

Author Information

Title - 'COVID-19 Pandemic' Anxiety induced Tako-tsubo Cardiomyopathy

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Learning Point for Clinicians

At the time of submission of this article, there are nearly 1.4 million confirmed cases of COVID-19 worldwide with around 82000 deaths. Inarguably, this has led to anxiety and panic all around. It is important to keep in mind that this negative emotion could lead to Takotsubo (Stress-Induced) Cardiomyopathy.

'COVID-19 Pandemic' Anxiety induced Tako-tsubo Cardiomyopathy

Introduction –

Tako-tsubo Cardiomyopathy, also known as Apical Ballooning Syndrome or Broken Heart Syndrome, presents similar to an acute myocardial infarction but there is no evidence of obstructive coronary artery disease on cardiac catheterization [1]. It mostly affects postmenopausal women and a history of stress or acute illness can often be elicited preceding the presentation [2]. We report a case of Tako-tsubo Cardiomyopathy in an 85-year-old female brought on by anxiety related to current COVID-19 pandemic. To the best of our knowledge, this is the first such reported case.

Case Presentation -

An 85-year-old female with no past medical history or cardiac risk factors presented to our Emergency room (ER) with sudden onset substernal chest pain. She denied any associated complaints of palpitations, dizziness or syncope. Patient mentioned being extremely stressed due to current COVID-19 pandemic, however, denied any symptoms of cough, fever, shortness of breath, including history of recent travel or exposure to COVID-19.

On examination, patient's vital signs were stable. The respiratory and cardiovascular exam was unremarkable. The chest X-ray showed no acute cardio-pulmonary abnormality and Lab work including the complete blood count and chemistry was within normal limits.

The electrocardiogram in the ER showed a septal q-ST pattern in leads V1-V3 (Figure 1). Her initial Troponin T was also elevated at 112 pg/ml. Patient was taken for an urgent cardiac catheterization which showed hemodynamically non-significant coronary artery disease (Figure 2,3) but the left ventriculogram revealed basal hyperkinesis and apical ballooning (Figure 4, Video 1), consistent with Tako-tsubo cardiomyopathy. The Echocardiogram confirmed the same findings with Ejection fraction noted to be around 35%. The remaining course of her stay was uneventful and patient was discharged in a stable condition. A repeat Echocardiogram obtained five days later showed complete recovery of the LV systolic function.

Discussion -

Tako-tsubo cardiomyopathy (TCM) is characterized by a transient depression of the contractile function of mid and/or apical segments of left ventricle with compensatory hyperkinesis of the basal wall leading to ballooning of apex in systole [3]. It is observed more commonly in women, usually post-menopausal.

TCM can present with chest pain, dyspnea, syncope or complications like heart failure, malignant arrhythmias and cardiogenic shock. Cardiac biomarkers like Troponins are also elevated in TCM, however the elevations are usually mild. As of yet, there is no consensus on the underlying mechanism, however, catecholamine induced myocardial stunning, coronary artery spasm, plaque rupture and microvascular dysfunction have

been suggested [4]. TCM is usually associated with an excellent prognosis and complete recovery [5].

A history of either an acute medical illness or intense emotional or physical stress can often be elicited in these patients, which acts as a trigger for development of TCM. No such underlying cause was identified in our patient and anxiety related to ongoing COVID-19 pandemic was most likely the inciting event, as she was extremely concerned for her health.

To the best of our knowledge, this is the first reported case of Tako-tsubo cardiomyopathy in literature as a result of 'Stress' related to COVID-19 pandemic.

References –

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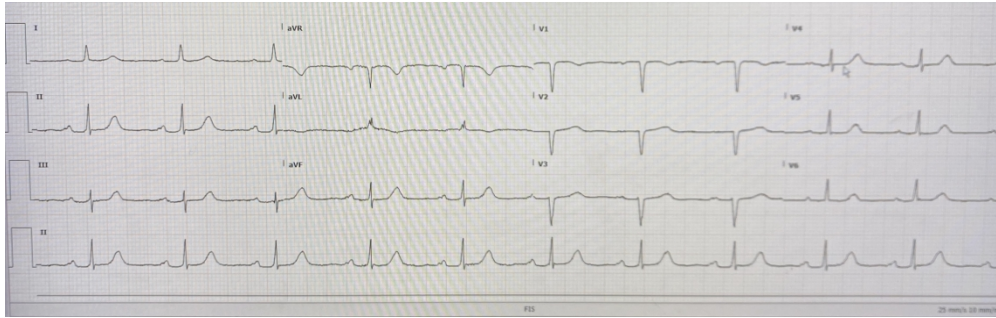


Figure 1

1344x424mm (72 x 72 DPI)



Figure 2

1045x1096mm (72 x 72 DPI)

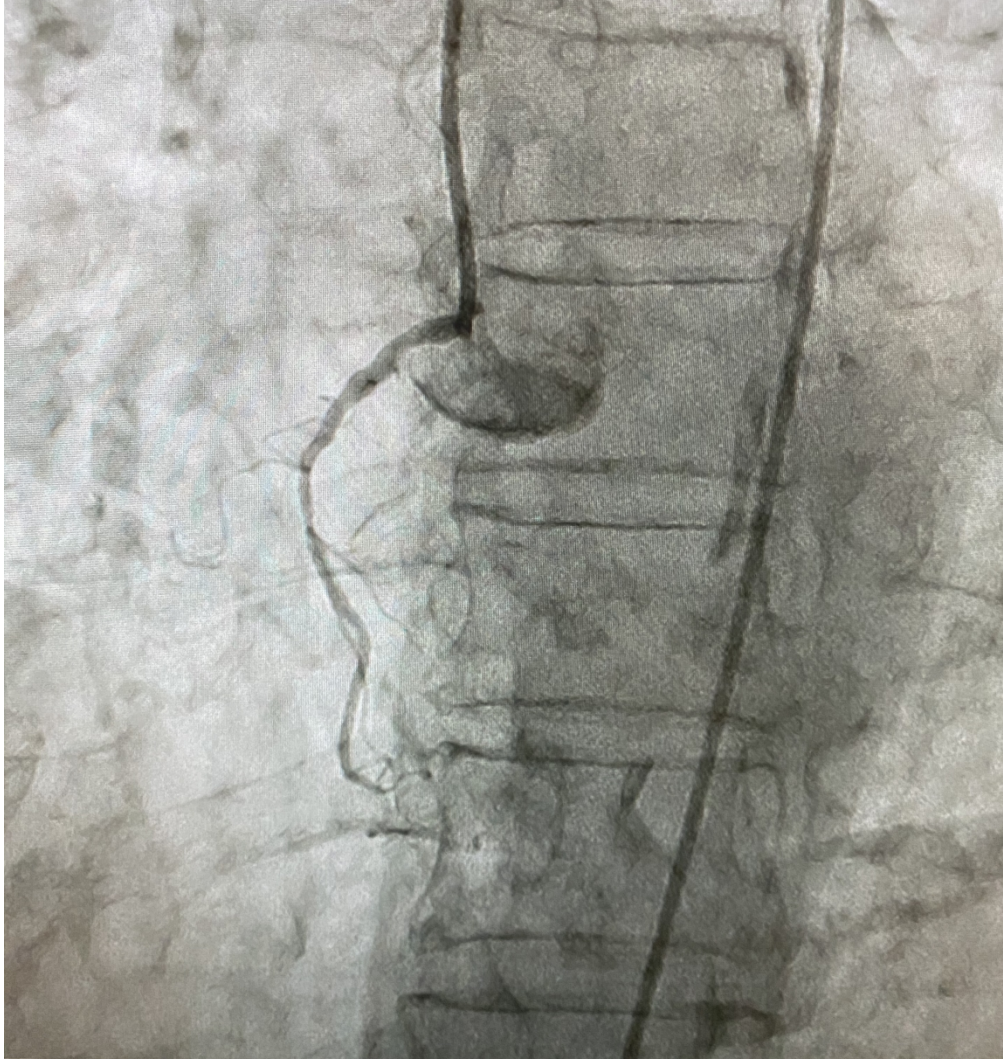


Figure 3

1003x1061mm (72 x 72 DPI)

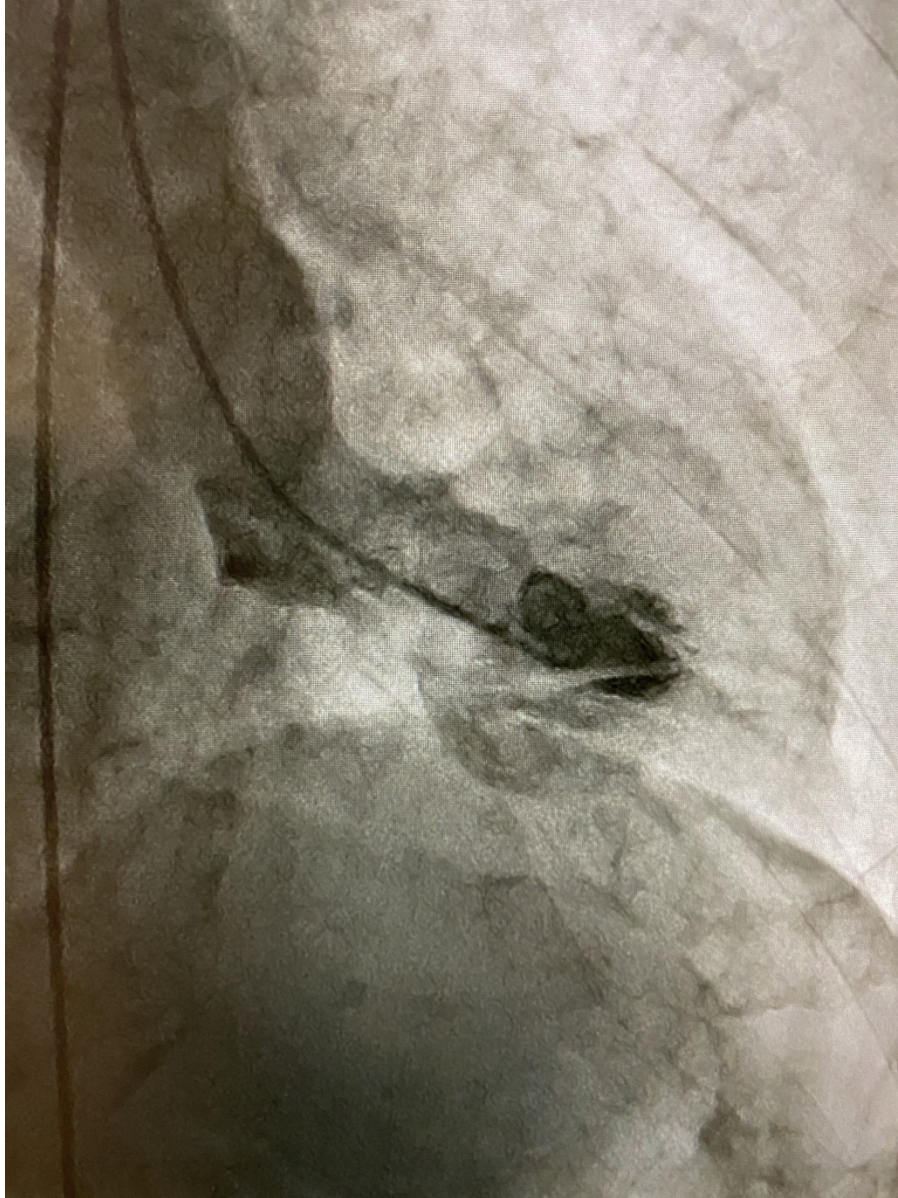


Figure 4

1066x1422mm (72 x 72 DPI)