First case of retroperitoneal hematoma in COVID-19

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Cite this article as: Scialpi M, Russo P, Piane E, Gallo E, Scalera GB. First case of retroperitoneal hematoma in COVID-19. Turk J Urol 2020; 46(5): 407-9.

Dear Editor,

Respiratory symptoms and fever are frequent in most patients with coronavirus disease-2019 (COVID-19). However, system can be involved such as cardiovascular, gastrointestinal tract, hepatobiliary, genitourinary, and hematologic.[1] Therefore, patients may also present with extrapulmonary manifestations and hematologic symptoms.

In critically ill patients with COVID-19, the risk of thrombosis or bleeding is higher than in healthy people. Elevated levels of C-reactive protein and pro-inflammatory cytokines (IL-6, tumor necrosis factor-α, IL-8, etc.) determine the mimicry of vasculiitis.[2] There is evidence of *direct viral infection of endothelial* cells which may cause in hypercoagulability and diffuse blood clots (disseminated intravascular coagulation [DIC]) and result in "multiple or-

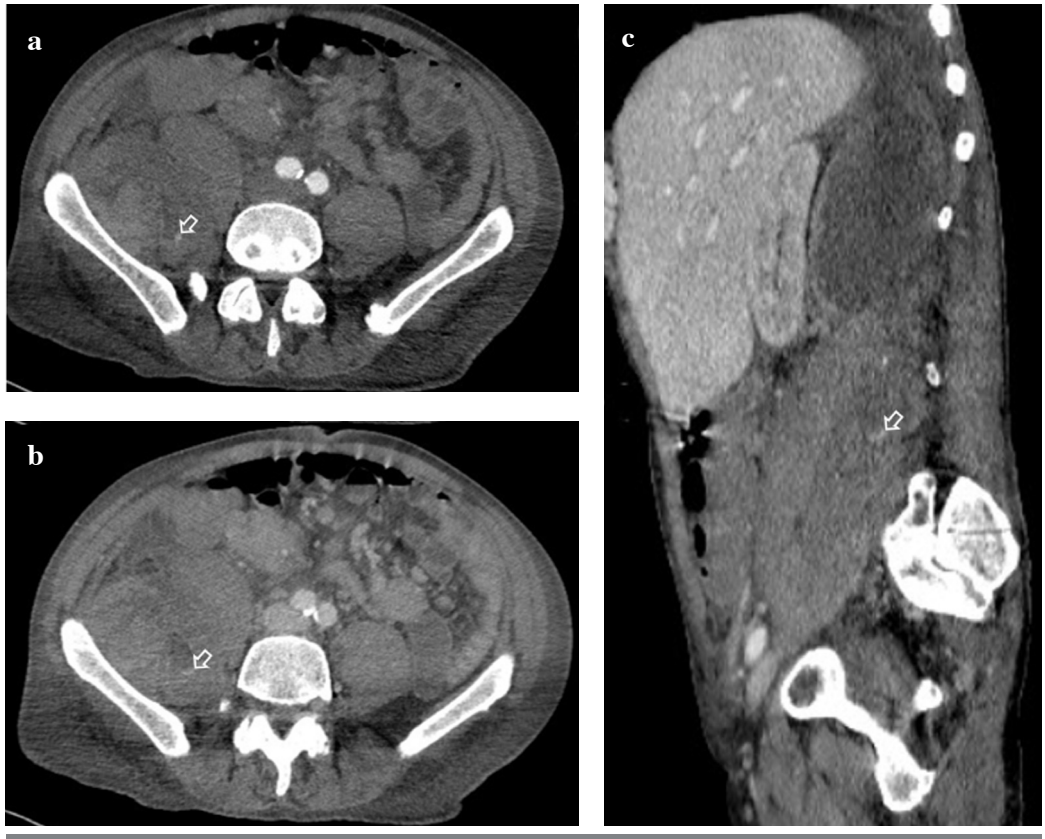

Figure 1. a-c. CT scan in arterious phase (a), venous phase (b) and sagittal multiplanar reconstruction in venous phase (c) shows voluminous retroperitoneal hematoma of the right iliopsoas muscle with leaking of contrast medium (arrow in a, b and c)

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Submitted:
05.07.2020

Accepted:
27.07.2020

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Available online at
www.turkishjournalofurology.com

Turk J Urol 2020; 46(5): 407-9
DOI: 10.5152/tud.2020.20302

Figure 2. a, b. Selective angiogram shows active bleeding of the right ileo-lumbar artery (a); post-embolization angiogram shows a complete occlusion of the bleeding artery without any sign of extravasion (b)

gan injury".[1,3-6] DIC is known to be associated with platelet and fibrinogen consumption, resulting in an increased risk of bleeding.

A 57-year-old man with a history of non-Hodgkin lymphoma, treated with autologous cell transplantation one year ago and later diagnosed with COVID-19 infection at nasopharyngeal swab sample, presents with bilateral and diffuse pulmonary ground-glass opacities on chest X-ray, develops diffuse abdominal pain. The laboratory tests revealed elevated white blood cell count of 10.69 K/μL, with 11.5 K/μL monocytes and normal neutrophils, lymphocyte, and eosinophil distributions, normal hemoglobin level, and slightly elevated creatinine at 1.75 mg/dL (baseline 0.90 mg/dL). Contrast-enhanced computed tomography (CT) of the abdomen and pelvis demonstrated a massive hematoma in the right retroperitoneal space displacing the kidney and the adjacent organs (Figure 1).

An emergency selective angiography of the right ileo-lumbar artery was performed and shows active bleeding. After embolization, a complete occlusion of the bleeding artery was obtained (Figure 2).

In conclusion, we reported the first case of retroperitoneal hematoma in a COVID-19 patient. In our case, CT scan of the abdomen and pelvis with IV contrast is recommended to detect injuries to the retroperitoneum and abdominal organs, in order to treat patients with COVID-19.

Informed Consent: Written informed consent was obtained from the patient.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – M.S., G.B.S.; Design – M.S., G.B.S.; Supervision – M.S.; Materials – M.S., P.R., E.P., G.B.S.; Data Collection and/or Processing – M.S., P.R., E.P., E.G., G.B.S.; Analysis and/or Interpretation – M.S., P.R., E.P., E.G., G.B.S.; Literature Search – M.S., P.R., E.P., E.G.; Writing Manuscript – M.S., P.R.; Critical Review – M.S., P.R., E.P., C.B.S.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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