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Case Report

Gastrointestinal Angiodysplasia in Patients with Chronic Kidney Disease and Hepatic Cirrhosis

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REZUMAT

Angiodisplazia gastrointestinală la pacienții cu boală cronică de rinichi și ciroză hepatică

Angiodisplazia reprezintă o anomalie vasculară gastrointestinală, des întâlnită, în ultimii ani, și la pacienții cunoscuți cu boală cronică de rinichi. Astfel, descriem 2 cazuri de angiodisplazie gastrointestinală la pacienți cunoscuți cu boală cronică de rinichi și ciroză hepatica. De asemenea, pentru fiecare bolnav în parte am prezentat în detaliu datele clinice și bioumorale semnificative, menționând faptul că pentru documentarea episoadelor de hemoragie digestivă, s-a realizat endoscopie digestive superioară. Aceste cazuri demonstrează corelația dintre angiodisplazia gastrointestinală și boala cronică de rinichi (RFG < 60 mL/min/1,73m^2). Această asociere este prezentă încă din stadiile timpurii de boală cronică de rinichi, incluzând și populația dializată.

Cuvinte cheie: angiodisplazia, boala cronică de rinichi, ciroza hepatică, coagulare argon plasma, evoluție

ABSTRACT

Angiodysplasia represents a vascular abnormality of the gastrointestinal tract that in the last decades was more often seen even in chronic kidney disease population. Therefore, we present two cases of gastrointestinal angiodysplasia reported in patients with chronic kidney disease and hepatic cirrhosis. A detailed history and medical records of each patient were thoroughly reviewed. Each patient had upper digestive endoscopy to investigate gastrointestinal bleeding. Additionally, laboratory tests have been performed. This cases prove the linkage between gastrointestinal angiodysplasia and chronic kidney disease (GFR < 60 mL/min/1.73m^2). This association is present since the early stages of chronic kidney disease, including the dialysis population.

Key words: angiodysplasia, chronic kidney disease, hepatic cirrhosis, argon plasma coagulation, outcome

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INTRODUCTION

Angiodysplasia (AD), gastric antral vascular ectasia (GAVE or watermelon stomach), radiation-induced vascular ectasia and Dieulafoy's lesions are considered sporadic lesions and they can induce gastrointestinal bleeding (1). AD is the most common vascular abnormality of the gastrointestinal tract, probably the most common cause of recurrent gastrointestinal hemorrhage in patients with renal failure (2) and an important cause of erythropoietin-resistant anaemia in dialyzed patients. Angiodysplasia injuries developed in the gastric antrum were first described in 1953 and named GAVE, being characterized as submucosal capillary dilatation and fibromuscular hyperplasia (3).

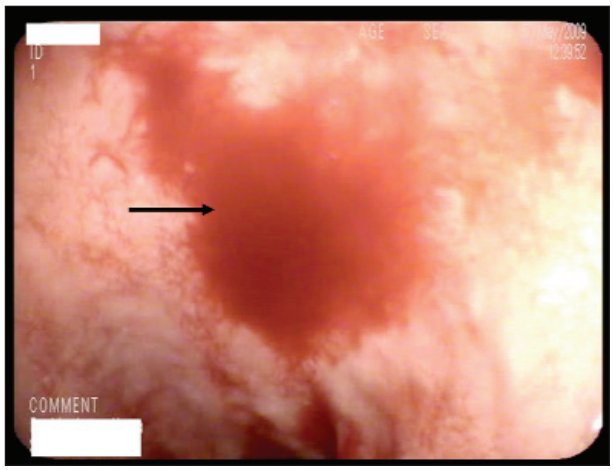

Figure 1. Duodenal bulb angiodysplasia, with active bleeding

CASE DESCRIPTIONS

Case 1

A 67 years old male with continuous ambulatory peritoneal dialysis and liver cirrhosis, referred to our Department of Nephrology and Dialysis for asthenia, dizziness and small efforts dyspnea, symptomatology initiated after two episodes of melena, experienced before admission to the hospital. His medical history revealed repeated upper gastrointestinal bleeding, chronic hepatitis C, hepatic cirrhosis and essential arterial hypertension. The physical examination highlighted that the patient was hemodynamic and respiratory balanced presenting the following features: pallor of skin and extremities, heart rate of 109 beats per minute and respiratory rate of 20 breaths per minute. Digital rectal examination revealed black stool on the glove exam. At presentation the hemoglobin was 7.3 g/dL, with macrocytosis (MCV = 102.2 fL) and normal serum iron concentration (87 μg/dL). The patient had also hepatic cytolysis with cholestasis and elevated serum creatinine level 5.4 mg/dL. During hospitalization the hemoglobin level raised from 7.3 g/dL to 9.1 g/dL after blood transfusion.

Esophagogastroduodenal endoscopy showed bleeding from an angiodysplastic lesion in the duodenal bulb (**Fig. 1**). In the same session, endoscopic thermal ablation of the injury with argon plasma coagulation (APC) was performed (**Fig. 2**). Bleeding arrest was observed after APC, with a significant decrease in blood transfusions requirements and improvement of anemia.

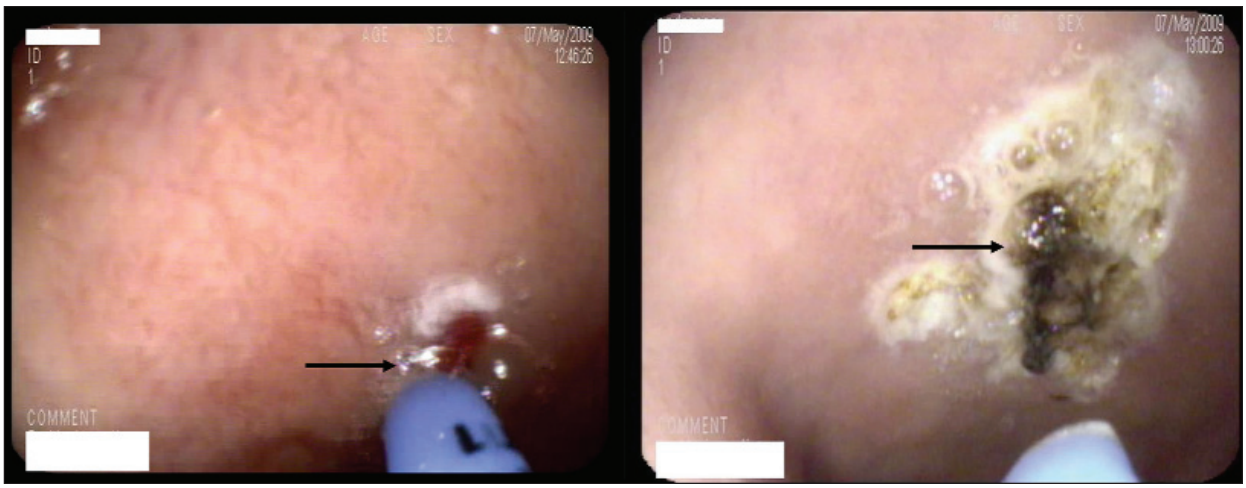

Figure 2. APC application (first session)

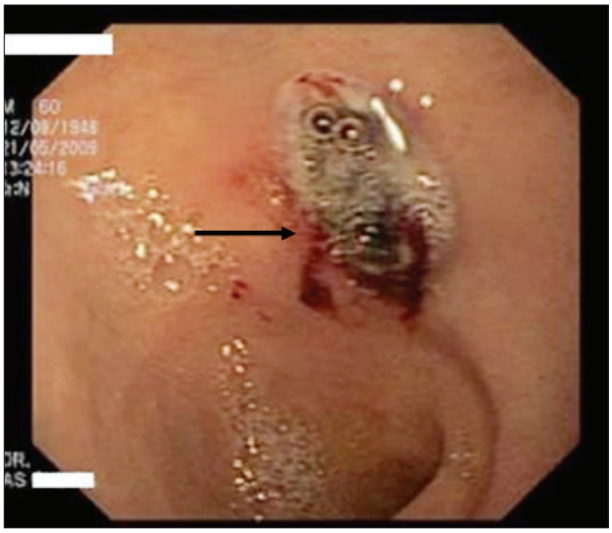

Figure 3. The second APC application

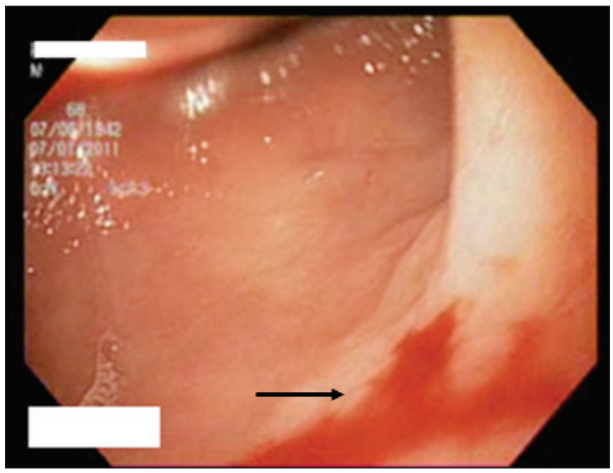

Figure 4. Gastric angiodysplasia, with active bleeding

The patient received a second application of APC after 7 days from the first one and endoscopic therapy was followed by medical treatment with proton pump inhibitor and sucralfate (**Fig. 3**).

The evolution of patient was favorable without clinic or laboratory signs of bleeding relapse.

Case 2

A 69 years old male was admitted to our Department of Nephrology and Dialysis for abdominal pain, nausea, fatigue, and an episode of melena two days before admission. His medical history revealed chronic duodenal ulcer, dyslipidaemia, ischemic myocardial diseases, chronic kidney disease (CKD), hepatic cirrhosis and no surgical history. He was known for alcohol abuse, and there is no relevant family history of serious illness. At physical examination the patient was hemodynamic and respiratory balanced. The skin and extremities were pale and there was no abdominal tenderness mass or organomegaly.

Upon admission to the hospital, he showed evidence of iron-deficiency anemia, with a hemoglobin concentration of 8.4 g/dL, reactive thrombocytosis 530 x 10^3/mm^3 (normal range between 150 and 400) and serum iron concentration of 20.7 μg/dL (normal range in males between 28 and 157 μg/dL). He presented impaired renal function (serum urea level 91.4 mg/dL, serum creatinine level 3.2 mg/dL) and cytolysis with cholestasis. Coagulation were normal.

Esophagogastroduodenal endoscopy showed the presence of bleeding from two angiodysplastic lesions, one of 6 mm on the posterior wall of the stomach, close to the gastric angle, and another of 4 mm located on the lesser curve of the stomach (**Fig. 4**). Endoscopic thermal ablation of the lesions with APC was made in the same session (**Fig. 5**).

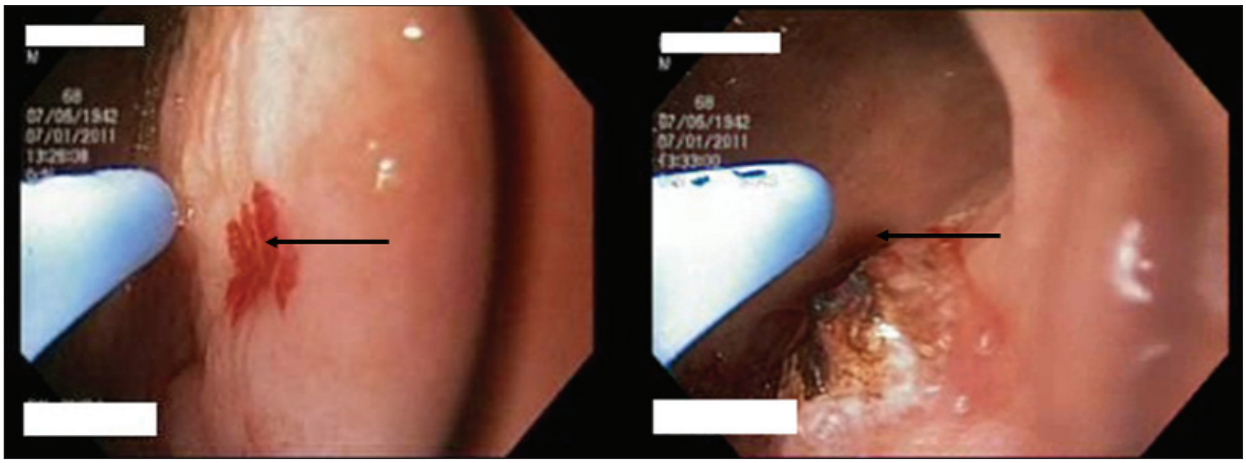

Figure 5. First APC application

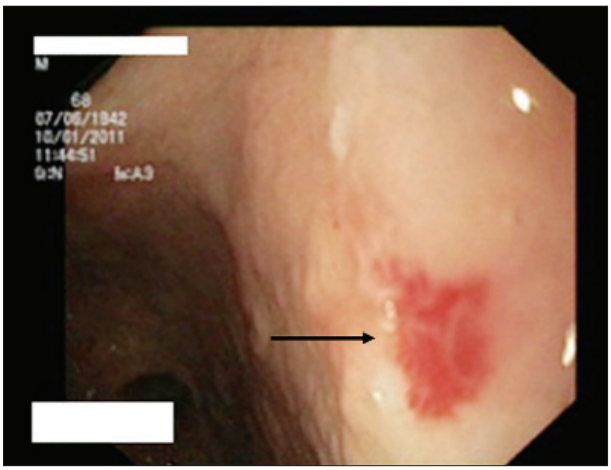

Figure 6. Endoscopic findings 7 days after the first APC application - no active bleeding.

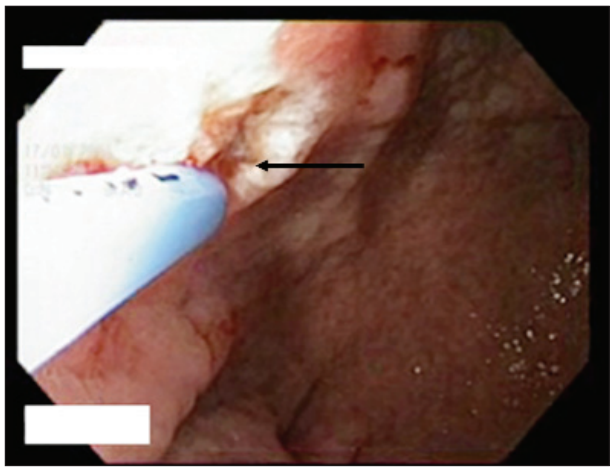

Figure 7. The second APC application

At the second admission to the hospital, the upper digestive endoscopy revealed the two gastric angiodysplastic lesions, both about of 3 mm diameter, with no active bleeding (Fig. 6), and a new application of APC was performed (Fig. 7).

Evaluation of a patient with iron deficiency anemia requires also endoscopic examination of the lower digestive tract and therefore, colonoscopy was performed revealing a 4 mm polypoid, sessile lesion of the sigmoid, with no other injuries. After iron replacement therapy, hemoglobin rised at 11.8 g/dL, with normal serum iron concentration of 39.7 µg/dL. After 7 weeks, the patient return for clinical evaluation, without current symptoms, with normal hemoglobin concentration 12.5 g/dL, maintaining altered renal function (serum urea concentrations of 56.7 mg/dL, and creatinine level 1.91 mg/dL). Esophagogastroduodenal endoscopy emphasized a small angiodysplastic lesion of about 2 mm on the posterior wall of the stomach, close to the gastric angle, and a new APC application was applied. The clinical evolution of the patient was good, with no recurrence of the gastrointestinal bleeding.

DISCUSSION

Gastrointestinal AD is characterized by the dilatation and tortuosity of blood vessels which have less than 1 cm; these modified vessels show mucosal hyperplasia, dilated capillaries, and in some of them we can identify fibrin clots and fibro-muscular hyperplasia (4). Galdabini is the one who first described the disease (5).

Gastrointestinal AD may affect the whole gastrointestinal tract or parts of it. Upper gastrointestinal tract AD is less common than colonic AD. The latter is particularly common in the elderly. Colonic segments which are most commonly affected are the check and ascending colon. Numerous studies attest the association between upper gastrointestinal AD and CKD.

AD is a frequent condition in patients with CKD, with hereditary hemorrhagic telangiectasia or it is a complication occurring after radiotherapy (6). Additionally, it is associated with Heyde syndrome that involves the association between gastrointestinal AD manifested by occult bleeding and aortic stenosis (7).

The etiology of AD encountered in the upper digestive tract remains unknown; several mechanisms are incriminated among which portal hypertension, hypergastrinemia, and characteristic age degenerative changes. In contrast, colonic AD pathogenesis is generated by venous obstruction (1).

Characteristic manifestations of AD are gastrointestinal bleeding, frank or occult bleeding. AD diagnosis is endoscopic; vascular lesions can thus be observed (1).

A distinct and quite rare lesion is “watermelon stomach”. Common to this injury are erythematous longitudinal strips of gastric mucosa radiating to the pylorus; histopathology exam confirms capillary dilation and thrombosis (8).

Elective treatment of gastro duodenal AD is argon plasma coagulation (APC). Recordings of post-therapy relapse are few, confirmed by several studies (9-11).

Digestive complications are common in patients with CKD, especially in the hemodialyzed population (12). Later studies acknowledged that the above conditions also apply to peritoneal dialyzed patients, not only to hemodialyzed ones (13).

The case presented above (case 2) demonstrates the presence of gastrointestinal AD since early stages of CKD. In hemodialyzed patients was observed that the AD injuries are most frequently located at gastric or duodenal level. In case 1 we observe that in peritoneal dialyzed patients, the lesions are also located at gastric or duodenal level.

AD etiology in dialyzed patients is not fully known. In our cases we eliminated other causes of digestive bleeding (e.g.: liver cirrhosis with portal hypertension and esophageal varices, gastric or duodenal ulcer).

In patients with CKD, gastrointestinal AD is a cause of manifest or occult bleeding. In addition, this is one of the causes of resistance to erythropoietin therapy – common treatment of anemia in chronic kidney disease.

CONCLUSIONS

Gastrointestinal AD is seen in patients with CKD from the early stages of the disease to those already undergoing dialysis. Gastrointestinal symptoms are present, such as bleeding, direct with impact in the management of these patients. For clinical practice, it is important to know from which stage of CKD AD lesions may occur. In order to achieve this we need more extensive clinical studies.

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

Acknowledgment

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