

## PRACTICE GUIDELINE

Effective Date: 7-16-04

Manual Reference: **Deaconess Trauma Services**

### **TITLE: MANAGEMENT OF PERICARDIOCENTESIS**

**PURPOSE:** To provide indications for the performance of a pericardiocentesis and provide guidelines for the performance of a needle and open pericardiocentesis.

### **DEFINITIONS:**

1. Needle pericardiocentesis: A procedure in which a needle is placed into the pericardial sac to remove blood that has resulted in a pericardial tamponade.
2. Subxiphoid pericardial window: An emergency surgical procedure to diagnose pericardial tamponade and decompress blood from within the pericardium.

### **GUIDELINES:**

1. Needle pericardiocentesis:
  - a. Indications:
    - i. Evidence of cardiac tamponade in the face of deteriorating vital signs:
      - a) Hypotension
      - b) Distended neck veins with cyanosis.
      - c) CVP (if measurable) > 20 mmHg.
      - d) Narrowed pulse pressure.
      - e) No other explanation of hypotension (e.g., pneumothorax).
    - ii. Consider when there is penetrating injury to the chest between the nipples.
    - iii. This is not a primary diagnostic procedure.
    - iv. Consider ultrasound as primary diagnostic modality for pericardial tamponade.
  - b. Equipment:
    - i. Long 16 gauge spinal needle or 16 gauge insyte.
    - ii. 30 ml syringe.
  - c. Procedure:
    - i. Monitor vital signs: EKG, BP.
    - ii. Prep the subxiphoid area with betadine.
    - iii. Connect the 3 inch 16 gauge spinal needle or long gauge insyte to the syringe.
    - iv. Puncture the skin just inferior to the left xiphochondral junction, at a 45degree angle to the skin.
    - v. Carefully advance the needle superiorly and toward the Inferior tip of the left scapula.
    - vi. Monitor the EKG, looking for evidence of current of injury suggesting advancement into the myocardium. Current of injury may be indicated by marked ST-T wave changes or widened QRS complexes. If these are seen, withdraw needle slightly.

- vii. Aspirate blood from the pericardial sac. Withdraw as much as possible.
  - viii. Observe for EKG injury pattern. If this is seen, withdraw needle slightly. If it persists, then withdrawal needle completely
  - ix. If there has been physiologic improvement, then leave the plastic sheath in place and remove the syringe. Secure the plastic sheath to the skin.
  - x. Notify the OR immediately and begin making preparations for a median sternotomy.
- d. Complications:
- i. Aspiration of ventricular blood rather than pericardial Blood.
  - ii. Laceration of coronary artery or vein.
  - iii. Laceration of myocardium.
  - iv. Hematoma.
  - v. Pneumothorax
  - vi. Infection.

## 2. Sub-xiphoid pericardial window:

- a. Indications:
  - i. Same as for needle pericardiocentesis.
  - ii. Done when needle is not decompressing the pericardial sac adequately.
  - iii. Considered under local anesthesia for known pericardial tamponade prior to intubation.
- b. Equipment:
  - i. Diagnostic peritoneal lavage tray.
  - ii. Betadine, local anesthesia.
- c. Procedure:
  - i. Monitor vital signs: EKG, BP, CVP.
  - ii. Prep the sub-xiphoid area with betadine.
  - iii. Anesthetize the midline just below the xiphoid process.
  - iv. Make a 4-inch incision inferiorly from the top of the xiphoid process.
  - v. Carry the incision through the fascia and stay extra-peritoneal.
  - vi. Place retractor under the xyphoid and retract up and superiorly.
  - vii. Bluntly dissect the diaphragm away from the sternum until the pericardium is visualized.
  - viii. Incise the pericardium to decompress the pericardial sac. Making sure that the pericardium is lifted off the heart.
  - ix. If blood is obtained, place a few sponges into the wound and prepare to go to the OR immediately for median sternotomy or thoracotomy.
  - x. If no blood or fluid is obtained, then suture the fascia with non-absorbable material and close the skin.

## REFERENCES:

- ❖ Deaconess Trauma Guideline Manual, PENETRATING INJURIES TO THE CHEST.
- ❖ Deaconess Trauma Guideline Manual, EMERGENCY RESUSCITATIVE THORACOTOMY.
- ❖ Deaconess Trauma Guideline Manual, ENDOTRACHEAL INTUBATION AND AIRWAY MANAGEMENT.
- ❖ Deaconess Trauma Guideline Manual, RESUSCITATION PRIORITIES FOR THE MULTIPLE OR SERIOUSLY INJURED PATIENT.

REVIEWED DATE	REVISED DATE
JAN 05	MAR 07
JAN 06	
JAN 08	

