

# THE REVERSAL THAT HELPED: ROLE OF BEDSIDE ECHOCARDIOGRAPHY IN TAKOTSUBO CARDIOMYOPATHY

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## INTRODUCTION

- Takotsubo syndrome (TTS) is characterized by transient regional left ventricular (LV) apical hypo-/akinesis mimicking ST-elevation Myocardial Infarction. Characteristic basal wall hyperkinesis with left ventricular outflow tract obstruction (LVOTO) can lead to frank cardiogenic shock.
- The detrimental effect of catecholamines in such clinical scenarios justifies the importance of ruling out LVOTO in patients with cardiogenic shock.

## CASE PRESENTATION

- A 38-year-old athletic male with no past medical history developed profound hypotension during elective rhinoplasty.
- His condition was unresponsive to aggressive fluid resuscitation, and he required several boluses of ephedrine, phenylephrine, and epinephrine. EKG revealed mild ST-segment elevations in leads aVL and I, with significant ST depression in leads V4-V6. His troponin was 0.33. The patient denied any chest pain.
- STAT Echocardiogram showed significant LV systolic dysfunction with an ejection fraction (EF) of 40-45% with akinetic basal mid inferior, basal inferolateral walls, and hyperkinetic apex with normal valvular structures (figure 1).

## CASE PRESENTATION

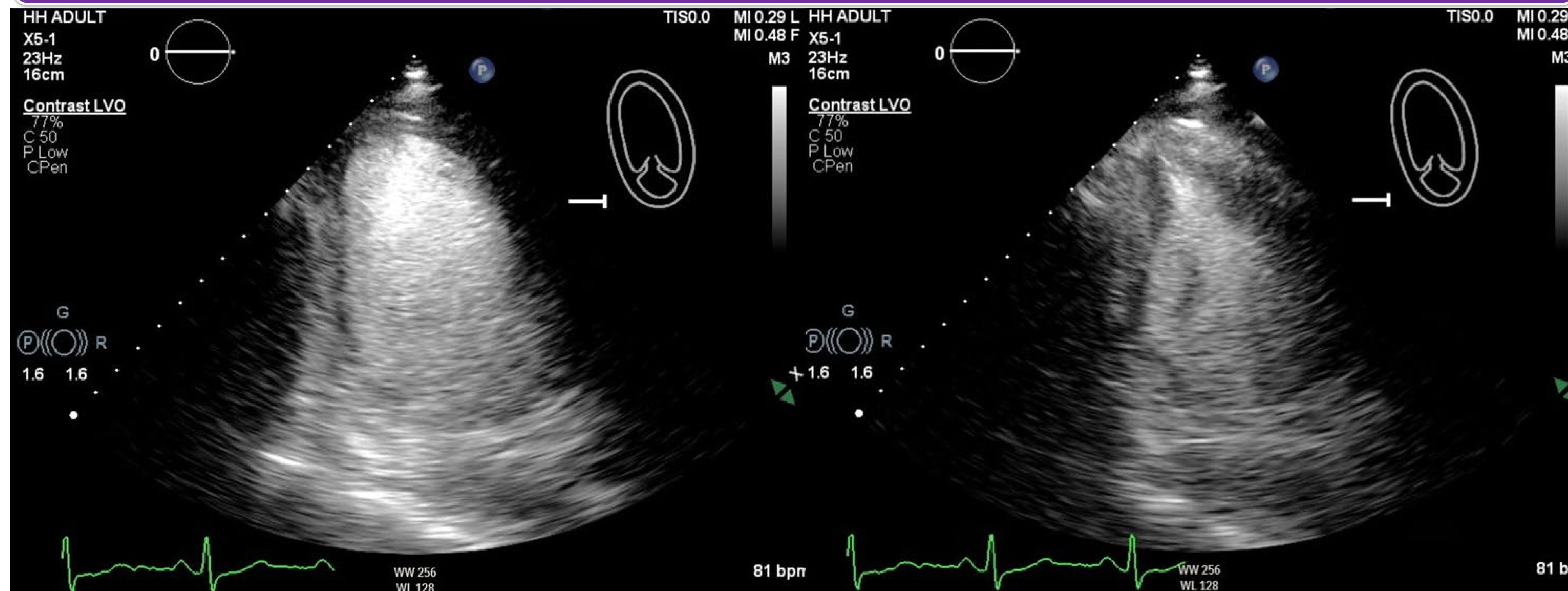


Figure 1. Bedside Echocardiogram with definity contrast

Due to the concern for the acute coronary syndrome, urgent cardiac catheterization was performed which revealed patent coronary vasculature with ventriculogram confirming the akinetic segments (figure 2).

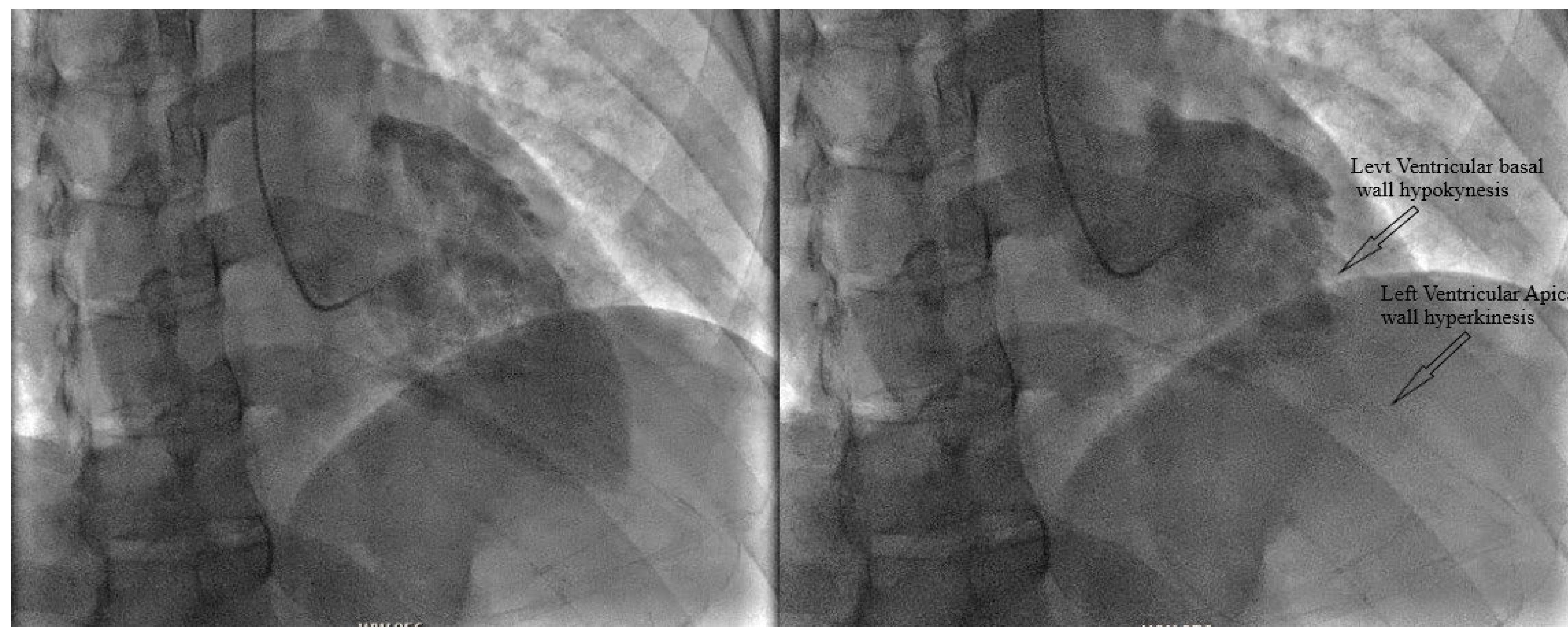


Figure 2. Ventriculogram.

Patient was kept on norepinephrine for the duration of cardiogenic shock. He was then started on guideline-directed medical therapy with a follow-up echocardiogram in 10 weeks showing complete resolution of wall motion abnormalities.

## DISCUSSION

- Takotsubo cardiomyopathy is caused by catecholamine-induced cardiotoxicity due to physical or emotional stress.
- In classic Takotsubo, basal hyperkinesis can cause left ventricular outflow tract obstruction (LVOTO) which can be worsened by external catecholamines.
- Catecholamines can cause up to 20% mortality in moderate to severe LVOTO due to their potential to worsen the obstruction<sup>3</sup>.

## CONCLUSION

- Less common variant with apical hyperkinesis and basal hypokinesis has no LVOTO pathophysiology and may respond to exogenous catecholamines.
- Atypical variants of Takotsubo can have unusual presentations, with cardiogenic shock and predominant ST depression on EKG, as in this healthy young adult with absence of LVOTO.
- Catecholamines may be utilized in cases with absent LVOTO to reverse cardiogenic shock.

## REFERENCES

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