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Case Report

Ovarian vein thrombosis as a first manifestation of COVID-19 infection [☆]

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ABSTRACT

Coronavirus disease 2019 (COVID-19) infection is associated with high risk of venous thromboembolic events mainly pulmonary embolism or deep venous thrombosis of the lower limbs. Ovarian vein thrombosis is a rare and serious condition usually seen in the immediate postpartum period and other conditions including pelvic inflammatory diseases, gynecological malignancies, hypercoagulable states, and few cases to date have reported ovarian vein thrombosis as a complication of COVID-19 infection. Patient with ovarian vein thrombosis usually presents with fever and lower abdominal pain that can mimic acute surgical abdomen and high index of suspicion is required for diagnosis. We report a case of a 41-year-old Asian female presented to our hospital with fever and acute lower abdominal pain. Laboratory findings show positive COVID-19 test and high D-dimer. Patient underwent computed tomography of the abdomen and pelvis and a confirmed diagnosis of right ovarian vein thrombosis was made. Patient was treated with anticoagulation and empirical antibiotics and her symptoms have significantly improved.

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Case report

A 41-year-old Asian female with no significant past medical or surgical history, presented to the accident and emergency department with 1 day duration history of right lower abdominal pain associated with vomiting. She described the pain as colicky in nature, progressively increasing in intensity, and not relieved by pain killers. She also gave history of dysuria, vaginal discharge, and 1 day history of fever and chills. She denied history of constipation or diarrhea, loss of appetite or weight loss, cough, or shortness of breath. The patient has regular

menstrual cycles and had two previous normal vaginal deliveries. Patient denied history of recent pregnancy and oral contraceptive use.

On physical examination, the patient was tachycardic and febrile (low grade fever of 38°C). Relevant abdominal examination revealed tender right lower abdomen with guarding and negative Rovsing's and obturator sign.

Basic laboratory hematological findings showed elevated white blood cell count of $17.5 \times 10^3/\mu\text{L}$ (Normal level: $3.6 - 11 \times 10^9/\text{L}$), elevated C-reactive protein levels of 119.8 mg/L (Normal: $<5.0 \text{ mg/L}$) and elevated D-dimer level of 2.6 (Normal: $<0.5 \mu\text{g/L}$). In view of history of fever, SARS-CoV-2 RNA PCR

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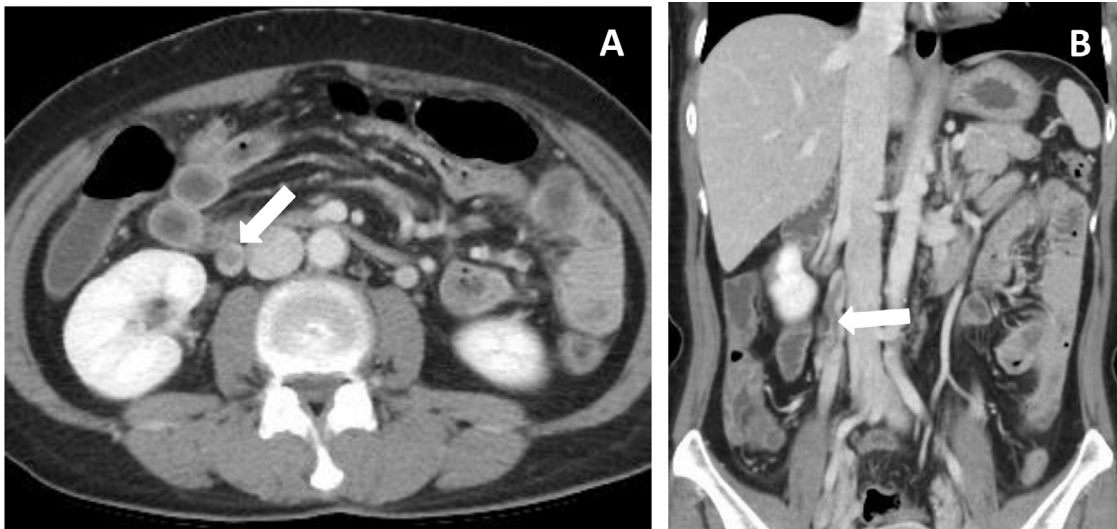


Fig. 1 – Axial (A) and coronal (B) intravenous contrast-enhanced computed tomography images of the abdomen and pelvis showing thrombosis of the right ovarian vein (white arrow).

nasal swab was obtained and a confirmed diagnosis of coronavirus disease 2019 (COVID-19) infection was made. Otherwise, rest of the laboratory investigations including urinalysis and high vaginal swab were normal.

An emergency intravenous contrast-enhanced computed tomography (CT) scan of the abdomen was done and showed an endoluminal filling defect within the right ovarian vein throughout its course suggestive of right ovarian vein thrombosis (OVT) (Fig. 1). The rest of the abdominal CT was unremarkable. No obvious adnexal or pelvic masses seen.

The patient was admitted under the care of general surgery and kept on anticoagulation plan of therapeutic low molecular weight heparin (enoxaparin) and empirical antibiotic treatment with cefuroxime and metronidazole. The patient's symptoms gradually improved and became vitally stable and afebrile.

Discussion

COVID-19 infection is caused by SARS-CoV-2 virus and has affected more than 190 million people around the world since 2019 (as of July 2021, WHO) [1]. Patients usually present with respiratory symptoms ranging from mild to severe respiratory illness leading to respiratory failure and death [2]. There have been frequently documented coagulation abnormalities secondary to COVID-19 infection with dehydration and prolonged hospital stay as well as severe inflammatory response as the most likely causes for thrombosis [3]. Majority of these cases develop episodes of pulmonary embolism (PE) & deep venous thrombosis of the lower limbs. Few cases were documented in which the gonadal veins were thrombosed in the setting of COVID-19 infection as a possible risk factor.

OVT commonly present with right iliac fossa pain (55%) and fever (80%). Risk factors for developing OVT includes post-

partum period, patients with pelvic inflammatory disease, malignancies, or previous abdominal/pelvic surgeries [4]. It may mimic acute surgical abdomen particularly acute appendicitis, ovarian torsion, pelvic inflammatory disease, or tubo-ovarian abscess [5]. Therefore, high index of suspicion and prompt diagnosis through imaging with contrast-enhanced CT scan of the abdomen is required. Right ovarian vein thrombus is seen in 70%–90% of cases [6]. Treatment includes anticoagulation therapy to prevent life-threatening complications such as sepsis, ovarian infarction or abscess, and extension to inferior vena cava, and development of PE [4].

The case presented above showed unusual presentation of OVT likely secondary to COVID-19-related coagulopathy in the absence of other risk factors. The case suggests that complications of COVID-19 may still occur despite the absence of respiratory symptoms. Only one similar case has been reported in literature [7].

Conclusion

Ovarian vein thrombosis is a rare condition presenting with lower quadrant pain and may mimic other conditions. CT scan with intravenous contrast is the most useful imaging modality for diagnosis. While COVID-19-related coagulopathy usually comes in the form of deep venous thrombosis in the lower limbs or PE in the lungs, other veins may also be thrombosed and present acutely as presented in this case.

Patient consent

A written consent was obtained from the patient for publication of this case and any accompanying images.

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