

## Brugada Electrocardiographic Pattern Unmasked by COVID-19 Induced Fever

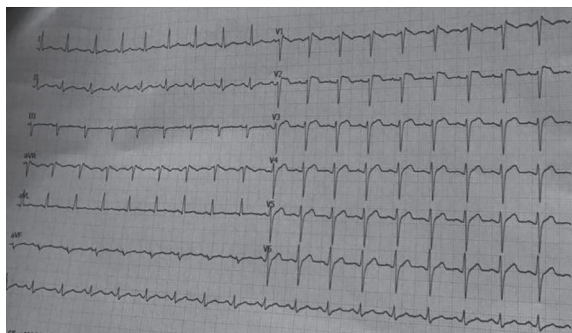


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Coronavirus disease-2019 (COVID-19) is characterized by fever and inflammatory state, which may serve as provoking factor for Brugada pattern<sup>(1)</sup>. Here, we reported a patient who developed a fever-induced type 1 Brugada electrocardiographic pattern appeared first after COVID-19 infection.

A 47-year-old male presented to the emergency room with the complaint of substernal chest pain. On admission, the patient was conscious with a 37.8°C fever, an 108 bpm heart rate and 135/75 mmHg blood pressure and normal respiratory findings (SaO<sub>2</sub> 95%). The electrocardiogram (ECG) showed a ST-segment elevation in the right precordial leads with no reciprocal changes (Figure 1). An echocardiogram demonstrated a mildly depressed global ejection fraction. Due to the persistence of substernal chest pain and ST-segment elevation, emergent coronary angiography (CAG) was performed, showing normal coronary arteries. After the diagnostic CAG, the patient was transferred to a dedicated COVID-19 intensive care unit. The patient had a 39.1°C fever. ECG was repeated and it revealed coved ST-segment elevation in lead V1 and V2 with a rise of the J-point by 0.25 mV indicative for Brugada type 1 ECG (Figure 2). He denied syncope, dizziness, or palpitations and there was no history of arrhythmic diseases in his family. Laboratory data were unremarkable. The high-sensitivity troponin level was within the normal range along with normal electrolytes. The N-terminal probrain natriuretic peptide (NT-proBNP) level was normal. The C-reactive protein (CRP) level was 40.2 mg/L (normal range: 0-5 mg/L). In order to investigate the cause of fever, the patient was tested for COVID-19 and chest computerized tomography (CT) scan was performed. Chest CT scan showed bilateral pulmonary parenchymal ground glass opacities of the lower lobes consistent with COVID-19 infection (Figure 3). Twenty-four hours after naso- and oropharyngeal swabs, the patient tested positive for COVID-19 by polymerase chain reaction (PCR). He received favipiravir, hydroxychloroquine and antipyretic therapy. No anti-arrhythmic treatment was initiated. With defervescence, the ECG demonstrated complete resolution of the initial Brugada-like ECG pattern (Figure 4). He was discharged from the hospital after the 7-day hospital stay when second PCR revealed a negative result. The patient had no prior history of ventricular arrhythmias or syncope and no family history of sudden cardiac death. Since the risk of sudden death in patients with asymptomatic Brugada pattern is low, defibrillator implantation was not done. Instead lifestyle modifications such as treating



**Figure 1.** The patient's initial 12-lead electrocardiogram in the emergency room. ST-segment elevations in V1-V3 with the absence of reciprocal changes.

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