

## Case Report: Retroperitoneal Hematoma Associated with COVID-19

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### ABSTRACT

Novel coronavirus disease 2019 (COVID-19) which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has become a global concern. Except for respiratory syndrome presentations, which are common for COVID-19, extrapulmonary clinical manifestations including involvement of cardiovascular, neurological, renal, immune, and hematological system are reported. This study reports a case presenting retroperitoneal hematoma after being infected by SARS-CoV-2 which seems to be one of the complications of COVID-19.

### KEYWORDS

COVID-19, Extrapulmonary manifestations, Retroperitoneal Hematoma.

### Introduction

In late December 2019, an outbreak of unknown etiology of pneumonia, an un-known type of coronavirus was reported in Wuhan, China. (1,2) The new coronavirus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). WHO named the disease Covid-19 which is caused by SARS-CoV-2(3-5) Severe Acute Respiratory Syndrome (SARS) in 2002, and Middle-East Respiratory Syndrome (MERS) in 2012 were the two epidemics caused by other forms of the *Coronaviridae* family (6). Although, most of the patients with Covid-19 are presented with respiratory symptoms, mainly pneumonia, there have been reports of extra pulmonary clinical manifestations including involvement of heart, liver, kidneys, immune, and blood system (7,8). Due to the inflammation process in severely ill Covid-19 patients, vasculitis, focal hemorrhage, and DIC were seen frequently (9,10). Herein, we report a Covid-19 case with a shock due to abdominal hematoma, day after discharging from the hospital after 8 days of treatment of Covid-19.

### Case Presentation

A 65-year-old man, with a past medical history of hypertension, ischemic heart disease (IHD), and coronary artery bypass graft (CABG) was admitted to emergency ward with weakness, cough, fever, and shortness of breath for a 2-week period. He had pulse rate of 87 bpm, respiratory rate of 26 per minute, blood pressure of 130/80 mm-Hg, and oxygen saturation of 87% in room air. Physical examinations revealed crackles in lung auscultation. Initial laboratory tests showed 12.8 g/dL hemoglobin, decreased white blood cells (WBC: 2610 per microliter), and lymphocyte count with a normal level of neutrophils, monocytes, and eosinophil (Table 1). Initially and based on the symptoms, he was suspected to Covid-19. The results confirmed by a reverse transcription-polymerase chain reaction (RT-PCR) test. Additionally, chest computed tomography (CT) scan without contrast showed a moderate to severe bilateral ground-glass opacity involvements of both lungs. [Fig1] Remdesivir, Tocilizumab, Interferon beta 1-alpha, and Heparin administration led to a relative improvement on first days. On the 8<sup>th</sup> day of hospitalization, the patient started suffering of left flank pain and complementing of two days of constipation. In physical examinations, left costovertebral angle (CVA) tenderness was detected. Urine analysis and culture were taken for any potential urinary tract infections; results were negative though. As the patient's pain was controlled by analgesics he quit further treatments and he was discharged with stable vital signs and oxygen saturation of 93%, 10 days after admitting to the hospital.

**Table 1.**Laboratory data of the patient

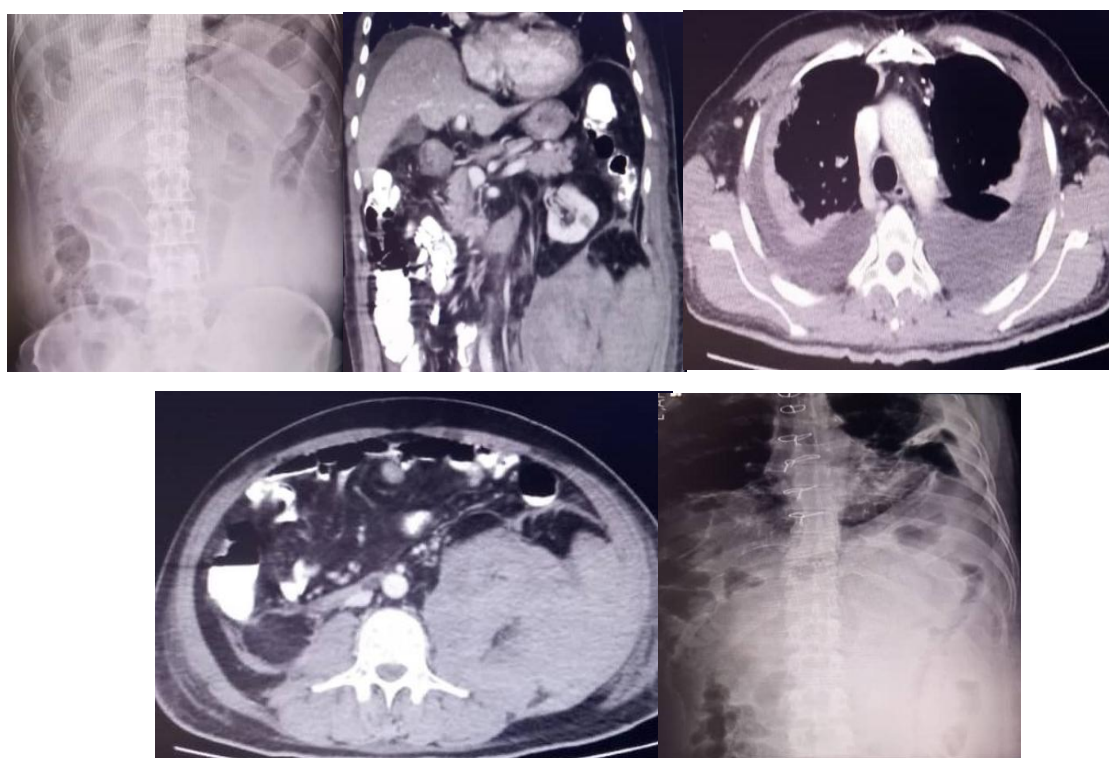
Laboratory Data			
Variable	Reference Range, Adults	Evaluation	Hospital on
		First Admission	Recent Admission
CBC			
Hematocrit (%)	42-50	44.8	28.7
Hemoglobin (gr/dl)	14-17	14.6	9.8
White Blood Cells (10^3/μL)	4-10	2.61	9.36
Retic(%)	0.5-1.5	0.5	NA
Differential count (%)			
Neutrophils		87.7	86
Band forms		0.4	0
Lymphocytes		7.7	4
Monocytes		4.2	3
Eosinophils		0	0
Basophils		0.4	0
Metamyelocytes		0	0
Myelocytes		0	0
Atypical or reactive lymphocytes		0	0
Platelets (*10^3/microliters)	150-450	130	102
ABO blood type	O+		
d-Dimer (ng/ml)		-	-
Fibrinogen (mg/dl)		NL	NL
Activated partial thromboplastin time (sec)	30-40	33	30
Prothrombin time (sec)	11-15	13	13.8
International normalized ratio		1.1	1
Venous blood gas			
pH		7.30	
PCO2(mmHg)		54	
PO2 (mmHg)		15.9	
PHCO3 (mmol/l)		26.4	
Hemogolobin(g/dl)		14.8	
Biochemistry			
Sodium (milieq/l)	135-145	144	138
Potassium (milieq/l)	3.5-5	4.8	4.6
Urea nitrogen (mg%)	6-22	24	39
Creatinine (mg%)	0.5-1.4	1.1	1.9
Glucose (mg%)	Up to 140	120	121
Total bilirubin (mg/dl)			
Protein (g/dl)			
Total	6.1-8.3	-	5.8
Albumin(g/dl)	3.5-5.5	4.2	3.8
Phosphorus (mg/dl)	2.5-5	4.5	3.5
Magnesium (mg/dl)	1.8-2.6	2.6	2.2
Calcium (mg%)	8-10.6	9.24	8.2
Lactate dehydrogenase (iu/liter)	Up to 480	519	736
Alkaline phosphatase (U/liter)	80-306	161	97
Aspartate aminotransferase (U/liter)	3-49	43	53

<b>Alanine aminotransferase (U/liter)</b>	3-46	65	68
<b>Creatine phosphokinase (U/liter)</b>	24-195	312	126
<b>Creatine kinase MB isoenzymes (ng/ml)</b>	6-25	13	21
<b>Troponin I (ng/ml)</b>		Negative	Negative
<b>Pleural effusion Analysis</b>			
<b>Glucose</b>			141
<b>Protein</b>			2.4
<b>LDH</b>			448
<b>Albumin</b>			1.7
<b>RBC</b>			360,000
<b>WBC</b>			240
<b>PMN</b>			60
<b>Lymph</b>			40
<b>ADA</b>			Negative
<b>Urinalysis</b>			
<b>pH</b>	5		5
<b>Specific gravity</b>	1.018		1.020
<b>Appearance</b>	Clear		Clear
<b>White Blood cells</b>	2-4		1-2
<b>Red Blood Cells</b>	2-4		4-6
<b>Nitrites</b>	Negative		Negative
<b>Urobilinogen</b>	Negative		Negative
<b>Albumin</b>	Negative		Negative
<b>Glucose</b>	Negative		Negative
<b>Ketones</b>	Negative		Negative
<b>Blood</b>	Negative		Trace
<b>Bilirubin</b>	Negative		Negative
<b>Sediment (per high-power field)</b>	Normal		Normal
<b>(mmol/liter)</b>			
<b>Bacteria</b>	Negative		Negative
<b>White-cell casts</b>	Negative		Negative
<b>Squamous epithelial cells</b>	Negative		Negative
<b>Amorphous crystals</b>	Negative		Negative



**Figure 1.** Bilateral ground-glass opacity involvements of both lungs

One day after discharging, the patient was brought back to the emergency department with mild lethargy, blood pressure of 80/50 mmHg, pulse rate of 105 per minute, and oxygen saturation of 87% in room air representing the patient in shock situation. In physical examinations, the pupils were mid-size and reactive to light, pale conjunctiva were observed, and distal radial pulse was weak. Additionally, a reduction in pulmonary sounds in lower parts of both lungs was detected. Furthermore, we found a left-sided costovertebral angle (CVA) tenderness and mass-like lesion on the left lower quadrant. Focused Assessment with Sonography for Trauma (FAST) showed left posterior retroperitoneal free fluid and it led to perform an abdominal CT scan. The CT scan also showed a blunted costophrenic angle which was most probably caused by Covid-19 and a left retroperitoneal collection by 220\*105\*115 mm dimensions obliterating the Left Rubrum Quadratus and Psoas and moving the left Kidney and Colon. [fig2] After receiving initial treatments, the patient was closely monitored by the surgeons to evaluate the patient's condition for the potential surgery. No surgical operation was done due to the patient's stable vital signs and the constant volume of hematoma. The laboratory pleural fluid analysis also revealed an exudative fluid in his lungs. Test results also showed us reduced coagulation factors including platelets. Hence, we administered tranexamic acid and held antiplatelet due to the Abdominal Hematoma and coagulation problems. Immediately, the patient was transferred to the Intensive Care Unit (ICU) for more monitoring. During the time of hospitalization, the patient's vital signs remained stable with no decrease in the hemoglobin level of blood. Serial abdominal ultrasonography was performed to evaluate the volume of the hematoma which did not show any change in the size of the hematoma. Broad-spectrum antibiotics were administered for the patient due to the exudative pleural fluid. The patient regained consciousness with hydration, which clearly explained his hypovolemic shock. After a couple of days of treatment, examinations showed that the volume and size of the hematoma had reduced. The patient was discharged with stable vital signs and fine condition after getting the treatments.



**Figure 2.** Left Retroperitoneal collection by 220\*105\*115 mm dimensions obliterating the Left Rubrum Quadratus and Psoas and moving the left Kidney and Colon

## Conclusion

To sum up our report, although respiratory system involvement is the most remarkable manifestation of COVID 19 infection, a number of other presentations could be attributed to the infection which might be even fatal. Therefore, special attention to other manifestations is essential for confronting the pandemic.

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