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A case report on spontaneous hemoperitoneum in COVID-19 patient

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ABSTRACT

INTRODUCTION: Coronavirus disease (COVID-19) is a global pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Patients commonly present with respiratory tract symptoms and fever. However two third are asymptomatic and unusual presentation is evolving. This has cause management dilemma among physicians.

PRESENTATION OF CASE: A 35 year young otherwise healthy male presented to emergency department of this institute with fever of 103 °F, abdominal pain, and pancytopenia with progressive fall in hemoglobin level was tested positive for COVID-19. Contrast enhance computed tomography of the patient revealed hemoperitoneum with splenic infarct. He was admitted in intensive care unit and managed with supportive treatment.

DISCUSSION: Respiratory and gastrointestinal symptoms with hematological abnormalities like lymphopenia, thrombocytopenia are common presentation of COVID-19. Although coagulopathy and vasculitis has been a well-documented entity in patients with COVID-19, visceral infarction leading to spontaneous hemoperitoneum was unusual and rare clinical presentation.

CONCLUSION: A high degree of clinical suspicion and thorough evaluation helps in the diagnosis of COVID-19 and related complications. The management of cases with unusual presentation requires judicious and careful approach.

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1. Introduction

Severe acute respiratory syndrome Coronavirus-2 (SARS-CoV-2) infection has emerged as Corona virus disease-2019 (COVID-19) pandemic [1]. Most of the infected patients remain asymptomatic or experience mild to moderate respiratory illness and recover without special treatment [2,3]. With the rise in COVID-19 confirmed cases, patient are getting admitted in hospital with atypical presentation. Atypical modes of presentation can cause not only in delayed diagnosis but is also a potential threat to infection prevention and control [4].

Spontaneous hemoperitoneum is a life threatening condition that usually occurs in patients with known coagulation disorder or under anticoagulants [5]. Vasculitis, a defined entity in COVID-19 patients has been associated with multiple visceral infarct but concomitant massive hemoperitoneum has been scarcely described. This rare but life threatening form of acute abdomen depicts another spectrum of this global pandemic. We report here a rare case presentation of spontaneous hemoperitoneum

and splenic infarct in COVID-19 according to SCARE guideline [6].

2. Case report

32years old serving soldier with no known co-morbidities presented in emergency department (ED) of our institute with fever for 6 days. The fever was associated with chills and rigors. He did not complained of cough, shortness of breath, myalgia, diarrhea and vomiting. He had no history of travel out of duty station in last two months and no history of contact with COVID-19 confirmed cases. He denied history of trauma and drug intake. He was non-smoker, non-alcoholic, and had no known personal or family history of bleeding and coagulation disorders. He was evaluated in ED by attending consultant physician and surgeon on duty. He was admitted in COVID-19 isolation ward and subjected to thorough clinical, laboratory and imaging studies. The maximum temperature recorded was 103 °F, blood pressure was 110/70 mmHg, and oxygen saturation in room air was 92%. His blood parameters showed leucopenia and thrombocytopenia with near normal blood hemoglobin level (Table 1). Rest of the blood biochemistry, liver enzymes, coagulation profile (prothrombin time, D-dimer) was within normal limit. Chest X-ray did not show any abnormality. His nasopharyngeal swab specimen was tested positive for SARS-CoV-2. He was under symptomatic treatment for fever. The urine and blood sample send for culture showed no growth of organism.

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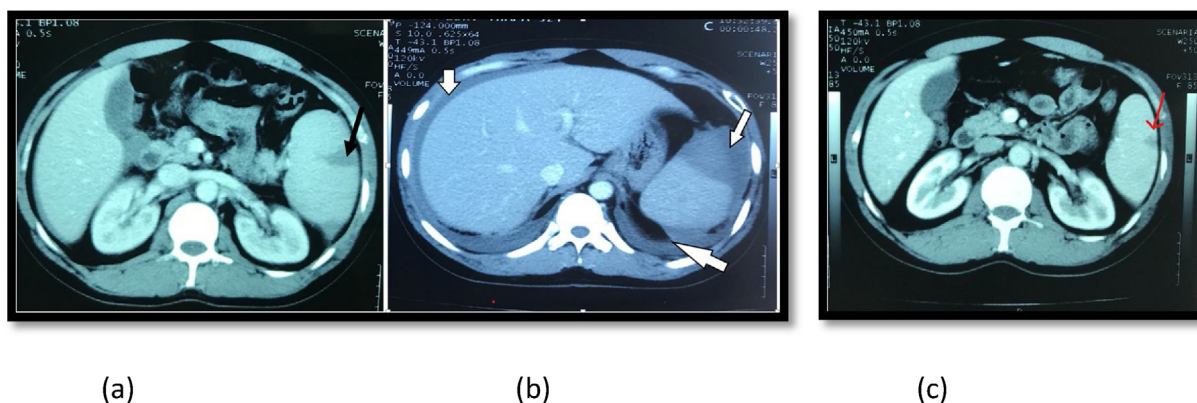


Fig. 1. CT findings of the patient showing a) Splenic infarct laceration b) hemoperitoneum c) resolved infarction rupture.

Table 1
Hematological parameter of the patient.

Parameters	08/08/020	09/08/020	10/08/020	11/08/020
Hemoglobin (gm %)	14.1	13.5	9.4	7.3
Platelets (per cu mm)	50000	55000	100000	150000
TLC (per cu mm)	2900	4800	5000	5400



Fig. 2. Dermatological manifestation of the patient.

On the third day of admission his cell counts tend to normalize but there was progressive fall in blood hemoglobin level from 14.1 gm/dl to 7.3 gm/dl.

On the same day patient complained of moderate to severe periumbilical pain without features of peritonitis. Abdominal ultrasound showed intraperitoneal collection in perisplenic space. Contrast computed tomography study (CECT-abdomen pelvis) images revealed contrast extravasation from breached capsule in upper pole of spleen during porto-venous phase, which is suggestive of infarct laceration of splenic. Cranio-caudally the spleen measure 14 cm and splenic index is 1048. There was moderate intraperitoneal collection localized in perisplenic space, perihepatic space and pelvic cavity (Fig. 1a & b). Patient developed generalized maculopapular rash without itching (Fig. 2). He was transferred to COVID-19 intensive care unit (ICU) with monitoring of vitals, urine output and serial hemoglobin and was transfused with three unit of packed RBC. Besides, he was given symptomatic and supportive care. Our patient remain clinically stable during ICU admission and the hemoperitoneum resolved spontaneously on 7th day of admission (Fig. 1c).

3. Discussion

Fever, cough, and myalgia are three most common symptoms of COVID-19 [7]. 30–40% of COVID-19 patient are asymptomatic

[8]. Thromboembolic phenomenon is common event in this disease. However, spontaneous hemoperitoneum is a rarely reported. Lymphocytic endothelitis within lungs, kidney, heart, intestine and liver has been reported in COVID-19 cases. In these patients vasculitis could be result of viral infiltration of endothelium or result of immune reaction that leads to leucocytoclastic vasculitis. The pathological appearance shows lymphocytic infiltration within the vessels, hyperplasia of small vessels with thickening and stenosis [9–11].

COVID-19 disease is also associated with thrombocytopenia and coagulopathy and in severe form develops disseminated intravascular coagulation (DIC). Studies have shown that severe lymphopenia and elevation of D-dimer is associated with high mortality and represents inappropriate activation of coagulation leading to DIC [12,13]. COVID-19 has non-specific dermatological manifestation like maculopapular, urticarial, and vesicular eruptions and transient livedo reticularis [14]. Thromboembolic complications including acute stroke and pulmonary embolism has been reported in young patient [15,16]. Visceral infarction has been previously described in COVID-19 patients with previous cardiac events and involved spleen, kidney and small bowel [17]. The COVID-19 patient treated with anticoagulants were at high risk of bleeding complications. Radiological embolization was choice of intervention in such events [18]. Hemoperitoneum with substantial drop in hemoglobin due to spontaneous intraperitoneal hemorrhage could be the newer presentation of same disease spectrum.

4. Conclusion

Abdominal pain in COVID-19 patient requires further evaluation to rule out visceral infarct. Prothrombotic condition in COVID-19 has important implication in its clinical presentation, and management including judicious use of thrombolytic therapy. Vasculitis and small vessel thrombosis resulting in infarct laceration and hemoperitoneum could be self-limiting events.

Declaration of Competing Interest

None.

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Ethical approval

Not applicable/exempt from ethical review committee of Nepalese Army Institute of Health Sciences for case reports.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

All authors have contributed equally for data collections, writing and editing.

Registration of research studies

N/A.

Guarantor

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