

Lacunar Infarction with Movable-Weaning Phenomenon (Yasser's Phenomenon), Hypertensive Emergency, Mild Pneumonia, and Associated Brugada Syndrome Post-COVID-Vaccination-Interpretation and Management

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Abstract

Rationale: Distinct adverse effects after any vaccination are expected. Severe adverse reactions may occur following vaccination. Side effects after getting a COVID-19 vaccine can vary from person to person. A hypertensive crisis is a remarkable lethal sequence of hypertension. Electrocardiographic abnormalities such as the Movable-weaning phenomenon or Yasser's phenomenon, Wavy triple and double signs (Yasser's signs) are newly reported innovative signs in hypocalcemia. Brugada syndrome (BrS) is a genetic disorder characterized with deviated cardiac electrical activity. The syndrome is a progenitor for ventricular fibrillation and sudden cardiac death.

Patient concerns: A middle-aged married driver heavy smoker Egyptian male patient was admitted to the intensive care unit with an acute cerebrovascular accident and hypertensive crisis post-inactivated COVID-19 vaccination.

Diagnosis: Acute lacunar infarction with Movable-Weaning phenomenon (Yasser's phenomenon), hypertensive emergency, mild pneumonia and associated Brugada syndrome post inactivated COVID-19 vaccination.

Interventions: Chest CT scan, brain CT scan, electrocardiography, oxygenation, and nitroglycerin IV infusion.

Outcomes: Piecemeal spectacular clinical, electrocardiographic, and radiological improvement occurred.

Lessons: Lacunar infarction with Movable-Weaning phenomenon (Yasser's phenomenon), and hypertensive emergency may happen post-inactivated COVID-19 vaccination. The association of ischemic cerebrovascular accident, hypocalcemia, Brugada syndrome, hypertensive emergency, heavy smoking, and COVID pneumonia is serious remarkable constellation risk factors. Lacunar infarction with Movable-Weaning phenomenon (Yasser's phenomenon) are newly described issues post inactivated COVID-19 vaccination.

Keywords: Cerebrovascular Accident, Brugada Syndrome, Movable Phenomenon Wavy Triple Sign, Yasser's Sign in Hypocalcemia, Tetany, Covid-19, Vaccination

Introduction

There is a greater than expected severe neurological adverse events after variant types of Coronavirus disease 2019 (COVID-19) vaccination. Severe and serious adverse reaction post-vaccination is defined as a post-vaccination event that is either life-threatening indicates hospitalization, or is associated with severe disability [1]. The WHO lists Guillain-Barré syndrome (GBS), seizures, syncope, encephalitis, Bell's palsy, and Cerebrovascular accidents (CVA) as serious neurologic adverse effects [2]. The reported CVA is ranged from ischemic strokes, venous thromboses to cerebral hemorrhages. Cerebral venous sinus thrombosis represents the most anxious and induced COVID vaccine neurological complications [1]. The safety and efficacy of vaccines is the most decisive point in fighting COVID-19 and restraining thorough the pandemic course for universal vac-

ination [3]. Most of the mild or moderate adverse effects of COVID-19 vaccines will go away within a few days [4]. Indeed, there are reported worldwide common and mild side effects of the authorized vaccines despite rare and major reported adverse effects in the post-marketing surveillance phase of vaccines, such as anaphylaxis [3]. Serious adverse events are rare but can cause long-term health problems [5]. Side effects after getting a COVID-19 vaccine can vary from person to person [5]. However, these adverse effects have a pivotal role in changing the vaccine policy [3]. Early and close monitoring for vaccine adverse events is essential [4]. The presence of a changeable Wavy triple sign in electrocardiography (ECG) leads is a hallmark of the Movable phenomenon (Yasser's phenomenon) of hypocalcemia [6]. The Wavy triple ECG sign (Yasser's sign) is a recently innovated diagnostic sign in hypocalcemia [7,8]. The author's in-

interpretations are based on the following; 1. Different successive three beats in the same lead are affected. 2. All ECG leads can be implicated. 3. An associated elevated beat is seen with the first of the successive three beats, a depressing beat with the second beat, and an isoelectric ST-segment in the third one. 4. The elevated beat is either accompanied by ST-segment elevation or just an elevated beat above the isoelectric line. 5. Also, the depressed beat is either associated with ST-segment depression or just a depressing beat below the isoelectric line. 6. The configuration for depressions, elevations, and isoelectricities of ST segment for the subsequent three beats are variable from case to case. So, this arrangement is non-conditional. 7. Mostly, there is no participation among the involved leads. The author intended that is not conditionally included in an especial coronary artery for the affected leads [7]. Hypertensive crises are acute remarkable elevations in blood pressure that are associated with end-organ damage such as acute myocardial infarction, cerebrovascular accident, acute pulmonary edema, or acute renal failure are called is defined as a hypertensive emergency. There is a marked elevated blood pressure or > 180/120 mmHg are common issues in the emergency department (ED). It represents the most urgent danger to those afflicted versus the essential need for lifesaving antihypertensive therapy. Immediate diagnosis and appropriately aggressive management are essential [9]. Brugada syndrome (BrS) is a genetic disorder characterized with deviated cardiac electrical activity. The syndrome is a progenitor for ventricular fibrillation (VF) and sudden cardiac death (SCD). Three classes were identified; Coved type (class I) has a coved ST-segment elevation with ≥ 2 mm (0.2 mV) J-point elevation and a graded ST-segment descending with post a negative T-wave [10].

Case Presentation

A 56-year-old driver heavy-smoker married Egyptian male patient presented to the intensive care unit (ICU) with acute heaviness in right side of the body with left side deviation in the face and severe headache. There is a history of recent injection of inactivated COVID-19 vaccine since about 72 hours. Family gave a history of prodromal symptoms. These are including mild fever, generalized body aches, and dry cough. Tachypnea, progressive headaches, numbness and paresthesia of extremities were associated symptoms. Upon general physical examination; generally, the patient was irritable, with a regular rapid pulse rate of 100, blood pressure (BP) of 190/130 mmHg, respiratory rate of 20 bpm, GCS of 15/15, a temperature of 37.8 °C, and pulse oximeter of oxygen (O₂) saturation of 96%. He seemed good body status. Tests for latent tetany were positive. There is right side hemiparesis, left side facial palsy, and slurred speech. No more relevant clinical data were noted during the clinical examination.

The patient was admitted to the ICU with acute cerebrovascular accident and hypertensive crisis post-inactivated COVID-19 vaccination. Initially, he was treated with O₂ inhalation (100%, by nasal cannula, 5L/min) and one sublingual isosorbide dinitrate tablets (5 mg, as needed). The patient was maintained treated continue nitroglycerine IVI (10 mg/50 ml solvent, 5 ug/min, and titrated according to BP), enalapril tablets (10mg, BID), cefotaxime; (1000 mg IV TDS), azithromycin tablets (500 mg, OD), and paracetamol (500 mg IV TDS as needed). After controlling the BP, SC enoxaparin 80 mg, BID), enalapril tablets (10 mg; BID), aspirin tablets (75 mg, OD), and nitroglycerin retard capsules (2.5mg, BID) were added. The initial complete blood count (CBC); Hb was 13.9 g/dl, RBCs; 4.02*10³/mm³, WBCs; 12.0*10³/mm³(Neutrophils; 88 %, Lymphocytes: 9%, Monocytes; 2%, Eosinophils; 1% and Basophils 0%) and Platelets; 168*10³/mm³. S. ferritin was normal (177 ng/ml). D-dimer was high (592 ng/ml). CRP was high (23 g/dl). SGPT (18U/L) and SGOT (21U/L) were normal. Serum creatinine was normal (0.7mg/dl). RBS was normal (166 mg/dl). Plasma sodium (149mmol/L) and serum potassium (3.8mmol/L) were normal. Ionized calcium was low (0.63mmol/L). ABG showed acute respiratory alkalosis. Serial ECG tracings were done. The initial ECG was done on the initial presentation showing sinus tachycardia (VR; 100). There is a Wavy triple sign (Yasser's sign) in II, V₄, and V₅ leads. There is also coved ST-segment elevation in V₁ and saddle-shape ST-segment elevation in V₂ leads (Figure 1A). The second ECG tracing was done within 17 seconds of the above ECG tracing showing NSR (VR; 98). There is a Wavy triple sign (Yasser's sign) in II, V₄, and V₅ leads. There is also coved ST-segment elevation in V₁ and saddle-shape ST-segment elevation in V₂ leads (Figure 1B). The brain CT was done within 72 hours of vaccination and on the day of the ICU admission showing evidence of multiple opacities indication lacunar infarctions (Figure 2A). The chest CT was done within 72 hours of vaccination and on the day of the ICU admission showing halo sign in the left lung, bilateral reversed halo sign, and small ground-glass opacities in periphery of left lung. There is evidence of pneumatocele in the left lung (Figure 2B). Acute lacunar infarction with Movable-Weaning phenomenon (Yasser's phenomenon), hypertensive emergency, mild pneumonia and associated Brugada syndrome post inactivated COVID-19 vaccination was the most probable diagnosis. Within 36 hours of the above management, the patient finally showed nearly clinical and ECG improvement. The patient was discharged within 3 day and continued on aspirin tablet (75 mg, OD), clopidogrel tablets (75 mg, OD), enalapril tablets (10mg, BID), and and nitroglycerin retard capsules (2.5mg, BID). Future cardiac and neurological follow-up was advised.

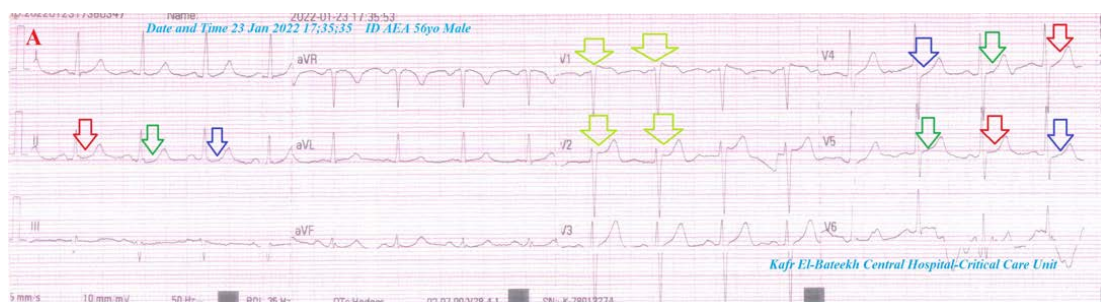


Figure 1: A-Ecg Tracing Was Done on the Initial Icu Admission Showing Sinus Tachycardia (VR; 100). There Is a Wavy Triple Sign (Yasser's Sign) In II, V₄, And V₅ Leads (Red, Dark Blue, And Green Arrows). There Is Also Coved St-Segment Elevation in V₁ And Saddle-Shape St-Segment Elevation in V₂ Leads (Lime Arrows).

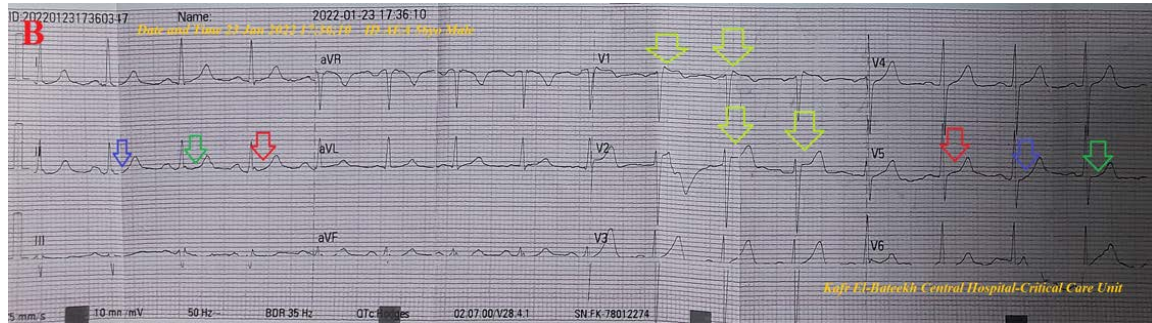


Figure 1: B- Ecg Tracing Was Done Within 17 Seconds of the Above Ecg Tracing Showing NSR (VR; 98). There Is a Wavy Triple Sign (Yasser's Sign) In II, V4, And V5 Leads (Red, Dark Blue, And Green Arrows). There Is Also Covered St-Segment Elevation in V1 And Saddle-Shape St-Segment Elevation in V2 Leads (lime arrows).

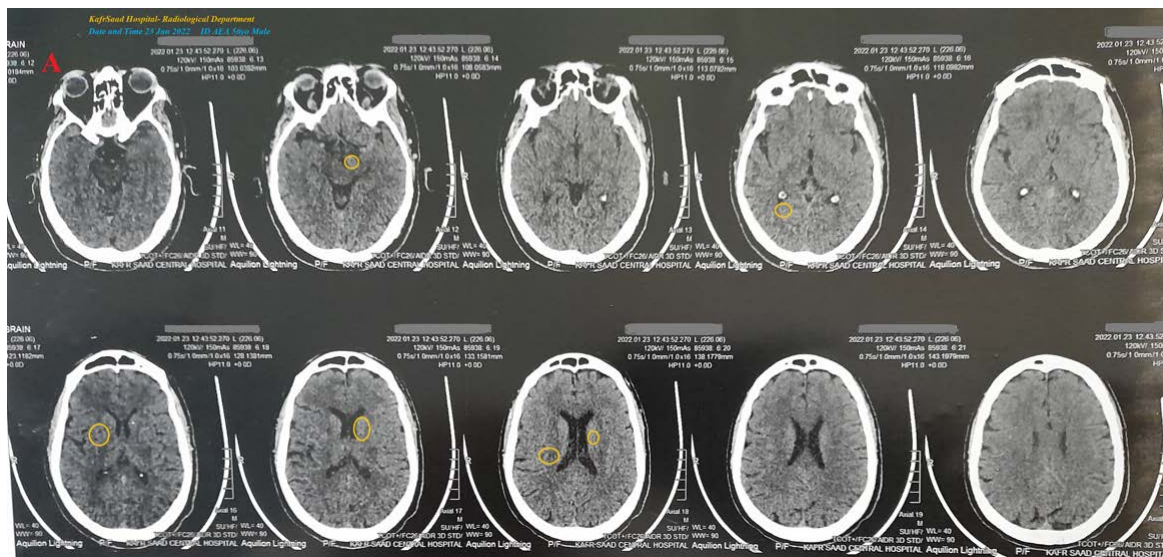


Figure 2: A- Brain Ct Was Done Within 72 Hours of Vaccination and on the Day of The Icu Admission Showing Evidence of Multiple Opacities Indication Lacunar Infarctions (golden circles).



Figure 2: b-chest ct Was Done Within 72 Hours of Vaccination and on the Day of The Icu Admission Showing Halo Sign in The Left Lung (Orange Arrow), Bilateral Reversed Halo Sign (Lime Arrows), and Small Ground-Glass Opacities in Periphery of Left Lung (Blue Arrow). There Is Evidence of Pneumatocele in The Left Lung (Red Arrow).

Discussion

Overview

- A middle-aged driver heavy smoker married Egyptian male patient was admitted to the intensive care unit with an acute cerebrovascular accident and hypertensive crisis post-inactivated COVID-19 vaccination.
- The objective primary for my case study was the presence of acute cerebrovascular accident and hypertensive crisis with a Movable-weaning phenomenon (Yasser's phenomenon) and mild pneumonia in the admitted ICU patient.
- The secondary objective for my case study was the question; how did you manage the case?
- The occurrence of prodromal symptoms post recent injection of inactivated COVID-19 vaccine with mild fever, generalized body aches, and dry cough are common mild presentations after COVID-19 vaccination.
- But the presence of acute cerebrovascular accident and hypertensive crisis post recent injection of inactivated COVID-19 vaccine are serious adverse events.
- Movable phenomenon or Yasser's phenomenon of hypocalcemia is a signal for associated tachypnea in the current case.
- Coronary artery spasm and acute myocardial infarction were the most probable electrocardiographic differential diagnosis for the current case study. But there are no pathologic Q-waves, convex regional ST-segment elevations, and reciprocal changes with spasm or infarction.
- I can't compare the current case with similar conditions. There are no similar or known cases with the same management for near comparison.
- The only limitation of the current study was the unavailability of echocardiography.

Conclusion and Recommendations

- Lacunar infarction with Movable-Weaning phenomenon (Yasser's phenomenon), and hypertensive emergency may happen post-inactivated COVID-19 vaccination.
- The association of ischemic cerebrovascular accident, hypocalcemia, Brugada syndrome, hypertensive emergency, heavy smoking, and COVID pneumonia is serious remarkable constellation risk factors.
- Lacunar infarction with Movable-Weaning phenomenon (Yasser's phenomenon) is newly described issues post inactivated COVID-19 vaccination.

Conflicts of interest

There are no conflicts of interest.

Acknowledgment

I wish to thank the nurse team of the intensive care unit in Kafr-El-Bateck Central Hospital to give me extra copies of the ECG to help me.

Abbreviations

- COVID-19: Coronavirus disease 2019
- AMI: Acute myocardial infarction

- CAS: Coronary artery spasm
- CBC: Complete blood count
- ECG: Electrocardiography
- ICU: Intensive care unit
- NSR: Normal sinus rhythm
- O₂: Oxygen
- SGOT: Serum glutamic-oxaloacetic transaminase
- SGPT: Serum glutamic-pyruvic transaminase
- STEMI: ST-segment elevation myocardial infarction
- VR: Ventricular rate

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