Synchronous Adenocarcinoma and Neuroendocrine Tumors of the Stomach

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Abstract

Introduction: Synchronous tumors of the stomach have been reported in a limited number of case reports in the literature. Gastric neuroendocrine tumors are uncommon and account for 0.3% of gastric neoplasms. The coexistence of adenocarcinoma and carcinoid tumors in the stomach is exceedingly rare.

Presentation of Case: We report a rare case of two primary, histologically distinct, synchronous cancers of the stomach in a 70-year-old male. The patient presented for evaluation of a pre-syncopal episode. Lab data confirmed a normocytic/normochromic anemia with a hemoglobin of 6.6 g/d, hematocrit of 20.3%, and MCV of 86.1fL. An EGD was completed which demonstrated a 30 mm polypoid ulcerative mass in the gastric antrum and a 12 mm polyp in the gastric body. Pathological assessment confirmed adenocarcinoma and neuroendocrine (carcinoid) malignancies respectively.

Conclusion: There have been limited case reports of patients with two separate, synchronous gastric malignancies. Additional reports of these cases would be necessary so appropriate screening and surveillance recommendations can be established, particularly if there is a coexistent history of autoimmune disease.

Keywords: Gastric adenocarcinoma; synchronous tumors; neuroendocrine; carcinoid; malignancy

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Consent: Consent was taken from the patient for publication of this case report.

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Introduction

Gastric cancer is one of the most common cancers in the world [1], with gastric adenocarcinoma accounting for 95% of malignant gastric neoplasms [2]. Gastric neuroendocrine tumors are uncommon and account for 0.3% of gastric neoplasms [3]. The coexistence of adenocarcinoma and neuroendocrine carcinoid tumors in the stomach is exceedingly rare [4]. We report a case of two synchronous gastric malignancies in a patient who had a history of chronic gastritis and pernicious anemia.

Case Presentation

A 70 year-old Caucasian male presented to the emergency department for evaluation of a pre-syncopal episode. He complained of a several month history of generalized weakness and dizziness, along with an unintentional 20 pound weight loss. In addition, he complained of constipation, but denied nausea, vomiting, melena or hematochezia. He had no flushing, wheezing, or diarrhea complaints. His past medical history included iatrogenic hypothyroidism, diabetes mellitus, pernicious anemia, and vitiligo. His prescribed medications included atorvastatin, carvedilol, cyanocobalamin intramuscularly, glimepiride, furosemide, metformin, levothyroxine, and metoprolol. However, he had not refilled his medications for several months due to financial limitations. Examination of the patient revealed conjunctival pallor, vitiligo cutaneous changes, diffuse erythematous papules on his upper and lower extremities with multiple engorged *cimex lectularius* (bedbugs) and Leser-Trélat sign. Lab abnormalities confirmed a hemoglobin of 6.6 g/dL (14.0-18.0 g/dL), hematocrit 20.3% (42.0-52.0%), MCV 86.1 fL (80-94 fL), iron 42 μg/dL (50-212 μg/dL), ferritin 7.6 ng/mL (23.9-336.2 ng/mL), vitamin B12 145 pg/mL (180-914 pg/mL), TSH 48.92 μU/mL (0.34-5.6048.92 μU/mL) and blood glucose level of 372 mg/dL (70-105 mg/dL).

![Fig 1 (left) Upper endoscopy showing the polypoid mass](image1)

![Fig 2 (right) Upper endoscopy showing polyp in the gastric body](image2)

To further evaluate the concomitant iron and vitamin B12 deficiency anemias and due to his weight loss complaint, a CT of the abdomen was completed that demonstrated mild to moderate wall thickening of the gastric antrum with no evidence of liver metastasis or significant lymphadenopathy. An
upper endoscopy was performed to rule out malabsorption and bleeding. A 30 mm polypoid ulcerative antral mass and a 12 mm polyp in the gastric body were identified. Pathological assessment confirmed gastric adenocarcinoma and a neuroendocrine tumor (carcinoid) respectively. The patient had completed a recent colonoscopy which was unremarkable so an additional procedure was not recommended. The patient underwent a Billroth I distal gastrectomy and was subsequently discharged to a nursing facility for rehabilitation on post-operative day seven.

**Pathological Findings**

Analysis of the 30 mm polypoid ulcerative mass in the gastric antrum revealed moderately differentiated adenocarcinoma infiltrating into the lamina propria and focally reaching in sections to the edge of the muscularis mucosa. The cells were strongly positive for p53 and the giemsa stain for H. pylori was negative.

*Fig 3 (left)* Well to moderately differentiated invasive adenocarcinoma of the antrum polyp (hematoxylin-eosin stain)

*Fig 4 (right)* Immunohistochemical staining for chromogranin of the gastric body polyp (original magnification x40)

The 12 mm polyp in the gastric body revealed a gastric neuroendocrine tumor grade 1. Immunohistochemical staining was performed which was positive for synaptophysin, chromogranin, and focally positive for the AE1/AE3 and NSA. The cells were negative for gastrin and the mitotic activity index (Ki67) was less than 2% of the malignant cells.

Final pathology resulted in a 0.8 cm moderately-differentiated adenocarcinoma, intestinal type, in the gastric antrum invading the submucosa with negative margins and 0 of 11 lymph nodes involved. Pathologic staging was pathologic pT1b pN0. A 1.5mm carcinoid tumor was present near the proximal margin of the resection.

**Discussion**

There has been limited case reports of synchronous gastric malignancies reported in the literature [4, 5, 6, 7, 8]. Gastric neuroendocrine tumors are rare, and the incidence of gastric neuroendocrine tumors coexisting with other tumors of the stomach is exceptionally uncommon.

The patient discussed had several risk factors for developing gastric carcinoma. Pernicious anemia, which is associated with atrophic gastritis, is linked to gastric adenocarcinoma and gastric carcinoid type 1, and is associated with a sevenfold relative risk of developing gastric cancer [9]. Additionally, there is
evidence that atrophic body gastritis and autoimmune thyroid diseases can occur in a closely linked fashion, as seen in this patient [10].

People with one autoimmune disease are more prone to developing another. As the patient had several autoimmune disorders, we sought to determine if there was a cohesive diagnosis. Based on the patient’s past medical history of several autoimmune disorders, including pernicious anemia, vitiligo, autoimmune thyroiditis, and type 2 diabetes mellitus, the patient met the criteria of autoimmune polyendocrine syndrome (APS) type 3. The clinical classification of APS was originally described by Neufeld 1980 and suggested classifying APS into three main types [11]. APS-3 is characterized by the presence of an autoimmune thyroid disease and another autoimmune disease, excluding Addison’s disease.

Conclusion

Published case reports that describe the occurrence of two pathologically distinct synchronous cancers of the stomach are limited. Additional case reports are necessary so that appropriate screening and surveillance recommendations can be established, particularly if there is a coexistent history of autoimmune disease.

References