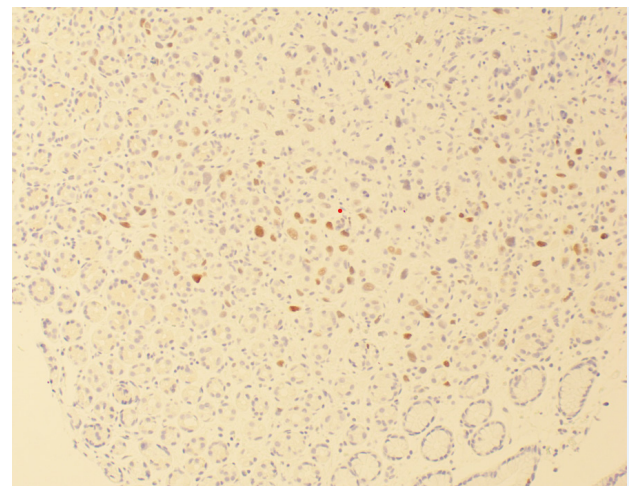


Figure 4 Gastric-type tumor cells infiltrate as individual cells or small clusters in lamina propria with high nuclear grade and polymorphism. Appear to arise from the middle layer of mucosa (HE stain). Intestinal metaplasia is usually not present. No evidence of lymphatic/vascular invasion seen. CK 7 and CDX 2 immunostains show tumor cells are positive.

duce overall mortality of gastric adenocarcinoma is early screening and surveillance programs^[8,10,11,14]. Identifying precursor lesions on gastric biopsies has led to a decreased mortality, as observed in countries in East Asia^[1,3,6,8]. These countries, who have an high incidence of gastric countries, utilize non-invasive techniques which involve photofluorography to look for suspicious lesions, H. pylori screening/antibody testing, and measurement of both serum pepsinogen levels and gastrin-17 levels for the surveillance of non-cardiac gastric adenocarcinomas^[13]. Unlike these countries with higher incidence rates, the United States and Canada are considered low-incidence areas, and as such, routine screening is not recommended^[4,8,9]. The American Gastroenterology Association (AGA) guidelines do state

that screening can be completed on a case-by-case basis in certain high-risk individuals^[3,9]. Although in our case it was an atypical presentation of gastric adenocarcinoma. Our patient did not present with alarm features until after her second visit. In addition, her initial H. Pylori and EGD were negative for malignancy.

In this case, our patient's risk factors for gastric adenocarcinoma included tobacco use of almost 50 years, GERD, early satiety, nausea and vomiting^[2]. Given these non-specific complaints and relatively benign EGD findings, the patient was discharged from the hospital and told to follow-up with gastroenterology in the outpatient setting. A month later, a large circumferential gastric mass was seen on CT and further visualized on endoscopy^[3,6,15]. Hospital records were reviewed and did not suggest any concerns of malignancy. Gastric adenocarcinomas are usually slow growth tumors, our case highlights an atypical presentation of an aggressive fast-growing gastric adenocarcinoma. In high risk patients, history and physical exam should be performed every 3-6 months and should be followed with CBC as clinically indicated^[5,8,10]. If endoscopic resection is indicated, an EGD should be followed every 6 months to first year up to 5 years based on symptoms or radiologic findings^[1,10].

However, this case illustrates an interesting conundrum for clinicians, as our patient had insidious symptoms with biopsy negative findings. There appears to be very few individual cases that discuss rapidly progressing, advanced, circumferential gastric masses that cause gastric obstruction symptoms. Thus, we believe there needs to be higher clinical suspicion for atypical cases and more rigorous monitoring needs to be performed, perhaps a repeat EGD or EUS would have been beneficial to our patient^[1,15]. Clinicians should be inclined to further investigate patients who present with nonspecific gastrointestinal complaints such as dyspepsia. Even though, gastric adenocarcinoma identified on endoscopic evaluation in western countries only reports about 1 to 2% of patients with dyspepsia; patients should be screened for malignancy as gastric adenocarcinomas are often cancers that are missed due to inability to recognize early pathognomonic symptoms which delay diagnosis^[1,8,10]. This case highlights the importance of further research that is necessary to further the discussion regarding optimal length of surveillance of high-risk individuals. If more cases like this can be discussed and brought to the forefront, further research can be conducted in hopes to further decrease both the incidence and mortality of gastric cancers.

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