

Learning points from a case of peripartum takotsubo cardiomyopathy for the obstetric anaesthetist

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INTRODUCTION

- Takotsubo cardiomyopathy (TCM), also known as stress-induced cardiomyopathy or "broken heart syndrome," is a transient condition characterised by regional systolic dysfunction of the left ventricle, often involving apical ballooning. It mimics acute coronary syndrome (ACS) but occurs in the absence of obstructive coronary disease [1].
- TCM accounts for approximately **1–2% of all patients presenting with suspected ACS**, with a higher prevalence in women (~90%), particularly those post menopause [2]. It is typically triggered by intense emotional or physical stress, leading to a surge in catecholamines and myocardial stunning [3].
- The peripartum presentation of TCM is **exceedingly rare**, with only a limited number of cases documented in the literature [4]. Triggers in this population include intrauterine death, haemodynamic shifts, sepsis, and abrupt hormonal withdrawal following placental delivery [5].
- Anaesthetic and obstetric management during labour and delivery may inadvertently contribute to haemodynamic instability or sympathetic stimulation, particularly through the use of exogenous catecholamines, uterotonics, or neuraxial techniques in unstable patients.
- This poster presents a rare case of peripartum Takotsubo cardiomyopathy following intrauterine death. It aims to highlight key learning points for obstetric anaesthetists, including diagnostic considerations, pharmacological pitfalls, and the importance of multidisciplinary awareness.

CASE SUMMARY

Patient: 35-year-old woman, G3P0, at 21+5 weeks' gestation.
History: Cervical incompetence, large fibroids, two prior first-trimester losses.
Intervention: McDonald's cerclage at 16 weeks due to shortened cervix (1.5 mm).

Presentation: Abdominal pain, pyrexia → confirmed intrauterine death → vaginal delivery after suture removal.

Postpartum deterioration:

- Acute dyspnoea requiring oxygen
- CXR: pulmonary oedema
- ECG: sinus tachycardia
- CRP: 275 mg/L, Troponin I: 68 ng/L, Pro-BNP: 7881 ng/L
- Echo: EF 48%
- CT-PA: no PE
- Coronary angiogram: Normal
- MRI: no ischaemia

Diagnosis: Takotsubo cardiomyopathy due to a combination of emotional stress, sepsis, and hormonal withdrawal post-placental delivery.

Treatment: Supportive management, psychological and bereavement support.

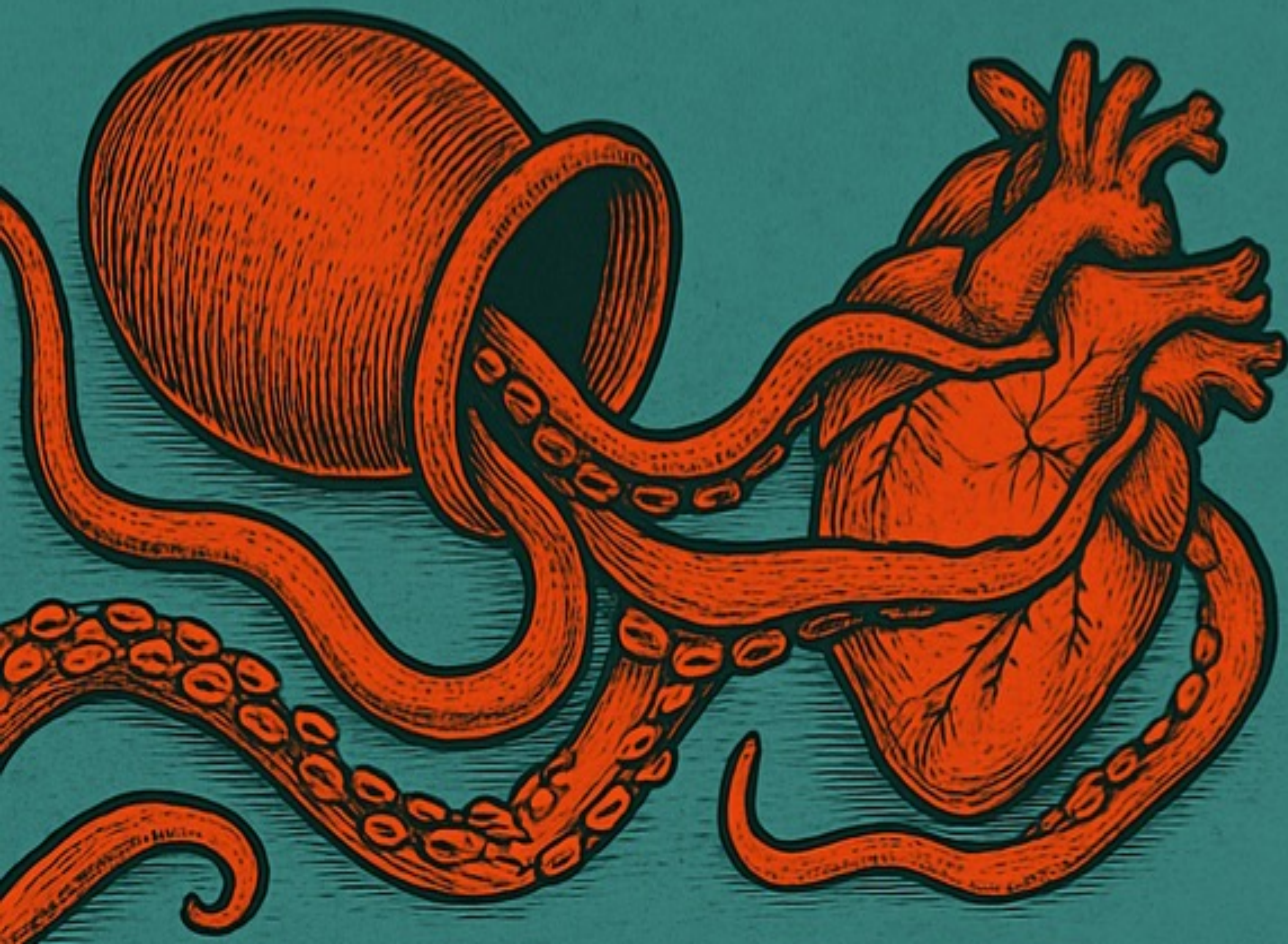
Outcome: Cardiology follow-up.

DIAGNOSTIC WORKUP

Investigations	THIS CASE	TYPICALLY IN TCM
 ECG	Sinus tachycardia	ST-T changes QTc prolongation
 Chest X-ray	Pulmonary oedema	–
 Biomarkers	↑ CRP, ↑ troponin	↑ troponin ↑ pro-BNP
 Echo	EF 48%	Apical ballooning ↓ EF
 Cardiac MRI	Normal	Normal
 Coronary Angio-	Normal	Normal

DISCUSSION

- This case demonstrates a rare presentation of TCM in the peripartum period, triggered by a complex interplay of emotional, physical, hormonal, and pharmacological stressors.
- The acute psychological trauma of intrauterine death, combined with systemic inflammatory stress from chorioamnionitis, anaemia, and haemodynamic changes, likely contributed to a profound sympathetic surge. Additionally, the abrupt loss of placental oestrogens—known to confer cardiovascular protection—may have further sensitised the myocardium.
- Pharmacological agents, although indicated in obstetric care, may exacerbate the situation by increasing myocardial demand or sympathetic tone. These include oxytocin, ergometrine, sympathomimetics (such as phenylephrine), and volatile anaesthetics.
- Neuraxial anaesthesia, especially in the context of hypovolaemia, may also contribute to cardiovascular instability.
- Given the overlap with other peripartum complications, early diagnosis requires a high index of suspicion and relies on imaging, biomarker evaluation, and coronary angiography.
- Multidisciplinary awareness and supportive management—including minimising adrenergic stimulation and cautiously managing fluids—are essential.
- This case reinforces the need to consider TCM in any peripartum patient presenting with dyspnoea, chest pain, or unexplained cardiac dysfunction.



Pathophysiology of Takotsubo Cardiomyopathy



Emotional stress

- Intrauterine death
- Grief and trauma



Hormonal changes

Sudden withdrawal of placental oestrogens



Physical stress

- Sepsis (chorioamnionitis)
- Anaemia/haemorrhage
- Pain

Hormonal changes

Sudden withdrawal of placental oestrogens

Pharmacological risk (Potential Iatrogenic Exacerbators)

- Oxytocin: ↑ myocardial demand, vasoconstriction
- Ergometrine: potent vasoconstrictor
- Phenylephrine: ↑ sympathetic tone
- Volatile anaesthetics: myocardial depression

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TAKE HOME MESSAGES FOR THE OBSTETRIC ANAESTHETIST

**THINK BEYOND THE USUAL**

Consider Takotsubo Cardiomyopathy (TCM) in peripartum patients with:

- Chest pain • Dyspnoea • Pulmonary oedema

Especially following intrauterine death, infection or emotional distress

**RECOGNISE THE TRIGGERS**

Emotional: Intrauterine death, grief
Physical: Sepsis (chorioamnionitis),
Hormonal- Sudden withdrawal of placental oestrogens
Oxytocin + Ergometrine • ↑ sympathetic
Neuraxial anaesthesia • in hypovolaemia

**DIAGNOSE THOUGHTFULLY**

Avoid adrenergic stimulation
Consider beta-blockers if haemodynamically stable
Early cardiology and multidisciplinary

TCM is transient and reversible – early recognition prevents iatrogenic harm →