A Case of Extensive Splanchnic Vein Thrombosis in a COVID-19 Patient and a Review of the Literature

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Abstract

Splanchnic vein thrombosis is one of the rare complications of coronavirus disease 2019 (COVID-19). A 43-year-old woman presented with splanchnic vein thrombosis as a rare extrapulmonary complication of COVID-19. She was previously healthy without a medical history of coagulopathy before hospital admission. She complained of epigastric pain, along with nausea and vomiting. Enhanced abdominopelvic computed tomography (CT) scan demonstrated extensive acute thrombosis in the portal, superior mesenteric, and splenic veins with total occlusion. Intestinal ischemia or infarction was not clinically observed. All thrombophilia screening tests yielded negative results. Under anticoagulation therapy, she recovered dramatically and was discharged from the hospital. Imaging findings can be used to confirm splanchnic vein thrombosis when a COVID-19 patient has abdominal symptoms.

Keywords: Color Doppler Ultrasonography, Computed Tomography (CT), COVID-19, Splanchnic Vein Thrombosis

1. Introduction

A relatively high incidence of hypercoagulability has been reported in patients with coronavirus disease 2019 (COVID-19). Venous thromboembolism may occur in 13% of COVID-19 patients due to the imbalance of procoagulant and anticoagulant systems, including 31% of COVID-19 patients admitted to the intensive care unit (ICU) and 7% of non-ICU patients (1). Although several reports of isolated splanchnic vein thrombosis have been published in the literature, most cases are critically ill or have a risk factor for hypercoagulability (2, 3). Herein, we present the case of a young woman with COVID-19 and isolated splanchnic venous thrombosis, without a history of risk factors for hypercoagulability in the Middle East.

2. Case Presentation

A previously healthy, 43-year-old woman with no medical conditions other than anemia was admitted to our hospital. She had experienced epigastric pain (pain scale, 3/10; colicky and sometimes radiating to the back) for 2 weeks, along with nausea and vomiting. She had fever, chills, and dry cough 10 days before admission, but had no subjective symptoms, such as breathing difficulties, chest pain, or changes in bowel habits. She denied smoking or alcohol consumption. She was married and did not use any oral contraceptive pills.

On admission, she was hemodynamically stable and afebrile, without jaundice. The physical examination of the chest and cardiovascular system was unremarkable. Also, in the physical examination of the abdomen, it was found to be soft with mild tenderness over the epigastric area, without organomegaly or palpable lymphadenopathy. In the laboratory tests, she was positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), based on reverse transcription-polymerase chain reaction (RT-PCR).

The blood tests revealed increased leukocytes (12,000 µL; normal range: 4,000 - 10,000 µL), decreased hemoglobin (7.7 g/dL; normal range: 12.0 - 16.0 g/dL), decreased hematocrit (24.9%; normal range: 36 - 46%), increased platelet count (544 × 10³ µL; normal range: 130 - 400 × 10³ µL), prolonged prothrombin time (14.4 sec; normal range: 10.5 - 12.5 sec), increased international normalized ratio (1.3; normal range: 0.8 - 1.2), and increased D-dimer level (> 35.20 µg/mL; normal range: 0.00
- 0.50 µg/mL). The serum iron level was low (10 µg/dL; normal range: 33 - 193 µg/dL). Iron deficiency anemia was diagnosed in the patient. The serum electrolyte tests were unremarkable. Also, rheumatoid factors and other immunological immunoassays showed normal ranges.

Enhanced abdominopelvic computed tomography (CT) scan revealed extensive thrombosis with intraluminal dilatation, and vascular wall enhancement was observed in the portal, splenic, and mesenteric veins with minimal ascites. Nonetheless, significant wall thickening or intramural gas in the bowel was not found (Figures 1A & 1B). Several small subpleural lesions with ground glass attenuation were observed in the right lung on the chest CT scan, suggesting COVID-19 pneumonia (Figure 1C).

The patient was examined by a surgical team closely. The hematology team prescribed an anticoagulation therapy with enoxaparin sodium (1 mg/kg, subcutaneously twice daily). A thrombophilia workup, including antiphospholipid antibodies, paroxysmal nocturnal hemoglobinuria, factor V Leiden mutation analysis, and factor II (prothrombin) mutation analysis, was also performed. All thrombophilia studies yielded negative results. Moreover, Doppler ultrasonography of the abdomen and lower extremity veins was performed on the third day of admission. It demonstrated no significant change in splanchnic vein thrombosis, while the status of ascites improved, with no evidence of deep vein thrombosis in the lower extremities. After five days of systemic anticoagulation under close observation, her abdominal symptom dramatically improved, and she was discharged under continuous oral anticoagulant therapy.
extrapulmonary complication in COVID-19 patients, clinicians should consider it as one of the differential diagnoses when examining COVID-19 patients with abdominal symptoms, even those without a risk factor for hypercoagulability. Besides, clinicians need to immediately perform radiological examinations, such as enhanced CT scan or abdominal Doppler ultrasonography, for COVID-19 patients with abdominal manifestations.

Footnotes

Authors’ Contribution: Kwang Hwi Lee: Drafting of the manuscript, administrative, technical, and material support, and revision; Eui Yong Jeon: Study conception and design and study supervision and revision; Maryam Hasan Abdulla: Critical revision of the manuscript for important intellectual content; Young Joon Ahn: Critical revision of the manuscript for important intellectual content; George Thomas: Acquisition of data; and Yeong-lee Yu: Analysis and interpretation of data.

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