Ischemic Gastropathy in a Patient with Severe COVID-19

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Abstract

The stomach is supplied by an extensive vascular network. Gastric ischemia therefore occurs infrequently [1, 2, 3].

Gastric ischemia can manifest as gastrointestinal (GI) bleeding and has been associated with significant mortality.

Herein, we present a case of ischemic gastropathy in the setting of severe COVID-19.

Introduction

The gastric vascular network is derived from the celiac axis and its branches, including the splenic, common hepatic, and left gastric arteries (Fig. 1).

Animal studies have demonstrated that loss of up to 95% of the vascular flow (via ligation) does not lead to gastric mucosal ischemia [3].

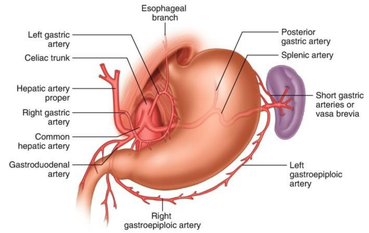

Figure 1. Vascular supply to the stomach. Image [4].

Patient Presentation

History of Present Illness:
- 36-year-old male with obesity and T2DM presented with fever, cough, and dyspnea.
- Intubated and placed on ECMO for refractory hypoxemia secondary to COVID-19.

Social History:
- 8-10 alcoholic beverages/week, non-smoker

Physical Exam:
- **VS:** Afebrile, 131/95, HR 120, RR 40, SpO2 87%
- **Exam:** dry oral mucosa, regular tachycardia, labored breathing, crackles on auscultation

Laboratory Data:
- **CMP:** sCr 0.8, AST 61, ALT 111
- **CBC:** WBC 21.5, HGB 16.7, PLT 418
- **Lactic acid:** 2.7 and **CRP:** 15.3
- **COVID-19:** positive
- **Blood cultures:** no growth

Imaging:
- **CTA Chest:** Negative for pulmonary embolism. Multiple infiltrates in bilateral lower lobes.

Clinical Course

ICU Course (Fig. 2):

Initial Management:
- VV ECMO and placed on heparin gtt.
- Septic shock requiring pressor support.

Clinical Course

ICU Course:
- ***Episode of coffee-ground emesis.***
- ***EGD: Mallory-Weiss tear at the GEJ and mild gastritis. No active bleeding.***

Significant Events and Complications:
- Tracheostomy and G-tube
- Cardiac tamponade s/p pericardiocentesis
- HGB 8.7, PLT 31, INR 2.8, sCr 1.4
- ***Recurrent GI bleeding***
- ***EGD: diffuse gastric mucosal oozing and sloughing without focal ulceration. No erosion at G-tube bumper site (Fig. 3).***
- Refractory shock despite maximal pressors
- Autopsy: hemorrhagic gastritis with petechial ulcers.

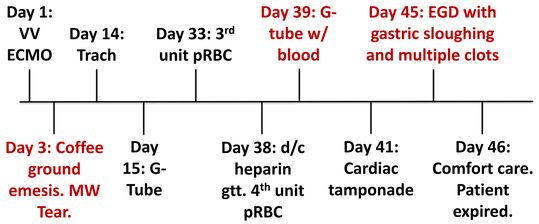

Figure 2. ICU Timeline.

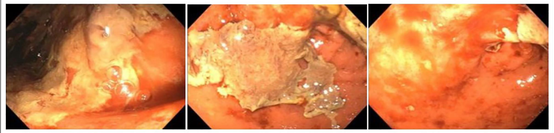

Figure 3. Diffuse gastric mucosal sloughing and oozing seen on EGD.

Discussion

Prior to the COVID-19 pandemic, several case reports [5, 6] and case series [1, 3] described ischemic gastropathy in patients with known risk factors, including HTN, DM, and smoking history.

Notably in one case series, four out of five patients expired even after re-vascularization [3]; while in another case report, re-vascularization of celiac artery stenosis with stent placement led to healing of ischemic gastropathy [6].

Given hyper-coagulopathy and systemic hypotension often seen in COVID-19, early recognition of ischemic gastropathy as a cause of COVID-19-related upper GI bleeding is crucial, given high morbidity and mortality.

Conclusion

Ischemic gastropathy is rare but has significant morbidity and mortality. Prompt recognition in the appropriate setting is critical.

CLINICAL PEARLS

Presentation
- Nausea
- Hematemesis
- Abdominal pain
- Anemia

Pathophysiology
- Thromboembolism
- Systemic hypoperfusion
- Splanchnic hypoperfusion
- Vasculitis

Work-Up
- EGD
- Consider CTA

Management
- Fluid resuscitation
- Acid suppression
- Bowel rest ± antibiotics
- Angiography w/ revascularization

Complications
- Tissue necrosis
- Gastric perforation

Prognosis
- High mortality

Contact
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