# Penetrating Cardiac Injury Managed with Pericardiocentesis

K Hobson, MBChB1 & P Manuel, MD, FRCSC1
1Southland Hospital, Invercargill & University of Otago Invercargill Campus

## Case Presentation

25 y.o male with left axillary stab wound

Peri-arrest on arrival (unrecordable blood pressure, heart rate 50, GCS 3)

Absent breath sounds left chest and muffled heart sounds

Left sided chest drain inserted – total 1L blood drained

3 units red blood cells rapidly transfused

Transient improvement in haemodynamics

Figure 1

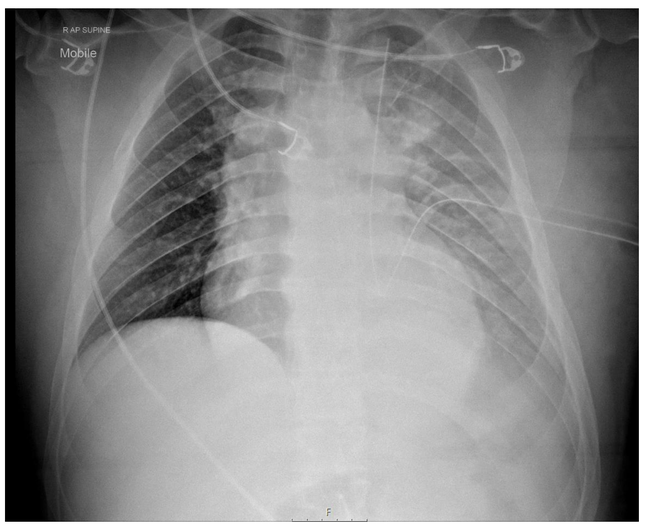


Figure 1 shows left pleural drain in situ, widened mediastinum noted

## Case Progression

Bedside ultrasound demonstrated pericardial effusion

Over the next hour, blood pressure continued to trend down

Pericardial effusion increased in size with heart swinging within pericardial sac

Throughout, the patient never had an episode of cardiac arrest

Pericardiocentesis performed with 40ml blood aspirated.
Haemodynamic improvement

Figure 2

Figure 3

Figures 2 and 3 show the pericardiocentesis being performed under ultrasound guidance

Stabilised for transfer to trauma facility with cardiothoracic surgery capabilities (Dunedin Hospital)

Trauma CT performed on arrival to tertiary centre: -> Findings included penetrating injury to left axilla with pneumohaemothorax

Figure 4

Figure 4 shows 2 coronal slices of a trauma CT, demonstrating subcutaneous emphysema along the injury tract, and a moderate haemothorax

## Definitive Management

Proceeded to cardiothoracic theatre on the same day of injury

Left exploratory video assisted thoracoscopy (VATS), washout and placement of two intercostal drains

Findings included small laceration over anterolateral pericardium and haemothorax with clotted blood

## Patient Outcome

Developed pericarditis post-op -> treated with colchicine for two weeks

Re-presented two weeks later with chest pain, fevers and findings of a new 26mm pericardial effusion

Managed without drain and colchicine continued for three months

Repeat echo one week later showed significant improvement in pericardial effusion

## Discussion

Pericardiocentesis as a bridge to definitive treatment in traumatic cardiac tamponade has reduced significantly (45% in 1970s, 6.5% in 2000's)

Survival following pericardiocentesis as a sole intervention is reported as 91.8%, and 79.5% when combined with thoracotomy

This case has demonstrated that pericardiocentesis can be a life saving measure in traumatic tamponade

This supports the argument that pericardiocentesis should be taught to emergency physicians and general surgeons in rural hospitals

## References

- Lee TH, Ouellet JF, Cook M, Schreiber MA, Kortbeek JB. Pericardiocentesis in trauma: a systematic review. J Trauma Acute Care Surg. 2013
- Chirumamilla V, Prabhakaran K, Patrizio P, Savino JA, Marini C, Zoha Z. Pericardiocentesis followed by thoracotomy and repair of penetrating cardiac injury caused by nail gun injury to the heart. International Journal of Surgery Case Reports. 2016