

# Cytoreductive Surgery for Mesothelioma complicated by Post-Operative Takotsubo Cardiomyopathy

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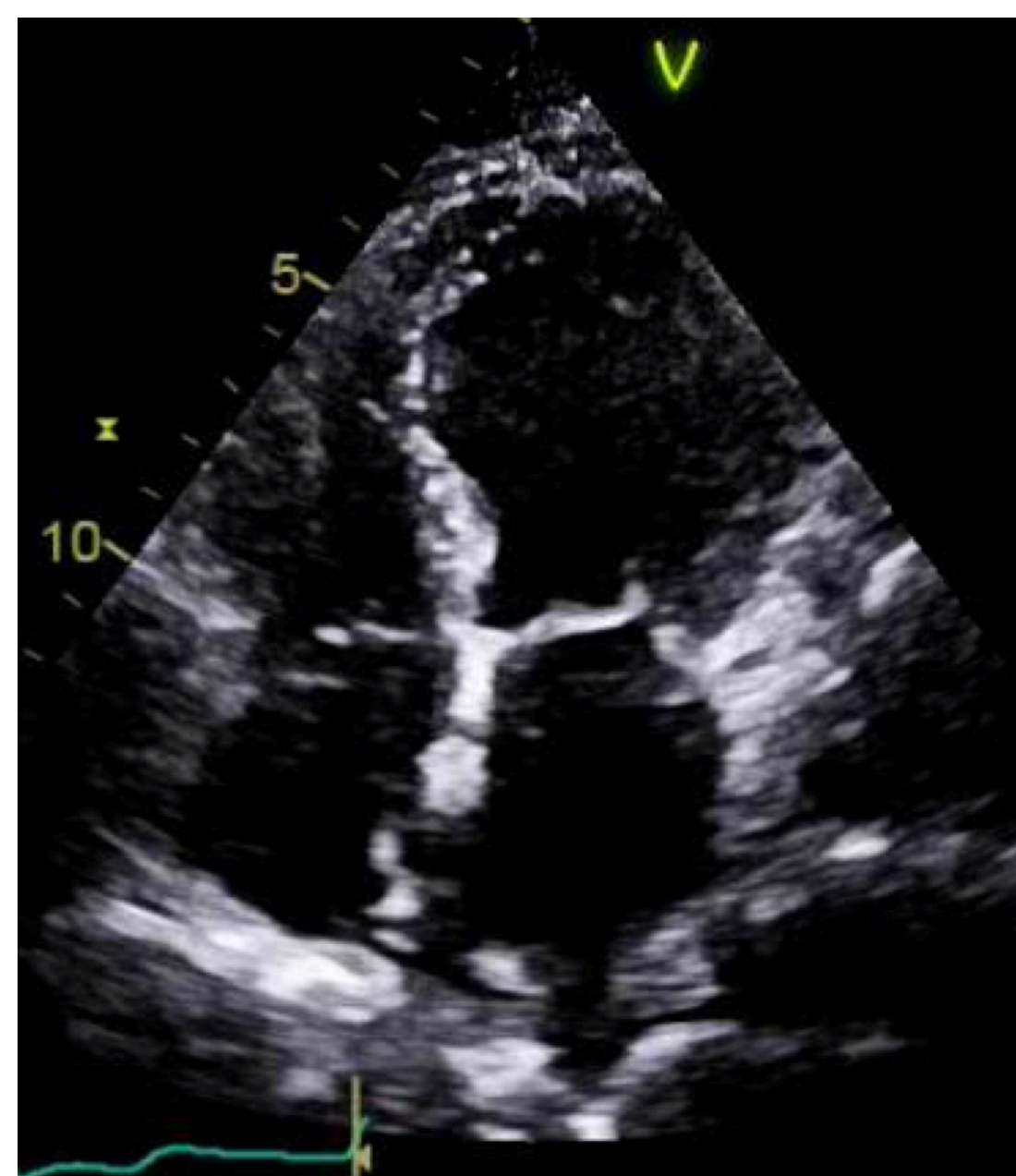
## INTRODUCTION

- **Takotsubo cardiomyopathy** is a transient disorder most commonly affecting postmenopausal women and may require aggressive management of cardiogenic shock and acute heart failure.
- Possible mechanisms include catecholamine excess, microvascular dysfunction, and coronary artery spasm.

## CASE PRESENTATION

- 74-year-old woman with left pleural malignant mesothelioma underwent left thoracotomy, pleurectomy, and decortication.
- She had a history of chronic left bundle branch block, otherwise normal cardiac function including normal nuclear stress test.
- **POD#1 she developed asystolic cardiac arrest** for one minute. She had **third degree heart block** with hypotension requiring transvenous pacing wire, elevation in troponin level, and electrocardiogram without ischemic changes.

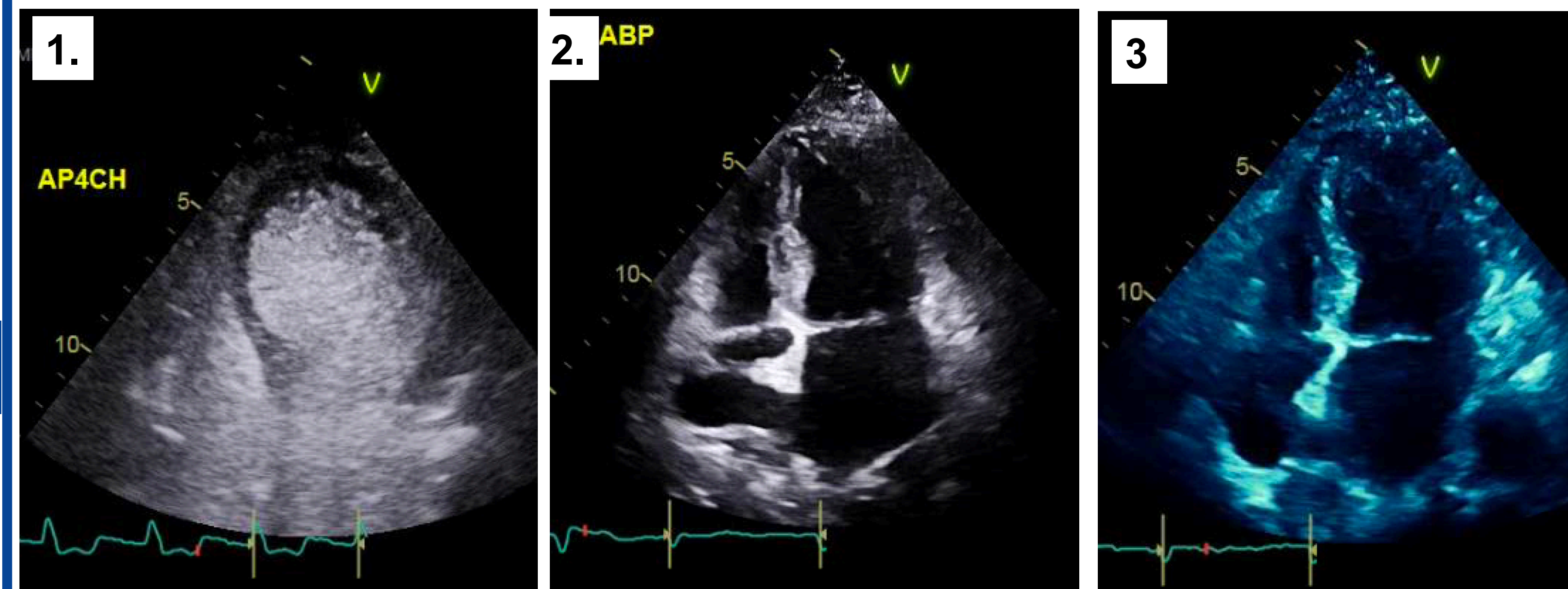
## INITIAL ASSESSMENT AND INTERVENTION



- Transthoracic echocardiogram (TTE) revealed **decline in LV ejection fraction from normal to 20-24%.**
- Selective coronary angiography **did not show evidence of coronary artery disease (CAD).**
- Right heart catheterization with normal pulmonary artery pressures and low cardiac output.

## FINAL DIAGNOSIS

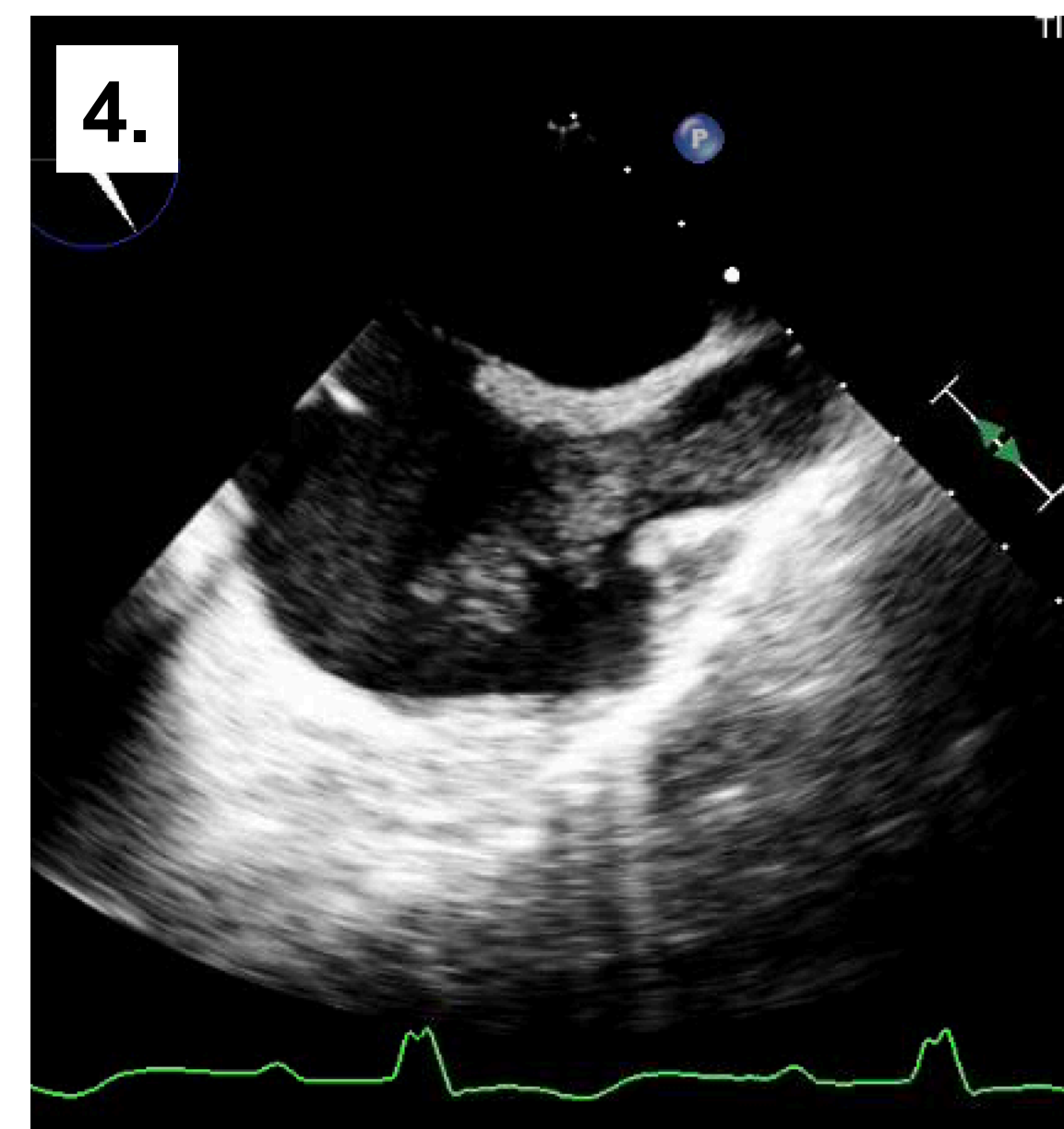
### Takotsubo Cardiomyopathy



**Fig 1:** TTE post cardiac arrest with apical ballooning

**Fig 2:** TTE two days later with IABP and improved LVEF.

**Fig 3:** TTE five days later after removal of IABP. **LVEF normalized.**



**Fig 4:** TEE three weeks later revealed thrombus of the superior vena cava treated with systemic anticoagulation. Possibly related to indwelling transvenous pacer that was eventually replaced by epicardial leads.

## HOSPITAL COURSE

- **IABP was placed for hemodynamic support for five days.**
- She also required epinephrine, dopamine, and amiodarone for cardiogenic shock and atrial fibrillation.
- Her hospitalization was complicated by persistent respiratory failure, malnutrition, and fungemia.
- She eventually underwent epicardial lead and pacemaker placement.

## DISCUSSION

- We present a case of post-operative Takotsubo cardiomyopathy where intra-aortic balloon pump (IABP) was used for hemodynamic support while left ventricular (LV) function recovered.
- Given acute decline in LV systolic function with no evidence of CAD after extensive thoracic surgery for mesothelioma, this was thought to be a presentation of Takotsubo cardiomyopathy.
- **Metoprolol was prescribed for myocardial protection.**

## CONCLUSIONS

- Takotsubo cardiomyopathy is typically stress-induced and LV often improves with supportive therapy.
- About 10% of patients develop cardiogenic shock requiring aggressive management
- **IABP was effective in providing hemodynamic support while LV function recovered.**
- Patients typically recover LV function within one to four weeks.
- **Patients who survive an episode of Takotsubo cardiomyopathy are at risk for recurrence.**
- Further research is needed to identify those susceptible to post-operative Takotsubo and to better understand treatment

## REFERENCES

1. Singh K, Carson K, Usmani Z, et al. Systematic review and meta-analysis of incidence and correlates of recurrence of takotsubo cardiomyopathy. International Journal of Cardiology 2014; 274:696–701.
2. Templin C, Ghadri JR, Diekmann J, et al. Clinical Features and Outcomes of Takotsubo (Stress) Cardiomyopathy. N Engl J Med 2015; 373:929-938