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Gastric Antral Vascular Ectasia (GAVE)

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ABSTRACT

Gastric Antral Vascular Ectasia (GAVE) is a condition where the stomach lining bleeds in multiple locations. It is also referred to as “watermelon stomach” because when we view it with an endoscope, the stomach lining has visible stripes that make it look similar to the striped skin of a watermelon. These bleeds do not typically cause any pain, but they do cause a continuous drain on the body’s blood supply, which can cause extreme anemia. GAVE is most common in women, ages 70-years and older and the elderly population in general. While there is no known direct cause of GAVE, the condition is most common in those who have suffered from certain chronic conditions such as cirrhosis (poor liver function, or scarring of the liver), systemic sclerosis, CREST syndrome, atrophic gastritis and autoimmune disease.

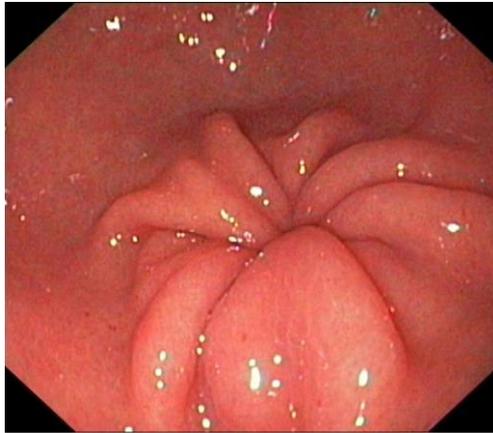
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INTRODUCTION

Gastric antral vascular ectasia (GAVE) is a relatively rare cause of gastrointestinal (GI) bleeding that mainly affects women aged 70 years and older. Despite the obscurity of its true incidence, a large case series has found that GAVE accounts for 4% of upper GI bleeding. Comorbid conditions include autoimmune disease (eg, systemic sclerosis), liver cirrhosis, renal failure, and heart disease [1-8].



History

GAVE was first described in 1953 by Rider and colleagues as "an erosive type of atrophic gastritis with marked veno-capillary ectasia." Three decades later, in 1984, Jabbari and colleagues coined the term "watermelon stomach" to describe the classic endoscopic appearance. Soon thereafter, the distinctive histologic characteristics of mucosal vascular ectasia (due to increases in both the size and number of capillaries), intravascular fibrin microthrombi, and fibromuscular hyperplasia (due to spindle cell proliferation) were defined.

Causes

The etiology of GAVE remains incompletely described, Theories include:

- Mechanical stress due to increased gastric peristalsis
- Spindle cell proliferation due to hypergastrinemia, which is frequently
- Observed in GAVE patients, leading to a rise in venous hydrostatic pressure
- Local proliferation of neuroendocrine cells, producing high levels of vasoactive substances (eg, vasoactive intestinal polypeptide and serotonin) that lead to vascular dilation.

Incidence

Women represent 71% of all cases of GAVE making the incidence roughly twice that of males. The average age at diagnosis is also slightly elevated for females at 73 years of age vs. 68 for men. Patients as early as their late twenties have been treated for GAVE; however, it is much more prevalent in those in their eighties. Ultimately in the most affected patient population, GAVE is responsible for 4% of nonvariceal upper GI bleeding.

Pathogenesis

Since its discovery in 1952 (described in 1953), there has been much postulation as to the etiology of watermelon stomach. Even now GAVE is thought to occur in an idiopathic manner. Many speculate there to be a significant association with cirrhosis and systemic sclerosis. However, a causal connection between cirrhosis or a connective tissue disease with GAVE has not yet been proven. Autoimmunity is another theory. Anti-RNA polymerase III antibodies has been documented in 25% of sclerosis

patients that had GAVE. This finding demonstrates future potential to be used as a predictive and prognostic marker.

Associated Diseases

Gastric antral vascular ectasia is associated with a number of conditions, but perhaps the most frequently studied include portal hypertension, chronic renal failure, and connective tissue disorders. Watermelon stomach occurs especially in the connective tissue disease, scleroderma, with the subtype systemic sclerosis (5.7% of patients with sclerosis have GAVE, and 25% of sclerosis patients with anti-RNA III polymerase have GAVE). In 2010, there were reported cases of both Sjogren syndrome¹³ and ectopic pancreas¹⁰ co-morbid with GAVE. Strikingly, cirrhosis has been associated with 30% of all patients with GAVE.^{8,11} Lastly, according to the Genetic and Rare Diseases Information Center (GARD), pernicious anemia is associated with GAVE's as an independent study showed that over three-fourths of the patients had some kind of Vitamin B12 deficiency.

Symptoms

- Vomiting blood (hematemesis)
- Anemia (iron deficiency)
- General abdominal pain or discomfort
- Blood in the stool

None of these symptoms should ever be ignored. In most cases, you would report them to your general physician, who will then make a referral to a gastroenterologist for endoscopic diagnosis.

Diagnosis

The least invasive – and clearest – way to diagnose GAVE is to have upper endoscopy. Using a gentle, flexible scope, we send it down through the throat, the esophagus and finally into the stomach. This gives us an excellent, real-time view of those soft, GI tissues that don't show up as well or as clearly as on X-rays or ultrasounds. CT scans, endoscopic ultrasound, biopsy of the stomach lining and/or tagged red blood cell scans may also be used as diagnostic tools.

If you are referred to Dr. Marcus's office, he will use an upper endoscopy to identify areas of the stomach that are bleeding. After your diagnosis, you'll be able to discuss the available treatment options. It is important to choose a gastroenterologist who is experienced in accurately diagnosing GAVE because it can be confused with portal hypertensive gastropathy (PHG) or antral gastritis, and these require different treatment methods.





Endoscopy views

Differential diagnosis

Because many diagnoses can present in this manner, it is imperative to construct an adequate differential, as the treatments for these conditions can be vastly diverse. An adequate differential would include, but is not limited to, more common causes, like a duodenal/gastric ulcer and portal hypertension, and more intermittent causes, like: upper gastrointestinal tumors, Dieulafoy Lesions, Gastric antral vascular ectasia, portal hypertensive gastropathy, hemobilia, hemosuccuspancreaticus, aortoenteric fistulas, and Cameron lesions.

Treatment

Treatment options vary according to your symptoms and the extent of the bleeding. Here in our office, we typically use Argon Plasma Coagulation (APC), which is becoming a preferred method of treatment over endoscopic laser therapy, although the latter may be required as well. Recent medical studies have also shown success treating GAVE with corticosteroids, hormone therapy and tranexamic acids.

If the bleeding has been severe and/or have existed untreated for some time, patients may require a blood transfusion, and blood transfusions are also used when the GAVE doesn't respond to treatment in order to replace lost blood and reduce the effects of anemia.

Everybody is different so the prognosis for GAVE is difficult to predict. Some patients do quite well, without any recurring bleeds after their initial treatment protocol. Others may find their stomach bleeding starts back up over a certain period of time. In cases where gastrointestinal bleeding is difficult to eliminate completely, blood transfusion therapy may be necessary at set intervals to compensate for the chronic loss of blood.

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