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LETTER TO THE EDITOR

Antiphospholipid antibodies in patient with acute lower member ischemia and pulmonary thromboembolism as a result of infection by SARS-CoV2

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Dear Sirs,

SARS-CoV-2 infection has spread to more than 140 countries, according to the WHO. More than 80% of cases of SARS-CoV-2 infection have flu-like symptoms, 20% require hospitalization and 5–15% intensive care [1]. Hospitalized patients tend to die from symptoms of acute respiratory distress syndrome and, in some cases, multi-organ failure [2]. In critically ill patients, there are laboratory abnormalities that suggest a cytokine storm in response to viral infection leading to uncontrolled proliferation of T cells, excessive macrophage activation and hypersecretion of proinflammatory cytokines, IL-1β, IL-6, interferon and tumoural necrosis factor α (TNFα) [3]. The activation of thrombin is also found in these patients, with multiple thrombotic events ranging from peripheral ischemia, pulmonary thromboembolism to disseminated intravascular coagulation (DIC). These complications were the cause of death in many of these patients. Thrombocytopenia and increased D-dimer levels, as well as prolongation of the prothrombin time (PT) and international normalized ratio (INR), are associated with a higher disease severity [4].

Recently, the New England Journal of Medicine published a series of cases related to infection by SARS-CoV2 and bilateral limb ischemia and elevated antiphospholipid antibodies. It is not clear whether antiphospholipid antibodies play a major role in the pathophysiology of thrombosis associated with COVID-19 [5]. Here we describe a patient with arterial and venous ischemia as a result of infection by SARS-CoV2 that was positive for antiphospholipid antibodies after discharge. A 70-year-old patient with hypertension and diabetes presented to the urgency room with symptoms of ischemia in lower members. The patient had no history of thrombotic events, abortions or rheumatic diseases. The patient had fever and respiratory symptoms 1 week prior coming to the urgency room but at the moment of examination had no symptoms of dyspnoea, diarrhoea, cough or headache. The patient had a temperature of 36.5°, and basal oxygen saturation was 98%. On examination, patient had signs of coldness, loss of sensibility and motor skills in the right leg which suggest acute ischemia. Pulmonary auscultation revealed crackles. Cardiac auscultation was normal. A chest X-ray showed a reticular-nodular pattern with peripheral distribution in lower lung bases. A CT angiography revealed an acute pulmonary thromboembolism affecting the apical segmental artery (right inferior lobe) and posterior segmental artery (left inferior lobe). The lung parenchyma showed multiple patched areas of increased attenuation in frosted glass and peripheral distribution, in both lung fields, and typical "crazy paving" pattern, mainly in the posterior/lateral segment of the right and left inferior lobes, lateral segment of the medium lobe and lingula. Signs of acute thrombi in the abdominal aorta and right common iliac and obstruction of the second portion of right popliteal were also found. All these findings were consistent with a typical pattern of COVID-19 infection. Reverse transcriptase-polymerase chain reaction of nasopharyngeal and sputum swabs was negative; however, the presence of IgG antibodies against SARS-CoV2 was detected which suggested infection by COVID-19. Venous blood gases showed a pH of 7.28, pCO_2 of 38,2 and HCO_3 of 17 which was consisted with acidosis. Laboratory tests are depicted in Table 1, with signs of renal failure (creatinine

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Table 1 Laboratory tests

Laboratory findings	
White cell count (mm^3)	28.800
Neutrophils (mm^3)	81.000
Lymphocytes (mm^3)	9.000
Platelet count (mm^3)	382.000
Haemoglobin (mm^6)	12,3
INR	1,32
Alanine aminotransferase (U/l)	231
Aspartate aminotransferase (U/l)	149
Lactate dehydrogenase (U/l)	668
Creatinine (μmol/l)	2,38
Creatine kinase (U/l)	11.427
Creatine kinase MB isoenzyme (U/l)	311
EGFR (ml/min/1.73 m^2)	20
Cardiac troponin I (pg/ml)	17.83
Prothrombin time (s)	15,2
Activated partial thromboplastin time (s)	55
Fibrinogen (g/l)	584
D-dimer (mg/l)	71.016
Serum ferritin (ng/ml)	623
Procalcitonin (ng/ml)	0,2
High-sensitivity C-reactive protein (mg/l)	100,5
Pro-BNP	761,2
Ions	Sodium 135 mmol/l Potassium 5,.8 mmol/l
Antiphospholipid antibodies	Positive for lupus anticoagulant, positive for IgG cardiolipin

2,38, urea 163 and glomerular filtrate of 20) and high levels of transaminases (ALT 231, ASPT 149), LDH 669, CK 11.427 and D-dimer 72,016. Initial treatment with empiric antibiotic therapy, hydroxychloroquine and lopinavir/ritonavir was implemented. Due to high thrombotic risk, the patient received treatment with low-molecular-weight heparin at therapeutic dose and needed percutaneous thrombectomy for acute popliteal obstruction. Treatment with intensive fluid therapy and bicarbonate was also required in order to improve renal function. After discharge, the patient was tested twice for antiphospholipid antibodies and was positive for anticardiolipin IgG antibodies as well as lupus anticoagulant.

This report emphasizes that thrombotic disease may have precedent factors or incident complications in patients with COVID-19 and that antiphospholipid antibodies may play a role in the pathophysiology of thrombosis; however, more studies are required to determine whether there is an association.

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Compliance with ethical standards

Patient consent was given with purpose of writing this article.

Disclosures None.

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