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## Introduction

- We present a case where a patient displayed severe anterior apical akinesia in a Takotsubo/Stress Cardiomyopathy pattern versus anterior wall infarction, but also displayed severe mitral valve regurgitation, which is atypical.

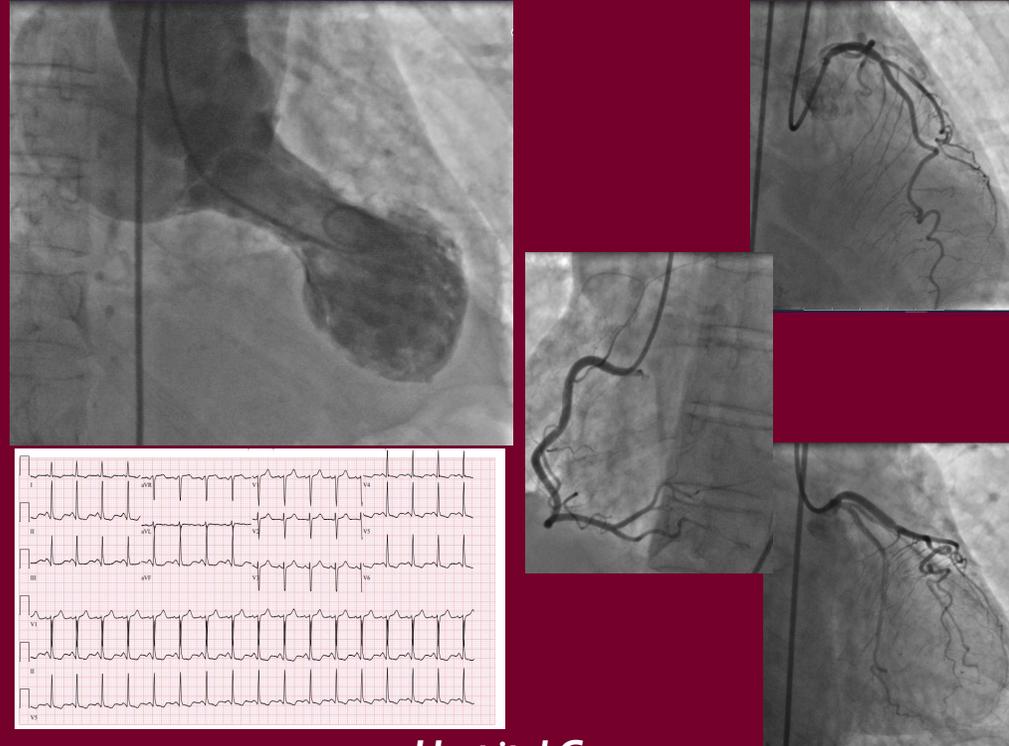
## Case

- A 69-year-old-female with a past medical history significant for hypertension and essential tremor presented to the emergency department with complaints of dyspnea and the belief that she has a heart problem.
- For the past several weeks, when the patient would go to take her nightly walks she experienced shortness of breath and a sensation that her heart was racing. Before developing these symptoms the patient was able to walk 3 miles per day.
- Patient appeared well nourished, awake, and alert with no apparent distress during physical examination,
- Patient had a grade 3/6 blowing holosystolic murmur.

## Investigations

- BP: 106/69
- HR: 103 bpm (resting)
- O2 saturation: 96%
- Respiratory Rate: 17 breaths per minute.
- EKG displayed ongoing T-wave inversions in the lateral leads. Patient also developed ST downsloping in all inferior leads.
- Echocardiogram showed an ejection fraction of 35-40% and demonstrated moderate to severe mitral valve regurgitation with anterior wall hypokinesis.
- Left ventricular angiogram revealed moderate to severe mitral valve regurgitation with an LVDEP of 24 mmHg and reduced left ventricular ejection fraction (approximately 40%) with anterior and apical wall akinesia.

- Right heart catheterization hemodynamics showed a left atrial V-wave pressure of 40 mmHg.
- Coronary angiogram was negative for obstructive disease.



## Hospital Course

- Patient remained inpatient with plans for diuresis and treatment of NSTEMI with a heparin drip and antiplatelet agents following catheterization procedures and eventually required a phenylephrine drip for hypotension.
- Due to a continued state of hypotension and developing cardiogenic shock, patient was transferred to a coronary care unit.
- It was ultimately decided that the patient was to be treated with medical therapy. Subsequent echocardiographic imaging showed improvement in the mitral valve regurgitation and the left ventricular function.

## Discussion

- Takotsubo Cardiomyopathy is a well-recognized condition that can manifest itself with chest pain, ST segment abnormalities on EKG and appearance of “ballooning” of the left ventricle with no signs of coronary obstructive disease.
- Acute ischemic mitral valve regurgitation (IMV) is a common complication which arises from myocardial infarction and coronary artery disease (CAD). Wall motion abnormalities localized to the regions underlying the papillary muscles result in mitral regurgitation at rest when the myocardium is infarcted, or only with stress, when there is intermittent ischemia. We see that our patient displayed early indications of myocardial infarction, however, no indications of CAD that could lead to this could be found.
- In a recent study, it was found that 25% of Takotsubo Cardiomyopathy cases resulted in left ventricular outflow tract obstruction (LVOTO). LVOTO and systolic anterior motion of the mitral valve (SAM) can result from the geometric remodeling of the left ventricle in Takotsubo Cardiomyopathy and may induce severe mitral regurgitation, and thereby heart failure and cardiogenic shock. This was seen in our patient.

## Conclusion

- Our case demonstrated a rare presentation of Takotsubo cardiomyopathy with severe mitral valve regurgitation characterized by the wall-motion abnormalities seen in the absence of CAD and presence of severe mitral valve regurgitation.
- Widespread awareness of this etiology will enable more rapid diagnosis and management of this condition.