PERICARDIAL TAMPONADE

The Prehospital Care Library
La Bibliothèque de Soins Préhospitaliers

Pericardial tamponade is life threatening obstructive shock caused by rapid accumulation of pericardial fluid, leading to impaired ventricular filling, reduced cardiac output, and circulatory collapse.

Tamponade is a **clinical diagnosis.** Delay to drainage is the commonest cause of death.

ED priorities:

- Recognise tamponade physiology early
- Maintain preload and spontaneous ventilation
- Avoid iatrogenic haemodynamic collapse
- **Urgent pericardial drainage**
- Rapid specialist escalation

RECOGNITION

CLASSIC FEATURES (BECK'S TRIAD)

- **Hypotension**
- **Raised JVP**
- **Muffled heart sounds**

Triad is often incomplete; absence does **not** exclude tamponade.

SUPPORTING SIGNS

- Tachycardia
- Narrow pulse pressure
- Pulsus paradoxus
- Dyspnoea
- Reduced level of consciousness
- Electrical alternans (late)

Tamponade can masquerade as septic or cardiogenic shock

COMMON CAUSES

- Malignancy
- Uraemia
- Infection (TB, bacterial)
- Post MI or post cardiac procedure
- Trauma (including iatrogenic)
- Aortic dissection

Cause identification should **never delay treatment.**

PATHOPHYSIOLOGY

- Rising pericardial pressure → impaired diastolic filling
- Stroke volume falls → hypotension
- Tachycardia is compensatory
- **Positive pressure ventilation reduces venous return** → abrupt collapse

Tamponade is **preload dependent obstructive shock.**

DIAGNOSIS

CLINICAL

- Shock with raised JVP and clear lungs
- Disproportionate hypotension
- Poor response to vasopressors alone

ULTRASOUND (IF AVAILABLE)

- Pericardial effusion
- Diastolic RV collapse
- IVC plethoric with minimal respiratory variation

IMMEDIATE ED ACTIONS

- ABCs
- Oxygen
- Large bore IV access
- Cardiac monitoring
- Prepare for urgent drainage – pericardiocentesis or resuscitative thoracotomy

Parallel planning is essential, tamponade deteriorates suddenly.

TEMPORISING MEASURES

INTRAVENOUS FLUIDS

- Small bolus may improve preload temporarily
- Useful **while preparing for drainage**
- Benefit is transient

VASOPRESSORS

- May support BP briefly
- **Do not correct obstruction**
- Not a substitute for pericardiocentesis

DEFINITIVE MANAGEMENT

URGENT PERICARDIAL DRAINAGE

- Pericardiocentesis (often ultrasound guided)
- Surgical drainage if traumatic or loculated (resuscitative thoracotomy)

This is a **time critical, life saving intervention.**

AIRWAY & VENTILATION

- **Avoid positive pressure ventilation if possible**
- Intubation may precipitate cardiovascular collapse
- If unavoidable:
  - Volume load first
  - Vasopressors ready
  - Lowest possible PEEP

WHAT TO AVOID

- Delays to drainage
- Intubation without preparation
- Treating with fluids or vasopressors alone
- Waiting for imaging confirmation in shock

DISPOSITION

- Immediate cardiology or cardiothoracic involvement
- ICU or theatre after drainage
- Early transfer if expertise unavailable

CHECKLIST
PERICARDIAL TAMPONADE

INITIAL STABILISATION (ABCDE)

Airway

- [ ] Maintain spontaneous ventilation if possible
- [ ] Prepare for difficult airway if deterioration

Breathing

- [ ] Oxygen (target SpO_2 ≥94%)
- [ ] Avoid positive pressure ventilation if possible

Circulation

- [ ] 2 large bore IV lines
- [ ] Cardiac and BP monitoring
- [ ] Treat hypotension cautiously

Disability

- [ ] GCS
- [ ] Signs of poor perfusion

Exposure

- [ ] Look for malignancy, trauma, infection clues

DIAGNOSIS

- [ ] Clinical suspicion established
- [ ] Bedside echo if available:
  - Effusion
  - RV diastolic collapse
  - Plethoric IVC
- [ ] Do not delay treatment for imaging

TEMPORISING MEASURES

- [ ] Small IV fluid bolus (bridge only)
- [ ] Vasopressor if severely hypotensive (bridge only)

DEFINITIVE MANAGEMENT

- [ ] **Urgent pericardiocentesis planned**
- [ ] Ultrasound guided if possible
- [ ] Surgical drainage if indicated (resuscitative thoracotomy)

AIRWAY PRECAUTIONS

- [ ] Avoid intubation if possible
- [ ] If unavoidable:
  - Preload patient
  - Vasopressors ready
  - Minimal PEEP

WHAT TO AVOID

- [ ] Delayed drainage
- [ ] Positive pressure ventilation without preparation
- [ ] Treating tamponade as purely cardiogenic shock
- [ ] Waiting for “full confirmation”

DISPOSITION

- [ ] Immediate cardiology / cardiothoracic referral
- [ ] ICU post procedure
- [ ] Transfer urgently if drainage not available locally