Obstructive shock: Rx

Shock = hypoperfusion state can be divided into one of the following:

Distributive: Septic or non-septic

Cardiogenic: Cardiomyopathic, arrhythmogenic or mechanical

Hypovolemic: Hemorrhagic or non-hemorrhagic

Obstructive: Pulmonary vascular (severe PHT, PE, pulmonic, tricuspid valve obstruction) or mechanical (tension pneumothorax, tamponade, constrictive pericarditis or restrictive cardiomyopathy)

Rx Obstructive shock: Depending upon the cause of obstructive shock, patients may present with pleuritic chest pain and acute dyspnea (from pulmonary embolism [PE]), chronic dyspnea and a loud pulmonic component of the second heart sound (pulmonary hypertension), chest pain, tracheal deviation, unilateral reduced breath sounds, and elevated plateau pressures on mechanical ventilation (tension pneumothorax), or quiet heart sounds, pulsus paradoxus, and distended neck veins (cardiac tamponade). Every attempt should be made to treat the underlying cause of shock

Hemodynamic profiles of shock on pulmonary artery catheter in adults

Physiologic variable	Preload	Pump function	Afterload	Tissue perfusion
Clinical measurement	**Pulmonary capillary wedge pressure**	**Cardiac output***	**Systemic vascular resistance**	**Mixed venous oxyhemoglobin saturation¶**
Hypovolemic	↔ (early) or ↓ (late)	↔ (early) or ↓ (late)	↑	>65% (early) or <65% (late)
Cardiogenic	↑	↓	↑	<65%
Distributive	↔ (early) or ↓ (late)	↑ or ↓ (occasionally)	↓	>65%
Obstructive				
PE, PH, tension pneumothorax	↔ (early) or ↓ (late)	↔ (early) or ↓ (late)	↑	>65%
Pericardial tamponadeΔ	↑	↓	↑	<65%

PE: pulmonary embolus; PH: pulmonary hypertension; PAC: pulmonary artery catheter.
* Cardiac output is generally measured using the cardiac index.
¶ Mixed venous oxyhemoglobin saturation cutoff measured on PAC is 65%, but on triple lumen catheter is 70%.
Δ Equalization of right atrial, right ventricular end-diastolic and pulmonary artery wedge pressures is classic in pericardial tamponade and distinguishes it from primary cardiogenic shock.

Question:

A 42 year-old male is brought to the emergency department after suffering a motor vehicle accident. His physical exam shows prominent bruising over the sternum. Breath sounds are equal and he has prominent neck veins. Shortly after and easy placement of a Left IJ his blood pressure begins to drop. Breath sounds are equal. His CVO2 in a non-rebreather is 40. What is the best approach?

a. Placement of bilateral chest tubes
b. Emergent placement of an ETT
c. Pericardiocentesis
d. Emergency release blood transfusion

Answer: C – Pericardial tamponade would explain a drop in BP and prominent neck veins on arrival.