Diagnostic and Interventional Endoscopy

Case Report

Argon Plasma Coagulation as a Type of Endoscopic Treatment of the Gastric Antral Vascular Ectasia Syndrome

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Cite this article as: Batyrbekov K, Galiakbarova A. Argon plasma coagulation as a type of endoscopic treatment of the gastric antral vascular ectasia syndrome. *Diagn Interv Endosc.* 2024;3(1):17-19.

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Received: September 2, 2023 **Revision Requested:** December 18, 2023 **Last Revision Received:** February 26, 2024 **Accepted:** March 17, 2024
Publication Date: July 29, 2024 **DOI:** 10.5152/DiagnIntervEndosc.2024.23084

Abstract

Gastric antral vascular ectasia (GAVE) syndrome is a rare but clinically significant cause of gastrointestinal bleeding. Gastric antral vascular ectasia syndrome may be asymptomatic or accompanied by a clinical picture of anemia or obvious gastrointestinal bleeding. Gastric antral vascular ectasia syndrome is diagnosed by a characteristic endoscopic picture presented by the so-called watermelon stomach with a typical localization of changes in the antrum. Argon plasma coagulation (APC) is a new method of contactless electrocoagulation. In this article, we present 2 cases of successful treatment of patients with GAVE syndrome using argonoplasmic coagulation. Both patients had a positive endoscopic response after 2 sessions of APC and a stable increase in hemoglobin levels. After 12 months of follow-up, the patients had no relapses. No serious complications were reported. Argon plasma coagulation is a safe and effective treatment for vascular malformations of the stomach. Even though the argon plasma complex is financially expensive, it takes a short period to master the technique of using the argon plasma complex in outpatient settings.

Keywords: Gastric antral vascular ectasia, chronic anemia, endoscopy, gastrointestinal bleeding, argon plasma coagulation

INTRODUCTION

Ectasia of the veins of the antrum of the stomach [Gastric antral vascular ectasia (GAVE) syndrome] is a rare but clinically significant cause of gastrointestinal bleeding. Gastric antral vascular ectasia syndrome may be asymptomatic or accompanied by a clinical picture of anemia or obvious gastrointestinal bleeding. Gastric antral vascular ectasia syndrome is diagnosed by a characteristic endoscopic picture presented by the so-called watermelon stomach with a typical localization of changes in the antrum. Among the patients with GAVE syndrome, 60% suffer from autoimmune disorders, 30% from cirrhosis of the liver of various etiologies, and 10% from kidney damage and cardiovascular dysfunction. Endoscopic argon plasma coagulation (APC) is recognized as the generally accepted standard of treatment for GAVE syndrome.[1,2] There are 2 types of endoscopic patterns in GAVE syndrome. The first type is characterized by a predominant lesion of the antrum of the stomach with classic raised sinuous ridges covered with ectatic vascular tissue extending from the pylorus. The second type is characterized by multiple lesions of the gastric mucosa. As a rule, linear lesions in the antrum are observed in patients without cirrhosis of the liver, and diffuse lesions are observed in patients with cirrhosis of the liver. Regardless of its nature, bleeding from the affected areas begins with damage to the epithelium of the mucous membrane covering the swollen vessels, either with gastric acid or intraluminal food. The severity of bleeding varies from minor blood loss to severe anemia, which requires blood transfusion. The presence of cirrhosis and the endoscopic appearance of angiodysplasia do not affect the response to APC endoscopic treatment.[3,4]

We present 2 clinical cases of the diagnosis and endoscopic treatment of patients with severe anemia caused by GAVE syndrome.

CASE PRESENTATION

The first patient, a 53-year-old woman, complained of periodic gastric bleeding for 6 months. In the case of emergency bleeding, the hemoglobin level decreased to 4.7 g/dL. The patient received treatment in the clinic, and hemorrhagic erosions were diagnosed during gastroscopies. After that, she turned to us on her own to undergo a control gastroscopy for evaluation and dynamic control of the gastric mucosa. During gastroscopy in our clinic, she was diagnosed with GAVE syndrome (Figure 1). Further, in our clinic, she underwent 2 courses of argon plasma coagulation of the "watermelon stomach," with an interval of 1 month between sessions.

Two sessions of argon plasma coagulation of the gastric mucosa were performed in the Forced Argon 1.5/45 Wt mode, effect 1 (Figure 2). During the control examination, there were positive dynamics with a sharp decrease in the foci of arteriovenous malformation. In dynamics, hemoglobin is within normal limits; no more episodes of bleeding are observed. The patient is registered at the place of residence, underwent endoscopic

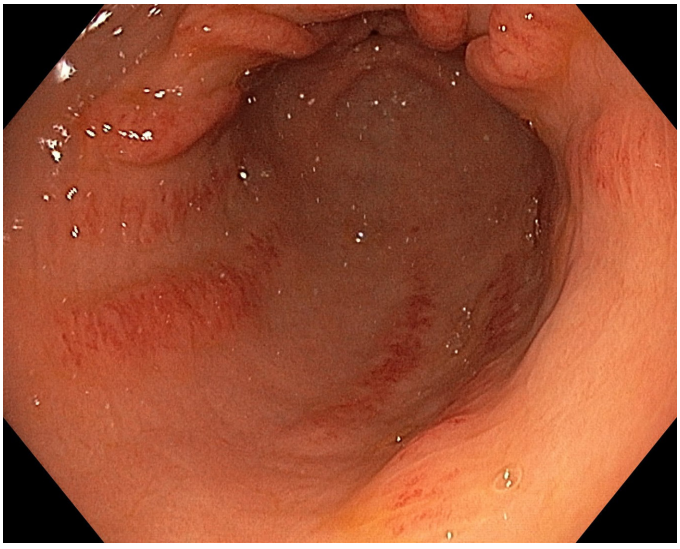

Figure 1. Endoscopic picture of Gastric Antral Vascular Ectasia before argon treatment.

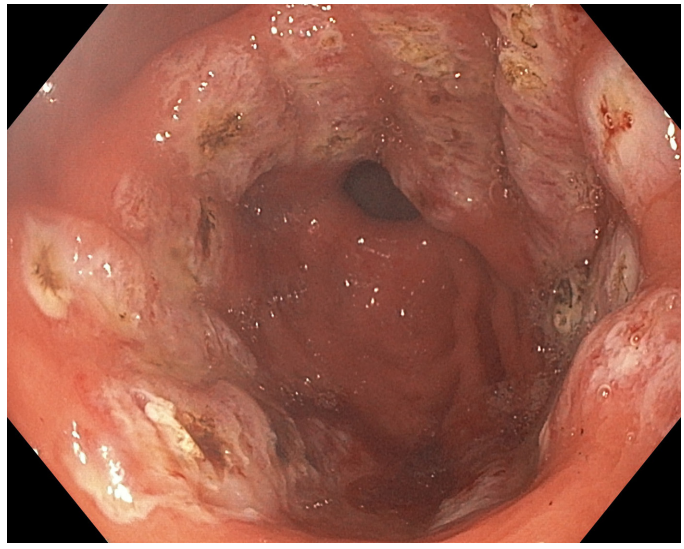

Figure 2. Endoscopic picture during argonoplasmic coagulation.

control at 3, 6, and 12 months, and no recurrence of gastric bleeding was recorded.

The second patient, a 63-year-old woman, suffers from cirrhosis of the liver and also complains of periodic gastric bleeding for a year. In cases of emergency bleeding, the hemoglobin level decreased to 3.9 g/dL minimally. The patient received treatment in the clinic, and portal gastropathy was diagnosed during gastroscopies. She was sent to our clinic for an expert gastroscopy. During a gastroscopy in our clinic, she was diagnosed with GAVE syndrome. Further, in our clinic, she also underwent 2 courses of argon plasma coagulation with an interval of 1 month between sessions.

Two sessions of argon plasma coagulation of the gastric mucosa were performed in the Forced Argon 1.5/45 Wt mode, effect 1. During the control examination, there were positive dynamics with a sharp decrease in the foci of arteriovenous malformation (Figure 3). The patient is registered at the place of residence, underwent endoscopic control at 3, 6, and 12 months, and no recurrence of gastric bleeding was recorded.

CARE (Case Report guideline) Checklist has been completed by the authors for this case report, which is attached as supplementary material. All patients have given informed consent to the publication of their clinical cases.

MAIN POINTS

- GAVE syndrome is a very rare pathology, which not all gastroenterologists, therapists and surgeons are familiar with and is consequently diagnosed late, as it is mistakenly perceived as multiple erosions of the stomach. Therefore, such cases of diagnosis and treatment of GAVE syndrome must be reported at medical conferences.
- Timely diagnosis and subsequent correct endoscopic treatment give a good effect and significantly improve the patient's quality of life.
- If argon coagulation is ineffective or relapses occur, endoscopic ligation can be used for treatment.

DISCUSSION

Argon plasma coagulation is a non-contact electrocoagulation method that uses ionized gas to supply high-frequency alternating current to the lesion. The risk of perforation, stenosis, or fistula is low due to the shallow coagulation depth of 0.5–3 mm. Unlike traditional bipolar devices, APC can be used in axial and radial directions, which allows tangential coagulation of lesions around the bends of hollow organs. In addition, the APK generator is mobile and can be quickly used anywhere and anytime. Thus, APC is a recognized method of treating a wide range of pathologies, including vascular dysplastic lesions and bleeding from polypectomy sites. In addition, APC therapy does not require sedation or anesthesia during the procedure and therefore can be performed on an outpatient basis.

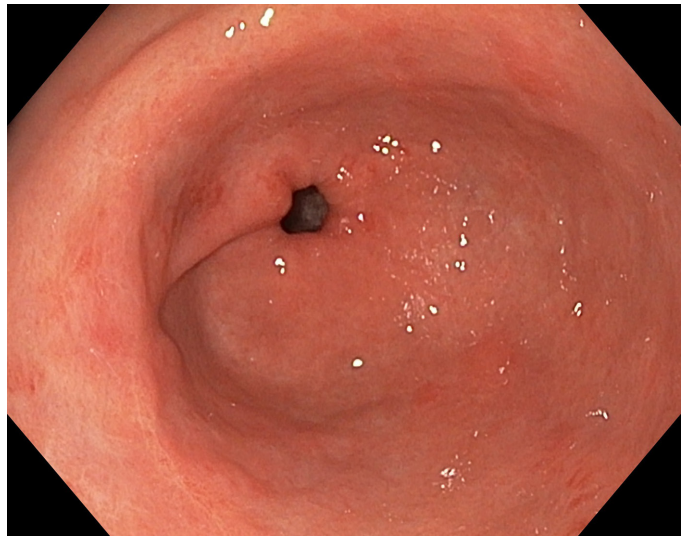

Figure 3. Endoscopic picture after 2 sessions of argon coagulation.

The advantages of APC include ease of use, targeted coagulation of telangiectasias, depth control, safety, and low cost.[5]

CONCLUSION

Gastric antral vascular ectasia syndrome is a rare but serious cause of occult gastrointestinal bleeding. Endoscopy is a key method of diagnosis and the main method of treatment. Prolonged diagnostic search significantly worsens the results of treatment, which is especially dangerous in patients with severe anemia who need hemotransfusion. Apparently, the difficulties with diagnosis are due to the lack of information among doctors about the features of the diagnosis and treatment of this pathology. And with timely diagnosis, this syndrome is well-treated endoscopically by argonoplasmic coagulation.

Informed Consent: Informed consents have been obtained from all patients who have received medical and surgical interventions in our clinic and are included in this review article.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – K.B., A.G.; Design – K.B., A.G.; Supervision – K.B.; Resources – K.B.; Materials – K.B.; Data Collection and/or Processing – A.G.; Analysis and/or Interpretation – K.B.; Literature Search - K.B.; Writing Manuscript – K.B.; Critical Review – K.B.

Declaration of Interests: The authors declare that they have no competing interests.

Funding: The authors declared that this study has received no financial support.

REFERENCES

1. Probst A, Scheubel R, Wienbeck M. Treatment of watermelon stomach (GAVE syndrome) by means of endoscopic argon plasma coagulation (APC): long-term outcome. *Z Gastroenterol*. 2001;39(6):447-452. [CrossRef]
2. Kwon HJ, Lee SH, Cho JH. Influences of etiology and endoscopic appearance on the long-term outcomes of gastric antral vascular ectasia. *World J Clin Cases*. 2022;10(18):6050-6059. [CrossRef]
3. Peng M, Guo X, Yi F, et al. Endoscopic treatment for gastric antral vascular ectasia. *Ther Adv Chronic Dis*. 2021;12:20406223211039696. [CrossRef]
4. Tamari H, Oka S, Tanaka S, et al. Clinical usefulness of combination therapy with polidocanol injection and argon plasma coagulation for gastric antral vascular ectasia. *JGH Open*. 2021;5(4):465-469. [CrossRef]
5. Fortuna L, Bottari A, Bisogni D, et al. Gastric Antral Vascular Ectasia (GAVE) a case report, review of the literature and update of techniques. *Int J Surg Case Rep*. 2022;98:107474. [CrossRef]