

## Introduction

- Takotsubo cardiomyopathy is a type of myocardial injury that marked with left ventricular contraction dysfunction.
- The estimated annual incidence is 50,000 to 100,000 cases in the United States, and less than 90% affected are post-menopausal women.
- There is no known pathogenesis for Takotsubo cardiomyopathy, but it is associated with a triggering stressful event, such as emotional, physical, or mental trauma that causes a catecholamine surge.
  - i.e. medical, surgical, obstetric, anesthetic, or psychiatric illnesses
- Takotsubo cardiomyopathy commonly affects women greater than 50 years of age and is often reversible.

## Case Report

- A 38-year-old female with a past medical history of Takotsubo cardiomyopathy ejection fraction (EF) 20-25%, mild mitral regurgitation, ANA-positive systemic lupus erythematosus (SLE), bipolar II disorder, anxiety, and depression presented to the ED with a chief complaint of diffuse abdominal pain, nausea, and vomiting.
- Our patient described her pain as a tight burning sensation that started on her right side and traveled to the retrosternal/epigastric region and her head.
- Pain was rated as 10/10 at its worst and 6/10 on exam.
- In the ED, the patient was noted to have a brief loss of consciousness lasting less than two minutes and resolved without any intervention. There was no urinary incontinence, tongue biting, motor weakness, or post-ictal state.
- EEG was normal
- EKG showed prolonged QTc of 548 msec.
- 2D echocardiogram - LVEF 20-25%, apical ballooning and akinesis in the apex, apical septal wall, and anterior wall
- Presenting symptoms started in June 2022 and have been a recurrent issue that required multiple hospitalizations.
- She was most recently hospitalized for a syncopal episode three weeks prior to this admission.
- SocHx: drinks 6-12 beers a day, smokes marijuana four times a week to cope with stress, unable to work due to fatigue, which then causes her stress due to financial issues
- (+) ROS: extreme fatigue, tenderness on her hand joints (MCPs and PIPs), wrists, elbows, shoulders, hips, knees, ankles, and MTPs.
- She believed that her symptoms were worsening, and she lacked insight as to what could be exacerbating her issues.

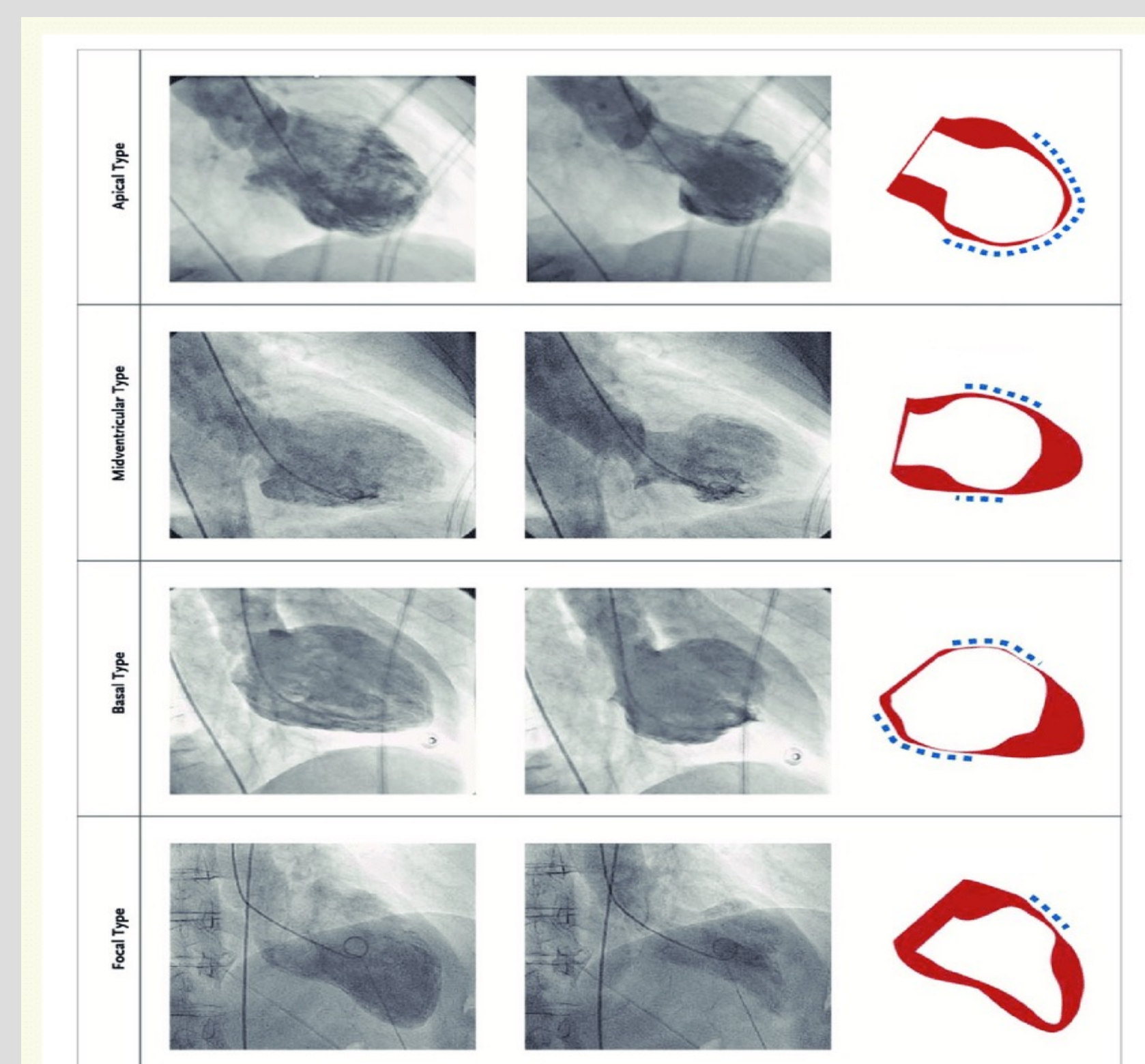
## Case Report

### Labs

- BSR 107 mg/dL, creatinine 0.49 mg/dL, potassium 3.3 mmol/L, chloride 94 mmol/L, alkaline phosphatase 127 U/L, AST 61 U/L (high), ALT 53 U/L, lipase 89 U/L
- UDS positive for amphetamines, cannabis
- Pro-BNP 1328 pg/mL (41 pg/mL two months prior to this admission)
- Troponin T elevated at 29 ng/L
- Normal CPK at 96 U/L
- ANA titer > 1:1280

### Management

- 2 mg Ativan IM for nausea
- IV NS, KCl, magnesium sulfate for hypokalemia
- Cardiac medications
  - Continued Toprol 12.5 mg QD
  - Restarted ivabradine 5 mg BID
  - Started midodrine 2.5 mg TID
  - Loop recorder placed on day 4 of admission
  - Discharged with LifeVest
  - Consider Verquvo and SGLT2 inhibitor in a future cardiology appointment
- Withheld psychiatric drugs due to potential QT prolongation side effect
- She was advised to cut down on her cannabis and heavy alcohol use, as well as to continue follow-up with her cardiologist and rheumatologist.



## Discussion

- In primary, the cause is directly related to acute cardiac symptoms.
- In secondary, Takotsubo is caused by another condition or a treatment for another condition (i.e. medical, surgical, obstetric, anesthetic, or psychiatric illnesses).
  - Typical Takotsubo - hypokinesia in the cardiac apex and mid-ventricular region, as well as hyper-contractility in the heart base.
  - Inverted Takotsubo - hypokinetic base and a hypercontractile apex.
  - Mid-ventricular Takotsubo - hypokinesia in the mid-ventricular region, while having hypercontractility in both the cardiac base and apex.
- Management of Takotsubo cardiomyopathy is dependent on the patient’s symptoms and LVEF. Medications such as heart failure medications and beta blockers may be considered in patients with LVEF 35%-45%.
- Our patient meets the criteria of typical Takotsubo cardiomyopathy, but this may be secondary to SLE exacerbation
  - Echocardiogram showed apical ballooning and akinesis in the apex, apical septal wall, and anterior wall that is consistent with typical Takotsubo cardiomyopathy.
  - Return of normal ventricular function (EF 50-55%) three months later in follow-up echocardiogram supports this diagnosis.
  - No specific traumatic event in that could have led to this, per our patient.
  - Her worsening SLE symptoms may be explained by her elevated ANA titer of greater than 1:1280, which has been linked with increased disease severity and flares.
- A literature review conducted on the role of SLE and cannabis use in causing Takotsubo cardiomyopathy yielded minimal results.
- By addressing our patient’s multiple stressors and stabilizing her SLE, her Takotsubo cardiomyopathy could resolve.

## Conclusion

- A multifactorial etiology led to our patient’s Takotsubo cardiomyopathy. Her worsening SLE symptoms, heavy alcohol and cannabis use, and long-standing stress stemming from social and mental health issues led to Takotsubo cardiomyopathy
- Minimizing SLE exacerbations is key to preventing exacerbation of disease.
- Consider Takotsubo cardiomyopathy as a potential differential and outcome in a patient with SLE who presents with cardiac symptoms.

## References

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