



Hypergastrinemia and recurrent type 1 gastric carcinoid in a young Indian male: Necessity for antrectomy?

Viplove Senadhi, Niraj Jani

Viplove Senadhi, Division of Gastroenterology and Hepatology, Indiana Institute for Personalized Medicine, Indiana University School of Medicine, Indianapolis, IN 46202, United States
Niraj Jani, Johns Hopkins University/Sinai Hospital and the Greater Baltimore Medical Center, Chief of Division of Gastroenterology, Baltimore, MD 21204, United States

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Correspondence to: Dr. Senadhi V, Division of Gastroenterology and Hepatology, Indiana University, 1050 Wishard Blvd, Suite 4100, Indianapolis, IN 46202, United States. vsenadhi@hotmail.com

Telephone: +1-317-9480414 Fax: +1-678-6235999

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Abstract

Carcinoid tumors are the most common neuroendocrine tumors. Gastric carcinoids represent 2% of all carcinoids and 1% of all gastric masses. Due to the widespread use of Esophagogastroduodenoscopy for evaluating a variety of upper gastrointestinal symptoms, the detection of early gastric carcinoids has increased. We highlight an alternative management of a young patient with recurrent type 1 gastric carcinoids with greater than 5 lesions, as well as lesions intermittently greater than 1 cm. Gastric carcinoids have a variable presentation and clinical course that is highly dependent on type. Type 1 gastric carcinoids are usually indolent and have a metastasis rate of less than 2%, even with tumors larger than 2 cm. There are a number of experts as well as organizations that recommend endoscopic resection for all type 1 gastric carcinoid lesions less than 1 cm, with a follow-up every 6-12 mo. They also recommend antrectomy for type 1 gastric carcinoids with greater than 5 lesions, lesions 1 cm or greater, or

refractory anemia. However, the American Society of Gastrointestinal Endoscopy guidelines state that type 1 gastric carcinoid surveillance is controversial based on the evidence and could not make an evidence-based position statement on the best treatment modality. Our report illustrates a rare cause of iron deficiency anemia in a young male (without any medical history) due to multiple recurrent gastric carcinoid type 1 lesions in the setting of atrophic gastritis causing hypergastrinemia, and in the absence of a vitamin B12 deficiency. Gastric carcinoid type 1 can present in young males without an autoimmune history, despite the known predilection for women aged 50 to 70 years. Type 1 gastric carcinoids can be managed by endoscopic resection in patients with greater than 5 lesions, even with lesions larger than 1 cm. This course of treatment enabled the avoidance of early antrectomy in our patient, who expressed a preference against more invasive measures at his young age.

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Key words: Gastric carcinoid; Antrectomy; Endoscopic resection; Hypergastrinemia; Iron deficiency anemia

Peer reviewer: Dr. Edward J Ciaccio, Department of Medicine, Columbia University, 180 Fort Washington Avenue, HP804, NY, 10032, United States

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TO THE EDITOR

It is with great interest that we read the experiences of Kadikoylu and colleagues in the management of a solitary

Table 1 Differential diagnosis of hypergastrinemia

| Elevated antral pH | Gastrinoma |
|--|-----------------|
| Chronic atrophic gastritis-type A | ++++ (> 1000) |
| Pernicious anemia | ++++ (> 1000) |
| Other immune dz (RA, vitiligo, SS, DM) | + (150-250) |
| Chronic atrophic gastritis-type B (<i>H. Pylori</i>), gastric cancer | ++ (250-450) |
| Renal insufficiency/high protein diet | + (150-250) |
| Massive small bowel resection | + or ++ |
| G cell hyperplasia/pyloric outlet obstruction | + or ++ |
| Calcium, caffeine, insulin, catecholamines | + (150-250) |
| H2 blocker/PPI's | + (H2) ++ (PPI) |
| Truncal vagotomy/retained antrum s/p surgery | + |

Gastrin level in pg/mL: + equals 150-250 pg/mL; ++ equals 250-450 pg/mL; +++ equals 450-1000 pg/mL; ++++ equals > 1000 pg/mL. dz: Diseases; RA: Rheumatoid arthritis; SS: Sjogren's syndrome; DM: Diabetes mellitus type 1; H2: Histamine H2 receptor blockers; PPI's: Proton pump inhibitors.

Table 2 Gastric carcinoid types and differentiating characteristics

| | Type 1 | Type 2 | Type 3 |
|------------------------------------|--|---|---|
| % of gastric carcinoids | 70%-80% - most common | Less than 5% | 15%-20% |
| Association | Chronic atrophic gastritis | Gastrinomas (Zollinger-Ellison) | Sporadic carcinoid syndrome |
| Epidemiology | Typically women 50-70 yrs old | Family hx of MEN type 1 syndrome | Increased in African Americans |
| Presentation | Asymptomatic or anemia | Peptic ulcer disease | Hepatic mets or carcinoid syndrome |
| Rate of metastasis over a lifetime | < 2% even if larger than 2 mm | 2%-4% | 65% metastatic at presentation |
| Treatment | Observation <i>vs</i> endoscopic resection <i>vs</i> antrectomy | Endoscopic resection <i>vs</i> antrectomy <i>vs</i> octreotide <i>vs</i> gastrectomy | Partial or total gastrectomy with lymph node dissection <i>vs</i> chemotherapy |

hx: History; MEN: Multiple endocrine neoplasia.

gastric carcinoid^[1]. Carcinoid tumors are the most common neuroendocrine tumors^[2] and gastric carcinoids represent 2% of all carcinoids and 1% of all gastric masses^[1]. Due to the widespread use of Esophagogastroduodenoscopy (EGD) to evaluate a variety of upper gastrointestinal symptoms, the detection of early gastric carcinoids has increased. We highlight an alternative management of a young patient with recurrent type 1 gastric carcinoids with greater than 5 lesions as well as lesions intermittently greater than 1 cm.

A 28-year-old Indian male with no significant medical history presented with fatigue. He was found to have severe iron deficiency anemia (hemoglobin of 68 gm/L) with a mean corpuscular volume of 77 fL, and an iron level of 370 mcg/L. Endoscopic evaluation for anemia revealed nine sessile polyps in the body and fundus of the stomach ranging from 5 mm to 9 mm, which were all resected. An Endoscopic Ultrasound showed the lesions to be within the mucosa and there was no evidence of gastrinoma or metastatic disease to the liver or pancreas. The serum gastrin level was 1534 ng/L and other causes of hypergastrinemia were considered (Table 1)^[3-6]. Histopathological examination of the polyps confirmed carcinoid tumors with positive synaptophysin and chromogranin. The body of the stomach revealed autoimmune atrophic gastritis without oxyntic mucosa, helicobacter pylori, or evidence of parietal cell hyperplasia. Capsule endoscopy and colonoscopy did not reveal any other sources of blood loss or further carcinoid tumors. Octreotide scans, vitamin B12 levels, as well as Computed Tomography

scans of the thorax, abdomen, and pelvis were normal. Surveillance EGD 6 mo later showed recurrence with 5 polyps, with the largest measuring 1.1 cm, which was resected. Since resection, the patient has experienced a resolution of his anemia along with normal gastrin levels. The patient has not had more than 5 lesions or a lesion greater than 1 cm for over two years.

Gastric carcinoids have a variable presentation and clinical course that is highly dependent on type (Table 2)^[7]. Type 1 gastric carcinoids are usually indolent and have a metastasis rate of less than 2%, even with tumors larger than 2 cm^[8]. Kadikoylu *et al*^[1] recommend endoscopic resection for all type 1 gastric carcinoid lesions less than 1 cm with follow-up every 6-12 mo and antrectomy for type 1 gastric carcinoids with greater than 5 lesions, lesions 1 cm or greater, or refractory anemia. However, the American Society of Gastrointestinal Endoscopy guidelines state that type 1 gastric carcinoid surveillance is controversial based on the evidence and could not make an evidence-based position statement on the best treatment modality^[9].

This report illustrates a rare cause of iron deficiency anemia in a young male (without any medical history) due to multiple recurrent gastric carcinoid type 1 lesions in the setting of atrophic gastritis causing hypergastrinemia and in the absence of a vitamin B12 deficiency. Gastric carcinoid type 1 can present in young males without an autoimmune history, despite the known predilection for women aged 50 to 70 years. Type 1 gastric carcinoids can be managed by endoscopic resection in patients with

greater than 5 lesions, even with lesions larger than 1 cm. This course of treatment enabled the avoidance of early antrectomy in our patient, who expressed a preference against more invasive measures at his young age.

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