



Spontaneous perirenal haematoma (SPH) in a COVID-19 patient: A rare case report

Ali Tavoosian, Sana Ahmadi, Seyed Mohammad Kazem Aghamir^{*}

Urology Research Center, Tehran University of Medical Sciences, Tehran, Iran

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ABSTRACT

Spontaneous subcapsular renal hematoma (SPH) is a rare diagnostic dilemma in clinical practice. We report a strange case of SPH in COVID-19 patients. A 40-year-old female patient who had no past medical history of urogenital disorder was taken to the emergency room with acute abdominal pain, nausea, and vomiting. She was found to have a subcapsular, non-expanding, non-pulsatile retroperitoneal hematoma in the periphery of the right kidney based on surgical exploration. Symptoms and size of the collection decreased on conservative treatment. We suggest that COVID-19 can cause a spontaneous hemorrhage in healthy and young people.

1. Introduction

Wunderlich first described spontaneous perirenal hemorrhage (SPH) in 1856 as a presence of blood into the subscapular and/or perirenal space.¹ For SPH diagnosis, both clinical and imaging findings should be considered. The imaging modality of choice for SPH is contrast-enhanced Computerized Tomography (CT). Lenk's triad, including; abdominal pain, palpable mass, and hypovolemia, is the classic SPH symptom. The acute onset of pain is the most common symptom. In some cases, gross hematuria and general malaise are reported. SPH is a rare but life-threatening emergency medical condition. The incidence of this disease is low.² The most common etiology of SPH is renal neoplasms (60–65% of cases). About 30–40% of SPH cases are caused by renal angiomyolipoma (AML), the benign renal neoplasms, whereas renal cell carcinoma (RCC) is the most common malignant neoplasm leading to SPH (25%–35% cases). Other neoplasms such as; urothelial carcinoma, renal oncocytoma, nephroblastoma are rare.³ The second common cause of SPH is vascular disorders (20–30% of cases). Polyarteritis nodosa accounts for 50% of vascular pathology, other etiologies including; arteriovenous malformations (AVMs), arteriovenous fistulas (AVFs), and renal aneurysm. Other causes are; hereditary and acquired renal cystic diseases and infectious disease (suppurative renal disease and pyelonephritis), ESRD, lupus erythematosus. SPH treatment approaches should vary according to the imaging findings, patient situation, and disease's main cause.

In 2019, COVID-19 (coronavirus disease 2019) occurred in China and rapidly spread to other countries. While COVID-19 is known as a

cause of pulmonary diseases, including; pneumonia and acute respiratory distress syndrome (ARDS), many extrapulmonary manifestations of COVID-19 are reported. Clinical experiences and literature claim that the cardiovascular, hematologic, renal, gastrointestinal and hepatobiliary, endocrinologic, neurologic, ophthalmologic, and dermatologic systems can all be affected by the COVID-19 virus.⁴ There is emerging evidence of the role of vascular disease in COVID-19, and clinical reports increasingly suggest a confluence of endothelial dysfunction, thrombosis, and dysregulated inflammation. Many studies reported a high rate of venous thromboembolism (VTE) and disseminated intravascular coagulation (DIC). There are some reports of severe hemorrhage in a patient with COVID-19. The mortality rate for hemorrhage due to COVID-19 depends on; the type, location, etiology, acuity, and severity. Here, we report a covid-19 patient with Spontaneous perirenal hemorrhage.

2. Case presentation

A forty-year female with no medical history of urogenital disorder is presented with acute abdominal pain, nausea, and vomiting. The case is presented based on CARE guidelines and, after signing the informed consent—no history of hematuria, trauma, or lower urinary tract symptoms (LUTS). In physical examination, she had right upper quadrant (RUQ) and right lower quadrant (RLQ) tenderness in her abdomen. Lab results were normal except for leukocytosis, white blood cell (WBC count: 12,300). Besides, ultrasound detected free fluid in Morison's pouch and abdominal cavity. The sonographic evaluation is

^{*} Corresponding author. Urology Research Center, Sina Hospital, Hassan Abad Sq., Imam Khomeini Ave., Tehran, Iran.

E-mail address: mkaghmir@tums.ac.ir (S.M.K. Aghamir).

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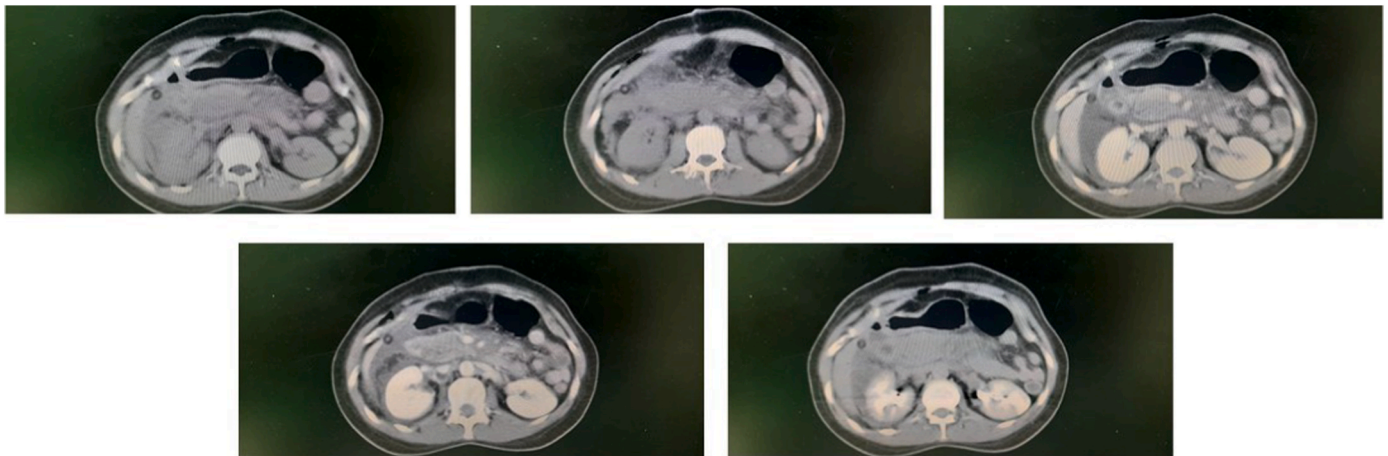


Fig. 1. Abdominal and pelvic CT scan imaging.



Fig. 2. Chest CT scan.

inconclusive. The diagnosis of acute appendicitis was made due to leukocytosis, RLQ pain, and free abdominal fluid. The general surgeon took her to the operation room (OR) immediately due to the possibility of appendix perforation. Surgical exploration showed no pathologic findings in the appendix, fallopian tubes, and ovary. Exploration via mid-line incision and an intraoperative urology consult was done, which indicated the stable, non-expanding, non-pulsatile retroperitoneal hematoma in the right perinephric space. The surgery ended due to the stable condition of the patient and our surgical findings. The patient was brought to the recovery room.

Six hours later, she had Hb drop to 11 g/dL. We did an abdominal and pelvic computerized tomography (CT) scan with IV contrast and without contrast (Fig. 1). CT showed retroperitoneal hematoma without any active bleeding and no tumor lesion in her kidney. The patient follow-up continued.

Twelve hours later, the patient suffered from shortness of breathing, dyspnea, fever, and cough. We did a chest CT scan, and it showed; multiple patchy ground-glass opacity in the peripheral portion of both lungs, highly suggestive of Corona-virus infection (Fig. 2).

Real-time polymerase chain reaction (PCR) for COVID-19 was positive. The infectious disease physician ordered Remdesivir. After a few days, the patient began to recover from COVID. During hospitalization, she received antibiotic treatments, and the serial blood count did not show any reduction in her Hb level. The patient was discharged from the hospital in good condition. After four months of follow-up, no hematoma was seen sonography, and the kidney was completely normal.

In this case, the only factor considered for perirenal hemorrhage is COVID-19.

3. Discussion

COVID-19 can have severe extrapulmonary and hematologic presentations. Elevation of C-reactive protein and inflammatory cytokines can cause these patients' hematologic complications (such as thrombosis, bleeding, or even vasculitis). Numerous bleeding sites have been

reported in Covid patients, such as; chest wall, muscles, adrenal, brain, liver, and retroperitoneal. As hypercoagulation is one of the most important states which cause death in COVID patients, it has been recommended to treat COVID patients with antithrombotic drugs such as; Heparin. Anticoagulants are the most common cause of retroperitoneal bleeding in COVID-19 patients.⁵ The first case of retroperitoneal hematoma in COVID-19 was reported in 2020; a 57-year-old man with a history of autologous cell transplantation due to non-Hodgkin lymphoma. There was no history of any disease. Her drug history was adverse. The familial history was negative. In our patient follow-up, we found the continued reduction of hematoma size. After a few months, she made a full recovery from perirenal hematoma and COVID-19. We believe our case report is one of the unique COVID-related cases. The only limitation was having no urine PCR test for COVID-19.

4. Conclusions

By the time we wrote this case report, it had been proved that COVID-19 is related to many hematologic disorders, especially hypercoagulable states. Clinicians should also consider bleeding complications such as spontaneous retroperitoneal hemorrhage. We reported a case with no considerable medical, drug, or family history who suffered from both peri-renal hemorrhage and COVID-19. Now we can claim that COVID-19 can cause a spontaneous hemorrhage in completely healthy and young people.

Ethics approval and consent to participate

The case is presented based on CARE guidelines and signed written informed consent.

Consent for publication

Informed consent was obtained from the patient to report for publication of this case report and any accompanying images. A copy of the

written permission is available for review by the journal's editor.

Availability of data and materials

Data will be provided on request.

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Declaration of competing interest

The authors declare that they have no competing interests.

Abbreviations

AML	Angiomyolipoma
ARDS	Acute respiratory distress syndrome
AVF	Arteriovenous fistulas
AVM	Arteriovenous malformations
CT	Computerized Tomography

DIC	Disseminated intravascular coagulation
OCP	Oral Contraceptive Pill
RCC	Renal cell carcinoma
RLQ	Right lower quadrant
RUQ	Right upper quadrant
SPH	Spontaneous subcapsular renal hematoma
VTE	Venous thromboembolism
WBC	White blood cell

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