

Case Report

Atypical Evolution of Peptic Ulcer Disease in a Chronic Hemodialyzed Patient

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REZUMAT

Evoluția ulcerului duodenal la un pacient cu boală renală cronică, în program de hemodializă

Pacienții cu boală renală cronică în program de hemodializă prezintă un risc crescut de a dezvolta ulcere peptice gastro-duodenale determinate de multiplii factori care de multe ori coexista. Odată apărute, ulcerele pot prezenta complicații redutabile, unele amenințătoare de viață, obligându-ne să le căutăm în mod active și să le tratăm corespunzător. Studiile efectuate până în prezent au arătat că pacienții hemodializați cronic dezvoltă de 9 ori mai frecvent ulcere gastro-duodenale decât populația generală la care *Helicobacter pylori* este factorul etiologic în 99 % din cazuri. Prezentăm cazul unei paciente hemodializate pentru boala renală cronică în stadiu final, cauzată de glomerulonefrită difuză mezangialproliferativă, care în decursul a 9 ani de monitorizare a prezentat două episoade de hemoragie digestive superioară dintre care unul a dus la șoc hemoragic și la necesitatea intervenției chirurgicale de urgență. Particularitățile cazului sunt: lipsa infecției cu *Hp* ca în populația generală și localizarea duodenală a ulcerului.

Cuvinte cheie: boala renala cronică, hemodializa, ulcer gastro-duodenal, hemoragie digestivă superioară, *Helicobacter pylori*

ABSTRACT

Hemodialyzed patients present increased risk and susceptibility for peptic ulcer disease development; the incriminated factors are multiple and often coexist. An active medical attitude should be immediately initiated, because peptic ulcer is associated with high index of life-threatening complication, when it is clinically manifested in this group of population. We report the case of a hemodialyzed female patient diagnosed with diffuse mesangial proliferative glomerulonephritis as primary renal disease and peptic ulcer as main comorbidity. In

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her personal medical history, there were no data recorded regarding *Helicobacter pylori* infection or long-term steroid drug administration. During the 9 years followed-up, the patient presented persisting risk factors and major bleeding complications (e.g.: hemorrhagic shock) that needed emergency surgical intervention. The radical medical attitude was life-saving.

Key words: chronic kidney disease, hemodialysis, duodenal ulcer, upper gastrointestinal hemorrhage, *Helicobacter pylori*, uremia

INTRODUCTION

Digestive manifestations due to uremia and uremic toxins are multiple in patients with chronic kidney disease (CKD) on hemodialysis (HD). As much as 79 percent of these patients report gastrointestinal symptoms manifested as nausea, vomiting, dry mouth, dysgeusia, halitosis, pyrosis, abdominal pain, bloating, diarrhea (1,2). Due to many pathogenic mechanisms, the prevalence of gastro-duodenal peptic ulcer disease is higher in HD subjects than in general population, but comparable in frequency with nondialyzed CKD patients (3-5). A recent published 10 years-study presented that the incidence of peptic ulcer disease is 4 times higher in patients with CKD and 9.4 times higher in individuals on chronic HD compared to the general population (6). Regarding localization, gastric ulcers are twice more frequent documented than duodenal ulcers (6-8). An imbalance between protective and aggressive mucosal factors in favor of the last ones is noticed in HD patients. Chronic dialysis stress, intradialysis hypotension (causing mucosal hypo-perfusion), anemia, intradialysis anticoagulant, metabolic acidosis, potentially ulcerogenic medication (steroids, non-steroid anti-inflammatory and antiplatelet drugs) lead to high frequencies of peptic ulcer disease (9). Since the appearance of ulcerous lesions, the risk of their complications (e.g.: hemorrhages, perforations, penetrating injuries) is much higher than in general population. One recent cohort study in Taiwan showed that the incidence of gastro-duodenal bleedings is double in CKD patients and 5 times higher in HD ones (2). Subsequently, common comorbidities such as diabetes, liver cirrhosis and ischemic heart disease participate as pathogens in digestive bleedings (10).

An adequate diagnosis and monitoring of peptic ulcer disease in dialysis patients represent a constant concern of our clinical practice, because of the high prevalence of this kind of pathology, the life-threatening potential complications and the complexity of the treatment. Therefore, further on we discuss the case of an atypical peptic ulcer disease in a chronic HD patient.

CASE REPORT

In April 2007, a 43 years old woman was first admitted for CKD due to chronic glomerulonephritis in

the Department of Nephrology and Dialysis, "St. John" Emergency Clinical Hospital. History revealed only a short methylprednisolone cure in 2005, no chronic medication, no signs of digestive disease, normal blood pressure (BP) values, and no signs of hypoproteinemia were recorded. She was monitored for CKD 3 – 4 times per year and did not receive any other therapy.

In June 2009, renal replacement therapy (RRT) was initiated for a CKD exacerbation due to an acute respiratory viral disease. Initially, HD was performed on central venous catheter (CVC), and then continued on native arteriovenous fistula (AVF). Consequently, the patient developed high BP and was treated with calcium channel blockers, beta blockers and ACE (angiotensin-converting-enzyme) inhibitors; hemoglobin values did not require erythropoiesis-stimulating agents (ESA), only iron sucrose once per month.

In October 2010, she was admitted in emergency for upper gastrointestinal bleeding expressed through massive hematemesis and melena; endoscopic diagnosis was bulbar niche with fresh clot – Forrest II B (fig. 1).

We performed endoscopic hemostasis using Adrenaline saline solution in 1/10000 dilution and thermal coagulation with 'heat probe'. During this episode, the hemoglobin dropped from 12.1 g/dL to 6.2 g/dL (121 g/L to 62 g/L). Two months later, under oral proton pump inhibitors treatment, the check-up endoscopy revealed a 'salami ulcer' appearance (fig. 2).

Further on, the patient required several admissions for complications of uncontrollable high BP, hemorrhagic right temporoparietal stroke, and an episode of AVF thrombosis. Laboratory findings emphasized inadequate dialysis (several dialysis sessions deliberately missed per month), moderate-severe metabolic acidosis, high phosphocalcic product, normal intact parathormone levels.

In February 2013, the patient presented another upper digestive bleeding event exteriorized through hematemesis and melena; she installed hemorrhagic shock and hemoglobin values decreased from 11.0 g/dL to 8.4 g/dL and then to 4.2 g/dL (110 g/L to 84 g/L and then to 42 g/L), despite intensive care treatment; two upper digestive endoscopy evaluations emphasized first a duodenal niche with hemorrhages spots and then a blood clot inside the niche.

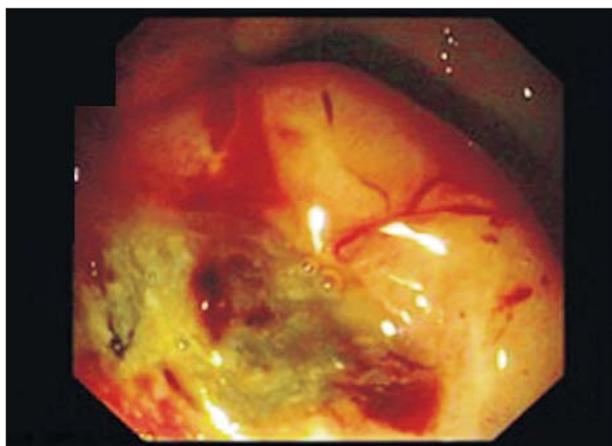


Figure 1. Bulbar niche with fresh clot (Forrest II B)

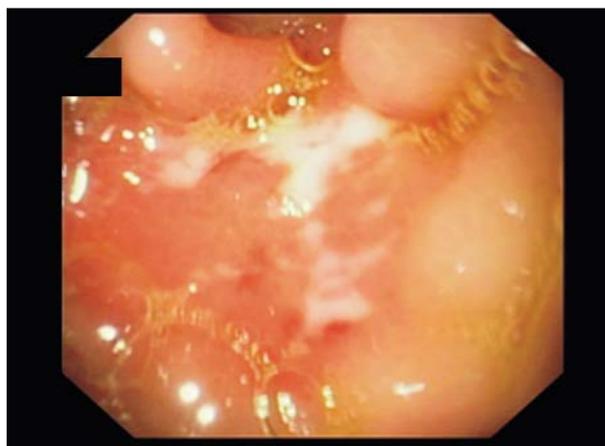


Figure 2. "Salami ulcer" appearance

This was the moment when surgical intervention was decided. Exploratory laparotomy with pylori-plastic ulcer excision was performed, highlighting an arterial vascular fistula. Postoperative evolution was slow but favorable – no signs of digestive symptoms and the check-up endoscopy revealed no relapses. We have to mention that the patient did not take any ulcerogenic medication and tests made for *Helicobacter pylori* were negative.

DISCUSSION

Gastro-duodenal peptic ulcer disease is a common condition in HD patients, representing an important cause of morbidity and mortality through the tremendous complications that may occur (6). Of these complications, the risk for upper gastrointestinal bleeding is 1.27 – 5.4 times higher than in general population, increased also by diabetes, hypertension, ischemic coronary disease and cirrhosis, as many studies concluded (10-15). The most dangerous lesions, from this point of view are gastric erosions, then angiodysplasia and erosive esophagitis, followed by gastric ulcers and the duodenal ones (16,17).

The particularity of our case was the lesion type – duodenal ulcer [the least frequently encountered in hemodialyzed patients and the last one which is likely to complicate by hemorrhage (6,7)] and the lack of a specific trigger (no ulcerogenic medication and negative tests for *Helicobacter pylori*).

It is well known that the infection with *Helicobacter pylori* is the leading ulcerogenic factor, which is responsible for the occurrence of gastric and duodenal ulcers in over 90% of diagnosed cases (18). There are some studies describing an inferior prevalence of *Helicobacter pylori* infection in hemodialysis patients compared to general population and also to nondialyzed CKD patients (3,19,20); additionally, the prevalence decreases with the increasing duration of hemodialysis (19).

Despite the proper medical management with proton pump inhibitor anti-secretory and the active surveillance of dialysis sessions, the duodenal peptic ulcer relapsed and got complicated with gastrointestinal bleeding leading to hemorrhagic shock and the need of emergency surgical intervention. We can involve as contributing factors: uncontrolled hypertension and a lack of cooperation which led to inadequate dialysis emphasizing chronic metabolic acidosis. Additionally, the potentially ulcerogenic role of several drugs involved in the treatment of uremic patients should not be neglected because they are frequently the trigger to gastrointestinal lesions. In our patient, the use of low molecular weight heparins as blood circuit anticoagulation during dialysis session can be incriminated for the development of digestive mucosal lesions. Because of the high BP values we could not recommend oral sodium bicarbonate supplementation during interdialytic days.

It is known that gastrointestinal bleeding morbidity and mortality are higher in HD patients compared to those in the general population (15,16,21,22). It is therefore mandatory that in all HD patients to actively investigate the upper digestive tract by performing endoscopy every 6 months, to avoid potentially ulcerogenic medications and to recommend oral sodium bicarbonate supplementation in the interdialytic interval for buffering severe acidosis and prophylactic anti-secretory treatment in all patient with peptic lesions, in order to elude life threatening complications.

CONCLUSIONS

The importance of this case is emphasized by the high frequency of peptic ulcer peptic lesions in patients with chronic kidney disease on hemodialysis, which in our opinion should be actively assessed and treated appropriately; also, is important for all the specialists involved in the medical of these patients to distinguish

their high potential for relapsing digestive lesions and life threatening complications.

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