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A case series on upper GI bleeding among patients admitted with COVID-19 infection

Sara Yousif Eltayeb [1], Hind Munther Aljaghber[1], Omar Yousef Al Assaf [1]*, Abdulla Ahmed Al Hawai [1], Mohammed Abdulla Banama [2]

[1] *Internal Medicine Department, Rashid Hospital, Dubai Health Authority, Dubai , United Arab Emirates.*

[2] *Gastroenterology Department, Rashid Hospital, Dubai Health Authority, Dubai, United Arab Emirates.*

Abstract

Background: Patients with COVID-19 infection are liable to develop coagulopathies and bleeding. An increase in the use of anticoagulants among this group of patients may be associated with an increase in the risk of developing GI bleeding. We aimed to evaluate the endoscopic characteristics of patients with COVID-19 that developed a GI bleed.

Methods: A retrospective analysis of patients admitted to Rashid hospital with Upper GI bleeding, and COVID was done. We collected details on patient demographics, comorbid conditions, the severity of COVID infection, use of antiplatelet/anticoagulants, and their endoscopic findings.

Results: 14 cases of Upper GI bleeding were included, half of which were on antiplatelet/anticoagulant. Endoscopic findings included peptic ulcer disease, Mallory Weis, gastritis, dieulafouy lesion, esophageal varices, and small gastric erosions. Peptic ulcer disease was the most common finding on endoscopy.

Conclusion: Coagulopathy and bleeding risk remains a challenge in patients with COVID-19. Although peptic ulcer disease was the commonest etiology, it is still unclear whether the risk of bleeding was secondary to COVID-19 infection itself or the use of anticoagulants. We recommend physicians to be cognizant of the possible endoscopic features that may be encountered in COVID-19 infected patients presenting with GI bleeding so as to provide optimal management.

Keywords: Upper GI bleeding, Endoscopy, Peptic Ulcer disease, COVID-19 infection.

*Omar Yousef AL Assaf .Internal Medicine Department, Rashid Hospital, Dubai Health Authority, Dubai , United Arab Emirates . Email : oyalassaf@dha.gov.ae.

1. Introduction

The outbreak of the 2019 coronavirus disease (COVID-19) has rapidly evolved into a global pandemic. COVID-19 infection has become widely known to predominantly affect the respiratory system; however, it has been associated with systemic complications, including the gastrointestinal (GI) system (1).

Recent studies showed that COVID-19 patients are more susceptible to develop coagulopathies and bleeding (2,3). In addition, higher doses of anticoagulation have been used in patients with severe covid infection. Both of which have led to an increase in the incidence of GI bleeding among covid patients (3).

In a study conducted in New York City, USA, it was reported that the point prevalence of GI bleeding among COVID-19 patients was 3% (4). The characteristics of patients with GI bleeding among COVID-19 patients remain uncertain.

In this paper, we aim to investigate the clinical and endoscopic characteristics of patients with COVID-19 infection who develop upper GI bleeding.

2. Subjects and Methods

Our study was conducted in Dubai, United Arab Emirates and included all the patients admitted to Rashid Hospital between February 2020 and August 2020 who had a positive COVID PCR swab and endoscopic evidence of upper GI bleeding were studied. We excluded patients below the age of 18 and those who did not undergo upper GI endoscopy in the index admission.

The data was gathered from electronic medical records which included: patient demographics, history of alcohol consumption, Co-morbid conditions, use of antiplatelet or anticoagulant, presenting symptoms of upper GI bleeding. Moreover, the severity of COVID-19 infection was classified into mild, moderate, or severe according to WHO criteria of COVID severity (5). Glasgow-Blatchford Score was calculated at the onset of signs of GI bleeding. Endoscopic findings were further stratified based on clinical severity scales. We further evaluated the patients for complications and clinical outcomes.

The study was approved by the Dubai Scientific Research Ethics Committee. All patients' information remained anonymous.

3. Results

A total of 14 patients fulfilled the inclusion criteria of which 13 were male and the age ranged between 29-67 years old with an average of 48 years old. Table.1 illustrates the descriptive analysis of the patients including the severity of the COVID infection, hemoglobin (Hb) drop, endoscopic findings, and complications/disposition.

One patient had a previous history of alcohol consumption. While seven patients were on antiplatelet or received anticoagulant therapy during admission, of which 6 were on prophylactic therapy, and one was on a full therapeutic dose of anticoagulant.

Past medical history was positive in one patient for liver cirrhosis, one with ischemic heart disease, and one with chronic kidney disease.

The most common presenting symptom was melena which was present in 12 patients. Out of the 14 patients, 4 had severe covid pneumonia, 2 moderate and 8 mild COVID-19 infection.

Table (1) Endoscopic finding and COVID severity

Patient Number	The severity of COVID infection	Hb drop	Glasgow-Blatchford Score	Endoscopy Finding	Complications / Disposition
1	Mild	0	13	Deforming peptic ulcer disease (H.pylori-related)	Discharged
2	Mild	0	13	Dieulafouy lesion of the duodenum with evidence of bleeding	Discharged
3	Severe	1.9	17	Severe Gastroduodenal Ulcer Disease with two visible vessels at the D1D2 junction	Re-bleeding
4	Severe	3.2	16	Mid-esophageal ulcers with active bleeding (likely traumatic ulcers due to NG insertion)	Discharged
5	Moderate	0	12	Severe Pangastritis linear ulcerations	Discharged
6	Mild	3.2	11	Mallory Weiss / tear	Discharged
7	Mild	0	13	Deforming peptic ulcer disease (H pylori-related)	Discharged
8	Mild		17	Mild erosive gastritis	Discharged
9	Mild	2.6		3 columns grade 3 esophageal varix with submucosal hematomas	Death
10	Mild	2.2	12	No evidence of active or recent bleed. Clean base anastomotic ulcer	Discharged
11	Mild	6.1	15	Multiple ulcers in the antrum	Discharged
12	Severe	6.4		Small erosion in the gastric body, rectal ulcer (colonoscopy)	Re-bleeding
13	Moderate	2.2	9	2 large Mallory Weis Tears were seen in the lower esophagus	Discharged
14	Severe	9	17	Multiple duodenal ulcers	Death

A) Endoscopic findings

Among all patients' endoscopic findings, the most common finding was peptic ulcer followed by mallory weiss tear. Other findings included: Gastritis, dieulafouy lesion, esophageal varices, and small gastric erosions (Figure 1).

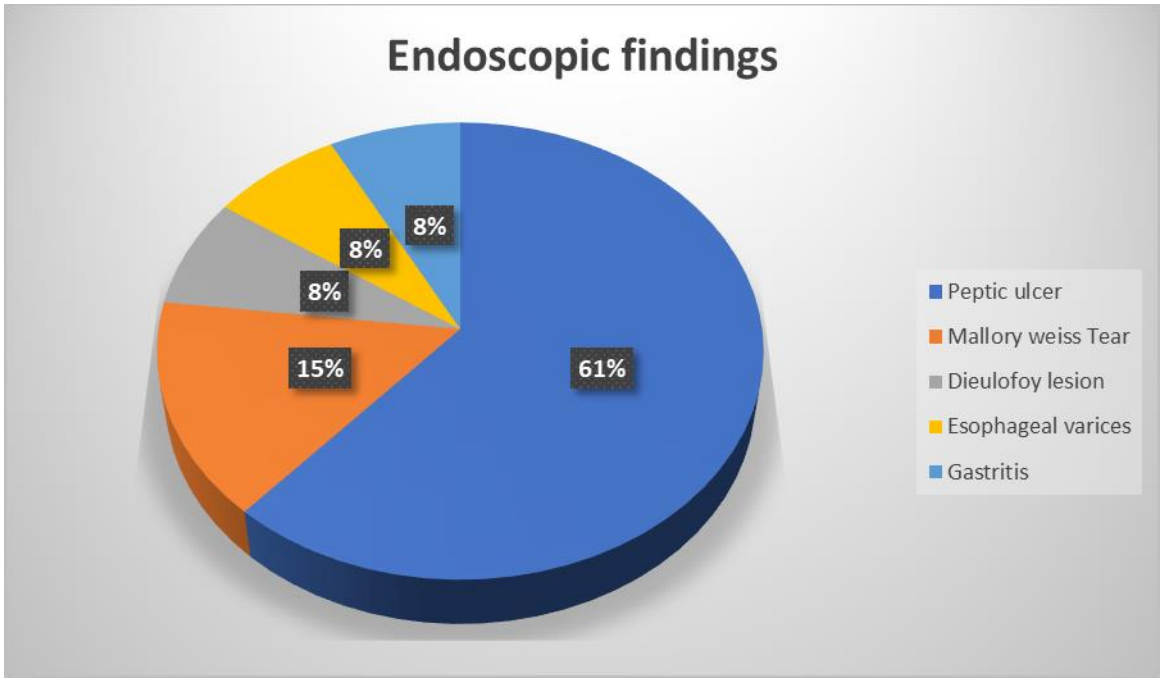

Figure (1) Endoscopic findings of patients with COVID-19 infection who developed GI bleeding.

- **Peptic ulcer**

8 out of 14 patients had developed peptic ulcer disease. 2 of which had gastric ulcers with positive H.pylori testing and one had a clean base ulcer. All 3 cases were associated with mild covid-19 infection, with a Hemoglobin (Hb) drop ranging between 0- 2.2 mg/dl and an average Glasgow Blatchford score of 12 (Figure 2).

Figure (2) Endoscopic finding : Fragile duodenal mucosa with visible vessel , fresh blood cloth and active oozing.

One patient was noted to have multiple ulcers in the antrum with a Hb drop of 6.1 mg/dl, a Glasgow Blatchford score of 15, and was also associated with mild covid-19 infection.

Among patients with more severe COVID-19 infection, endoscopic findings included mid-esophageal ulcers, multiple duodenal ulcers, pangastritis with linear ulcers, severe gastroduodenal ulcer with two visible vessels at the D1 D2 junction. Hb drop was more significant ranging from 1.9 – 9 mg/dl. These patients were subjected to complications including re-bleeding in one case and death in another. 2 patients among this group received prophylactic enoxaparin 40 mg and aspirin 75 mg.

The highest drop in Hb (6.1- 9) was noted among patients with multiple ulcers in the duodenum or antrum.

- **Mallory Weiss tear**

2 cases were found to have Mallory Weiss tears.

One case had an Hb drop of 3.2 mg/dl, Glasgow Blatchford score of 11 and was associated with mild COVID-19 infection. Of note, this patient was on Tirofiban and clopidogrel due to underlying ischemic heart disease.

The second case had an Hb drop of 2.2 mg/dl, a Glasgow Blatchford score of 9, and was associated with moderate COVID-19 infection. This patient was not on any anticoagulant.

- **Dieulafoy lesion**

This was found in one patient who had no drop in Hg with a Glasgow Blatchford score of 13. His condition was associated with mild covid-19 infection and was discharged home.

- **Esophageal varices**

One patient was found to have esophageal varices. Endoscopy finding reported as 3 columns grade 3 esophageal varix with submucosal hematomas. Hg drop was 2.6 mg/dl. The final patient outcome was death.

- **Gastritis**

One patient with mild COVID-19 infection was found to have mild erosive gastritis. His Hb was 6.5 mg/dl at the time of bleeding and his Glasgow Blatchford score was 17. This patient has an underlying history of liver cirrhosis, chronic kidney disease and is a chronic alcohol consumer.

Patients were managed with fluids, blood transfusion, pantoprazole, and endoscopic interventions as required.

B) Outcome:

10 patients were discharged. 2 patients developed re-bleeding and 2 patients were deceased.

4. Discussion

The use of anticoagulant therapy in the management of COVID-19 related coagulopathy has become a standard of care in many hospitals due to observational studies proving a mortality benefit, particularly in patients meeting sepsis-induced coagulopathy criteria or with markedly elevated d-dimer (6).

In a cohort study by Trindade et.al of 11, 158 hospitalized with COVID-19, 314 patients were identified with GI bleeding. The point prevalence of GI bleeding was 3%. The study concluded that the use of anticoagulants or antiplatelets was not associated with an increased risk of GI bleeding in COVID-19 patients. However, among patients that did undergo GI bleeding during hospitalization, there was an increase in mortality risk in the GI bleeding group (OR 1.58, P = 0.02) (4).

In our study, we noted that out of the 14 patients that developed GI bleeding, only 7 patients were on antiplatelet or LMWH during admission, all of which were at a prophylactic dose but one which required therapeutic dosing. Thereby 50% of our analyzed patients developed GI bleeding despite not being on any anticoagulant.

With regards to endoscopic findings in our case series, Peptic ulcer was the most common finding among our patients followed by Mallory Weiss tear. Other findings included gastritis, dieulafouy lesion, esophageal varices, and small gastric erosions. Our findings are in keeping with a multicenter study in Italy which concluded that peptic ulcer disease was the most common endoscopic finding among COVID-19 patients who developed GI bleeding (3)

Similarly, a case series conducted in Italy by Melazzini et .al included 5 patients with COVID-19 infection who developed GI bleeding during the course of their hospital admission. The crude prevalence of upper GI bleeding was 5.2% and it was noted that gastric and/or duodenal ulcer was the most common finding. All the patients included were on a prophylactic dose of clexane (7).

In summation, the various case series in which we aimed to describe the features of COVID-19 patients who developed GI bleeding and noted that peptic ulcer disease was the most common finding. Weather the development of GI bleeding is primarily due to COVID-19 infection itself or secondary to the use of anticoagulants remains unknown and requires further research. We highly recommend physicians managing COVID-19 patients to take into consideration the characteristics of patients likely to develop upper GI bleeding and to bare in mind the possible endoscopic features that may be faced and hence guide appropriate management.

5. Declarations

5.1 Conflict of Interest Statement

The authors have no conflict of interests to declare.

5.2 Funding Disclosure

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