

Stroke as the Sole Manifestation of Covid-19 in an Argentinean Patient

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Abstract

Background— Ischemic stroke has been reported in patients with Coronavirus Disease 2019 (COVID-19) who also have other symptoms of COVID-19. Ischemic stroke has very infrequently been seen in patients with asymptomatic COVID-19.

Case Description— A 80-year-old man presented sudden onset of moderate left faciobrachial weakness. He did not have any sign or symptom related to COVID-19. Brain magnetic resonance imaging revealed a small right frontal infarction. Chest computed tomography scan did not have any findings suggestive COVID-19. Nasopharyngeal swab analyzed using polymerase chain reaction confirmed Severe Acute Respiratory Syndrome Coronavirus (SARS-COV-2) infection. Paroxysmal atrial fibrillation was detected during hospitalization and oral anticoagulation was started.

Conclusion— Screening for SARS-COV-2 infection may need to be considered in all patients with acute ischemic stroke.

Keywords— COVID-19, SARS-COV-2, asymptomatic patients, stroke, ischemic stroke, cardioembolic stroke.

BACKGROUND

On 11 February 2020, the World Health Organization identified a new respiratory illness as Coronavirus disease 2019 (COVID-19). Concurrently, the International Committee on Taxonomy of Viruses named the new pathogen as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-COV-2). The most common clinical findings in COVID-19 are fever, cough, dyspnea, pneumonia and respiratory failure.¹ Ischemic stroke has been reported as a manifestation in patients with COVID-19 in both early and advanced stages of the disease.^{2,3} As of July 6, 2020, Argentina ranks fifth in South America in terms of total number of SARS-COV-2 infection confirmed cases. We report of a patient with acute ischemic stroke and asymptomatic SARS-COV-2 infection in our country.

CASE DESCRIPTION

An 80-year-old man was admitted to our hospital after sudden onset of left faciobrachial weakness (National Institutes of Health Stroke Scale: 4 points). He had past history of hypertension, hyperlipidemia, obesity, chronic renal failure, and idiopathic dilated cardiomyopathy with ventricular tachyar-

rhythmia. He was on treatment with carvedilol, amiodarone, and valsartan. On hospital arrival, his vital signs were: blood pressure: 170/100 mmHg, temperature: 36.1°C, heart rate: 53 heart beats/min, pulse oximetry: 98% and blood glucose: 89 mg/dl. He did not have any respiratory signs or symptoms related to Coronavirus disease 2019. His motor deficits completely resolved within 30 minutes of symptoms onset. Brain computed tomography (CT) was normal and CT Angiography showed mild bilateral internal carotid stenosis without any large vessel occlusion. Brain magnetic resonance imaging revealed a small right frontal infarction (Figure 1). Chest CT scan showed sequel central ground glass opacities associated with bronchiectasis in the apical segment of the right upper lobe, which was attributed to past lung infection and not consistent with signs of acute infection associated to Coronavirus disease 2019 were seen. Nasopharyngeal swab analyzed using polymerase chain reaction confirmed Severe Acute Respiratory Syndrome Coronavirus (SARS-COV)-2 infection. There was not lymphopenia, thrombocytopenia or any other coagulopathy identified on routine laboratory testing. Erythrocyte sedimentation rate was 27 mm (normal value: 0-15 mm) and C-reactive protein rate was 0.2 mg/dl (normal value:

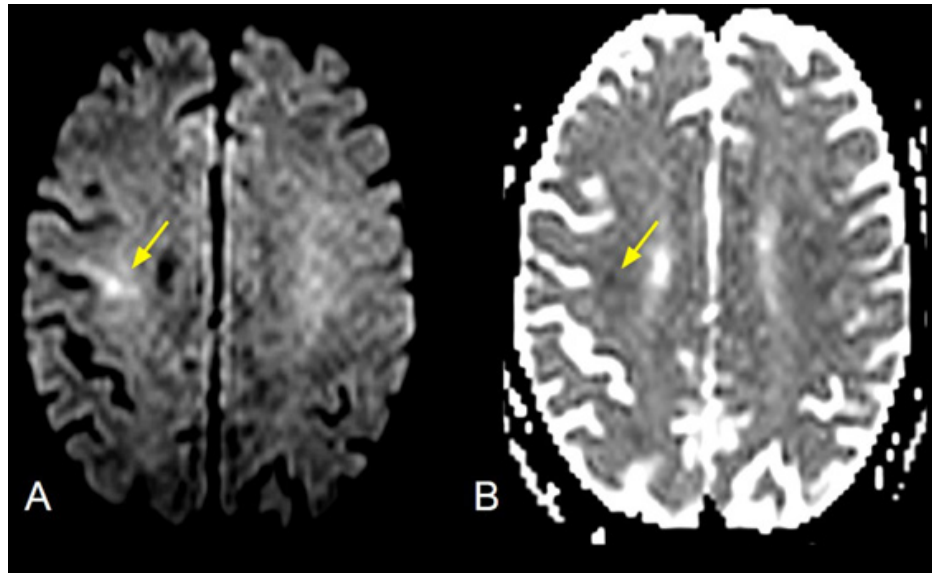


FIGURE 1: Brain magnetic resonance imaging showed a focal area in restricted diffusion in diffusion weighted image (a), with low signal in apparent diffusion coefficient (b), compatible with acute ischemic stroke in the right middle cerebral artery territory.

0-0.8 mg/dl). Anticardiolipin antibody was IgM: 1 MPL and IgG: 1 GPL (normal value: 0-10). Fibrinogen level was 445 mg/dl (normal value: 200-470 mg/dl). Serum interleukin-6 was not performed. D-dimer level was 810 ng/mlFEU (normal value: 0-250 ng/ml FEU). Paroxysmal atrial fibrillation was detected and apixaban treatment was initiated without any recurrent cerebral ischemic events.

DISCUSSION

SARS-COV-2 infection is associated with higher risk of ischemic stroke compared with other respiratory infections such as influenza.⁴ Ischemic stroke has been identified in 2.3% to 22% of patients with COVID-19 and the presence of stroke in this patient is associated with a ~ 2.5-fold increase odds of severe infection disease.⁵ COVID-19 may induce ischemic stroke through different mechanisms including: 1)- hypercoagulability state with increase of both D-dimer and fibrinogen levels, 2)- an excessive activated immune response with IL-6 and ferritin elevation, 3)- cardiac injury with brain derived natriuretic peptide and troponin elevation, 4)- renin angiotensin aldosterone imbalance and 5)- endothelial dysfunction.⁶⁻⁷ Several reports identified ischemic stroke associated with antiphospholipid antibodies in young patients with COVID-19 without cardiovascular risk factors due to large-vessel occlusion.⁸⁻⁹ Nevertheless, it is unclear why ischemic stroke may occur in a patient with asymptomatic SARS-COV-2 infection.

Atrial fibrillation was the underlying cause in our patient with COVID-19. Arrhythmias have been described in COVID-19 patients include atrial fibrillation, ventricular tachycardia, conduction block and ventricular fibrillation.¹⁰⁻¹¹ Bahatla et al. proposed that cardiac arrest and arrhythmias more likely represent a consequence of severe systemic illness than direct effect of SARS-COV-2 infection.¹¹

Ischemic stroke may be the first manifestation of COVID-19.⁹ In a retrospective observational study involving 3556 patients with COVID-19 hospitalized in New York, 32 patients had ischemic stroke of whom 14 presented with ischemic stroke and 5 of them had no other COVID-19 symptoms before

stroke onset.¹³ Recent guidelines recommend screening for SARS-COV-2 infection in acute ischemic stroke using clinical criteria and/or chest CT scan.¹² Clinical screening in ischemic stroke patients is complicated as some patients might be asymptomatic or have mild symptoms, some patients might not be able to provide information due to aphasia or decrease level of consciousness and/or unavailability of family members.¹³ Following the American Heart Association recommendations, we have implemented the Protected Stroke Code in our hospital, performing clinical and additionally chest CT scan screening in all patients who have an acute ischemic stroke.¹³

Our report highlights the value of Coronavirus disease 2019 screening and the adequate use personal protective equipment in evaluation of patients with acute ischemic stroke.

CONFLICTS OF INTERESTS

The authors have no conflicts of interest.

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