



Case Report

Gastric antral vascular ectasia (Watermelon stomach); an unusual cause of upper gastrointestinal bleeding in elderly: A case report



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ARTICLE INFO

Keywords:

Vascular ectasia
Malaena
Endoscopy
Argon plasma coagulation
Case report

ABSTRACT

Introduction: Gastric antral vascular ectasia (GAVE) is an unusual cause of upper gastrointestinal (GI) bleeding in an elderly patient.

Case presentation: A 73-year-old female with erosive gastritis, hypertension, and unstable angina arrived at the emergency department with shortness of breath, easy fatigability, and melaena. Physical examination indicated pallor but no signs of distress, with an unremarkable systemic examination. Routine blood testing indicated anemia. The patient underwent upper gastrointestinal endoscopy, which revealed linear red ectatic vessels radiating from the antrum towards the body. A diagnosis of GAVE was made. Blood transfusions and argon plasma coagulation were undertaken.

Clinical discussion: This condition is an uncommon cause of upper GI bleeding with the antrum being the most prevalent site. The pathophysiology of GAVE is yet unknown, however, many hypotheses have been postulated. GAVE is frequently misdiagnosed as gastritis. GAVE treatment comprises initial resuscitation and symptomatic treatment with intravenous fluids and blood products. Endoscopy has increasingly been the first-line therapeutic option for GAVE in recent years, including argon plasma coagulation.

Conclusion: The diagnosis of gastric antral vascular ectasia is frequently overlooked during upper GI endoscopy, despite the fact that it should always be explored, especially in cases of unexplained GI bleeding in the elderly.

1. Introduction

Gastric antral vascular ectasia (GAVE), initially defined by Rider et al., in 1953, refers to dilated blood vessels in the antrum that radiate to the pylorus [1]. Jabbari et al. coined it “watermelon stomach” in 1984 because its characteristic pattern is comparable to the stripes observed on watermelons [2]. This condition is an unusual cause of upper gastrointestinal (GI) bleeding, accounting for about 4% of all non-variceal GI hemorrhages and 6% of upper GI hemorrhages in cirrhotic patients [3]. Although it is most frequently detected in the gastric antrum, it can be found anywhere in the GI system [4]. It most commonly affects middle to older age patients, predominantly women (71%), with an average age of 73 years (range between 53 and 89 years) [5]. It is linked to various chronic illnesses, including liver issues such as cirrhosis, which occurs in 30% of patients, and connective tissue disorders [6].

We report a case of a 73-year-old female with anemia, shortness of breath, easy fatigability, and malaena diagnosed with GAVE. Blood transfusion along with endoscopic argon plasma coagulation was done. The symptoms gradually improved with no ongoing bleeding on regular follow-up. This work has been reported in line with the SCARE guidelines [7].

2. Case presentation

A 73-year-old female attended the emergency department of Tribhuvan University Teaching Hospital (TUTH) with chief complaints of shortness of breath and easy fatigability for several months. Her shortness of breath began gradually. She was able to walk on level terrain without getting out of breath. In recent months, she has been unable to walk at her own speed and has increasingly been unable to walk for even 100 m. Breathlessness is frequently worse during exercise and better

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<https://doi.org/10.1016/j.amsu.2022.104733>

Received 9 July 2022; Received in revised form 11 September 2022; Accepted 18 September 2022

Available online 22 September 2022

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after rest. However, she was out of breath just leaving the house a few days ago. She also complains of passing black tarry stool multiple times. She had never experienced hematemesis or per rectal bleeding. Her past surgical history was significant for cataract surgery. Her past medical history indicated that she is on anti-hypertensive drugs for since 9 years. She was diagnosed with unstable angina two years ago and has been on anti-platelet treatment ever since.

She had a similar history of symptoms of difficulty in breathing, easy fatigability, and malaena 1 year back for which she visited B. P. Koirala Institute of Health Sciences (BPKIHS). She had severe anemia. 4 pints of blood transfusion were done. A presumptive diagnosis of upper gastrointestinal bleeding secondary to peptic ulcer disease was made. After undergoing an upper gastrointestinal endoscopy, she was diagnosed as having erosive gastritis and was started on an oral proton pump inhibitor twice daily.

This time while visiting an emergency, she was conscious and aware of time, place, and person. During an inspection, pallor was seen on the palpebral conjunctiva, palms, and soles. The results of the systemic examinations were within normal ranges. She had a blood pressure of 120/80 mm of Hg, a heart rate of 92 beats/min, a temperature of 98.2 °F, a respiratory rate of 16/min, and a saturation of 95% in room air.

Her hemoglobin was 5.8 gm%, her total leukocyte count was 6,280 cells per mm³, and her platelets were 3,45,400 cells per mm³. Her blood sugar levels, liver function tests, renal function tests, urine routine, and microscopy were all normal. A provisional diagnosis of severe anemia caused by upper gastrointestinal hemorrhage was made. Three pints of blood were transfused urgently. Her oral antiplatelet treatment was discontinued and she was put on an oral proton pump inhibitor (PPI). She had a consultation with a gastroenterologist and was scheduled for an upper gastrointestinal endoscopy. Endoscopy revealed linear red ectatic vessels radiating from the antrum towards the body (Fig. 1). A diagnosis of gastric antral vascular ectasia (GAVE) was made. She received three sessions of argon plasma coagulation (APC) at three weeks' intervals. On regular follow-up, the patient is improving gradually with no ongoing bleeding.

3. Discussion

Rider et al. published the first study of GAVE in the literature in 1953, describing the illness in an elderly female patient suffering from chronic iron-deficient anemia. "Erosive atrophic gastritis with marked veno-capillary ectasia" was discovered in an antrectomy specimen [1]. Jabbari et al. published the distinctive endoscopic findings of "longitudinal antral folds ... converging on the pylorus" in 1984. Because the endoscopic picture mimicked the stripes on a watermelon, the term "watermelon stomach" was coined [2].

The antrum is the most prevalent site for GAVE lesions, although it has also been reported in other regions of the gastrointestinal system, including the cardia, duodenum, and jejunum [8]. GAVE is frequently linked to chronic liver disease, as well as autoimmune and connective tissue disorders, hepatocellular carcinoma, hypothyroidism, sclerosis, and systemic lupus erythematosus. The majority of the patients are elderly, with a female-to-male ratio of 2:1 [9]. Similarly, in our case the patient is an elderly female with a lesion found in the gastric antrum.

This condition is an uncommon cause of upper GI bleeding, accounting for about 4% of all non-variceal GI hemorrhages and 6% of upper GI hemorrhages in patients with liver cirrhosis [3]. It can be asymptomatic or can cause occult and dominating upper gastrointestinal bleeding with hematemesis or melena. Despite blood transfusions and intravenous or oral iron supplements, many individuals present with refractory anemia [10].

The pathophysiology of GAVE is yet unknown. Many hypotheses have been postulated, including achlorhydria, hypergastrinemia, and low pepsinogen levels. The etiology of the histologic alterations, most notably lamina propria fibromuscular growth and vascular dilatation with thrombosis, is unknown. Elevated levels of vasodilatory hormones,

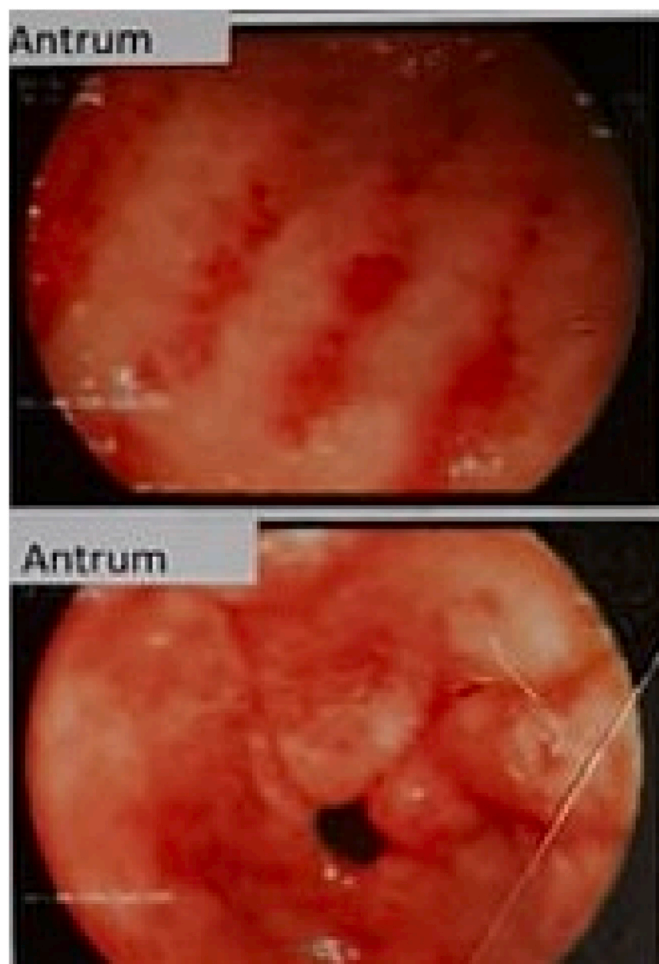


Fig. 1. Upper gastrointestinal endoscopy showing gastric antral vascular ectasia, watermelon stomach.

such as gastrin and prostaglandin E₂, have been detected in GAVE patients, and it has been proposed that impairment of liver processing functions may lead to a buildup of these hormones, leading to the pathophysiology of GAVE [11].

Several research has proposed the mechanical stress theory as a possible explanation for GAVE etiology. Charneau et al. [12] discovered that antral motility time was considerably longer in GAVE patients compared to healthy controls. Quintero et al. [13] proposed that peristaltic waves of loosely linked antral mucosa force the mucosa into longitudinal folds, causing fibromuscular growth and subsequent ectatic vascular development. GAVE is distinguished histologically by fibromuscular growth and capillary ectasia with microvascular thrombosis of the lamina propria [13].

Two distinct endoscopic findings of GAVE have been recorded in the literature. The first is the widespread punctuate lesions in the gastric antrum. This kind of GAVE is primarily found in male cirrhotic patients and is frequently followed by severe bleeding. The second kind is the watermelon stomach, which is characterized by red lesions grouped in stripes radiating from the pylorus, as seen in our case. This kind is particularly frequent in women with connective tissue illnesses and is characterized by occult bleeding [14].

On endoscopy, the most common differential diagnoses for GAVE are portal hypertensive gastropathy (PHG) and antral gastritis. PHG is more common in the fundus and gastric body, whereas GAVE is mostly seen in the antrum. However, severe PHG might reach the antrum and mimic GAVE. On upper GI endoscopy, GAVE can be readily mistaken with gastritis; however, the histological pattern of GAVE, while not

pathognomonic, can distinguish the two entities. GAVE is distinguished histologically by vascular ectasia of the mucosal capillaries, focal thrombosis, spindle cell proliferation (smooth muscle cell and myofibroblast hyperplasia), and fibrohyalinosis, which is comprised of a homogeneous substance surrounding the ectatic capillaries of the lamina propria [5,15,16].

The unusual thing about our case is that GAVE was misdiagnosed as gastritis during the previous session of upper GI endoscopy. A similar occurrence was described by Sidhu et al. [17] in six cases. It is unclear why our patient's diagnosis was missed at a first upper GI endoscopy conducted by an expert endoscopy specialist. The variability in endoscopic appearances of GAVE over time, presumably related to blood flow, hemoglobin concentration, or simultaneous other gastric diseases such as gastritis, is one probable cause [6].

GAVE treatment comprises initial resuscitation and symptomatic treatment with intravenous fluids and blood products [18]. Medical therapy targeted at lowering portal pressures has had limited effectiveness in the treatment of GAVE [19]. Corticosteroids, estrogen, and progesterone have been prescribed to manage GAVE in patients [20,21]. Endoscopy has increasingly been the first-line therapeutic option for GAVE in recent years, including argon plasma coagulation (APC), endoscopic band ligation, neodymium-doped: yttrium-aluminum-garnet (Nd: YAG) laser treatment, cryotherapy, and radiofrequency [8]. Furthermore, antrectomy has demonstrated advantages in refractory instances but involves a substantial mortality risk [18]. As mentioned above, our patient received initial resuscitation with intravenous fluids and blood products followed by three sessions of APC at three weeks' intervals.

4. Conclusion

GAVE is an uncommon but important cause of upper GI hemorrhage in the elderly, with presentations spanning from occult bleed to life-threatening hemorrhage that necessitates resuscitation. GAVE diagnosis is often missed during upper GI endoscopy, although it should always be considered, especially in cases of unexplained GI bleeding in the elderly. Argon plasma coagulation (APC) is a good treatment modality for this disease.

Ethical approval

Not required.

Sources of funding

None.

Author contribution

All the authors contributed equally to writing and preparing the manuscript. The final version of the article is approved by all authors.

Registration of research studies

N/A.

Guarantor

Nimesh Lageju.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Availability of data

All data about the case are available as a part of the article and no additional source data are required.

Registration of research studies

N/A.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Declaration of competing interest

The authors declare no conflict of interest.

Acknowledgments

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2022.104733>.

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