



TAKOTSUBO CARDIOMYOPATHY AS SEEN IN SARS-COV-2

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INTRODUCTION

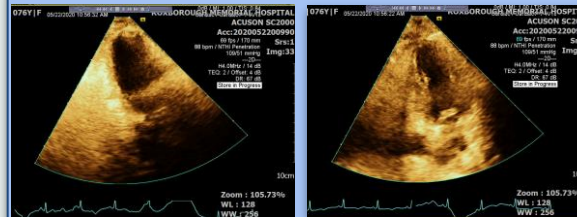
SARS-CoV-2 is a novel coronavirus that originated in the city of Wuhan, China in 2019. Globally there have been more than 134 million confirmed cases of the virus as of April 2021. In the United States at the time of this publication, there have been more than 30.5 million total cases, and more than 500,000 deaths. This virus has presented many complications in almost every organ system in the body. Additional research continues to determine not only acute effects of SARS-CoV-2 virus but also long term effects.

Below we present a case of a patient who had a prolonged hospitalization and ICU course due to SARS-CoV-2 infection. The patient developed Takotsubo cardiomyopathy leading to concerns for cardiogenic shock.

METHODS & MATERIALS

Patient is a 76 year old African American female with past medical history of alpha thalassemia, iron deficiency anemia, and osteoarthritis who presented from home after suffering a mechanical fall. She admitted to a non-productive cough over the last 10 days. Patient was found to be hypoxic in the ED while ambulating and was placed on 4L NC. On day 6 of admission, the patient required invasive mechanical ventilation due to hypoxia. On Day 11 of admission, patient was noted to have diffuse T wave inversions on ECG and troponin elevation to 0.09. Patient was managed medically with IV continuous infusion of heparin, ASA 81mg and Clopidogrel 75mg.

RESULTS



- Figures 1 & 2: Images of an ECHO demonstrating that the left ventricle is normal size, with mild concentric left ventricular hypertrophy. LVEF 60-65%. Mild diastolic dysfunction is present. Regional wall motion is not well visualized. There is an area of apical hypokinesis.
- ECG noted for diffuse T wave inversions

REFERENCES

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- National Center for Immunization and Respiratory Diseases, Division of Viral Diseases

CONCLUSION

Takotsubo Cardiomyopathy (TC) is a disease classically seen in postmenopausal females and is thought to be a result of a major catecholamine surge due to emotional or physical stress. It is defined by a reduced ejection fraction as well as apical ballooning on 2D echocardiogram. TC also presents with classic ECG changes including ST segment elevation or T wave inversions. TC generally can be medically managed with beta blockade, ACE inhibitors, and Aspirin until the left ventricle recovers. In this patient it is believed that SARS-CoV-2 infection lead to the developed of Takotsubo Cardiomyopathy.

Unfortunately given hemodynamic instability and poor renal function cardiac catheterization was unable to be performed. The SARS-CoV-2 infection may have an effect on catecholamine surge leading to TC as well, however the pathophysiology needs further investigation as information becomes available.

However, it is known that increasing pressor requirements as seen in this patient is concerning for cardiogenic shock, which is seen often with compromised oxygenation in the setting of acute hypoxic respiratory failure, but also in stress-related cardiomyopathy. It is also interesting to note that catecholamine excess can also be found in this state, preliminarily as the initial insult to the myocardium from physical stress secondary to acute illness causes a surge in norepinephrine. However, prolonged hypotension will eventually indicate the need for hemodynamic support with pressors as these stores of catecholamines are often not enough to sustain one through the entire course of severe illness.