Stroke as a an initial presentation of SARS-COV2 infection: a brief report

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Short Report

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Abstract

The novel Coronavirus 19 infection spread rapidly from Wuhan, Hubei Province – China, to the worldwide, becoming a pandemic. The infection does not cause only flu-like syndrome (fever, dry cough and shortness of breath) and respiratory distress of varying severity but also affects the kidneys, the heart, the nervous system and the circulatory apparatus, causing thromboembolic events.

Usually these problems occur in patients with severe respiratory failure admitted to Intensive Care Unit and with pre-existing comorbidities.

We report the case of a patient without Covid symptoms who had thrombotic stroke as the presenting features of Coronavirus infection.

Background

Coronavirus disease 2019 (COVID–19), is a potential severe illness caused by the novel virus severe acute respiratory syndrome Coronavirus 2 (SARS-COV–2). The SARS-COV–2 occurred in Wuhan, , on December 2019 and within a few weeks the infection spread all over the world, primarily in Italy (1). On March 11, 2020, the World Health Organization (WHO) declared COVID–19 as a pandemic.

Person-to-person transmission through airborne droplets has been established with a median incubation period of 6.4 days; the reproductive number is 2 to 3.5 and those who develop symptoms will do so within 1 to 24 days (2–3). The symptoms of COVID–19 are not specific and include fever, dry cough and shortness of breath. Eighty percent of patients infected are asymptomatic or have a mild disease. Case fatality rate is 1–4% (increasing with age > 50 and pre-existing health conditions). There is no specific treatment as empiric and investigational new drug.

The disease affects more than just the lungs. In fact, Coronaviruses are known to affect kidneys, cardiovascular system (4) and Central and Peripheral Nervous System. Involvement of CNS is present in about 1/3 of Covid–19 infected, may be of varying severity and consist of hyposmia/anosmia, hypogeusia/ageusia, headache, ataxia, impaired consciousness, encephalitis, epilepsy and stroke (5–6). To date, acute cerebrovascular disease has been detected as subsequent event in elderly patients with known moderate to severe SARS-COV–2, often in ventilator. Stroke is probably due to the infection, at high levels of proinflammatory cytokines, coagulation disorders, platelet activation and endothelial dysfunction (6). We report the singular case of ischemic stroke as the first unique clinical symptom in a patient with coronavirus infection.

Case Report

On April 14, a 87 years-old woman was hospitalized in our COVID 19 Hospital Care Unit for acute ischaemic stroke that started 48 hours earlier.

She had multiple underlying disorders such as Diabetes, Hypertension, Atrial Fibrillation, mild kidney failure. She had no fever and breathing difficulties or other clinical manifestation of SARS-COV2 infection, but nasopharyngeal swab detected with REAL-TIME RT-PCR) revealed Coronavirus infection.

Upon the admission, neurological evaluation showed reduced level of consciousness, global aphasia, right hemiplegia with hypoaesthesia (NIHSS 18; mRS 3).

Patient's temperature was 36.7 (99–7 F); respiratory rate of breaths was 20 acts per minute and she did not present dyspnea; the oxygen saturation was st 98% while breathing ambient air.

A CT scan of the skull (Fig.1) showed areas of cortico-subcortical hypodensity, subacute, left in middle frontal gyrus, in radiated crown, precentral and parietal white matter and ipsilateral nuclei-striatal site. A chest CT scan (Fig.2) showed multiple parenchymal thickenings, some with frosted glass, others with consolidation aspect, mainly mantle distribution, located in both areas lungs, more evident in the lower lobes. Anticoagulant therapy with therapeutic doses of enoxaparin was immediately started (7). Blood chemistry tests showed a marked increase in myoglobin (15000 ng/ml, range 19—51), lactate dehydrogenase (827 U/L, range 150 - 460), serum creatine-kinase (4118 U/L, range 0—200), reactive serum protein C (3.90 mg/dl, range 0.00—0.50), fibrinogen degradation factors (39 ug/ml, range 0–5), dimer D (>4 µg/mL, range 0–0.5), Interleukin 6 (80.8 pg/ml, range 0.0—7.0), erythrocyte sedimentation rate (20 1^ h)., total white blood cell count (21800 per mmc, range 4500—9000), absolute neutrophil cell count (90 %, range 60 –70) and reduced lymphocyte cell count (5 %, range 20—35).

Stroke was the debut symptom but other thrombotic manifestations appeared in the following hours in other vascular districts. Twelve hours later, patient's lower limbs were cold and marbled and arterial wrists were not appreciable.

An ultrasound and subsequent total body CT Angio scan showed serious arterial thrombotic events: complete thrombosis of the internal left carotid artery, the ipsilateral internal iliac artery for a long section, both to the superficial and deep femur up to the popliteal arteries. Furthermore, there have been several focal hypodensities of the parenchymal spleen with irregular morphology, of an ischaemic nature. The venous system of both thighs was opaque. 24 hours later the patient underwent a bilateral iliac-femoral thromboembolectomy. Twelve hours later, she died of a cardiovascular arrest.

Discussion

Acute large vessel cerebrovascular disorders and thrombotic arterial and venous pathologies are reported in patients with SARS-COV–2 with moderate or severe disease admitted to an Intensive Care Unit, critical ill ICU, therefore they occur after the onset of acute respiratory symptoms (8).

Patients with SARS-COV–2 are predisposed to thrombotic disease, both arterial and venous, due to the travel of blood clots, related to inflammation, platelet activation, endothelial dysfunction and circulatory stasis and, probably, we suppose, to a body's reaction to the viral invasion.

Our experience shows that thromboembolic disease and particularly large vessel ischaemic stroke can occur even in the absence of clinical manifestations indicative of SARS-COV2 infection. For this reason, we emphasize the concept that it is necessary to consider the possibility that the patient with stroke of large-vessel may be affected by Coronavirus infection and that acute cerebrovascular event may be the first symptom of the infectious and that it is extremely important to undertake a antithrombotic or anticoagulant therapy in high doses.

Declarations

The authors declare that they have no conflict of interest.

This study wasn't funded.

Patient's informed consent isn't available, because the patient had no relatives and she died.

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Figures

Figure 1

Skull CT

Figure 2

Chest CT