

HOSPITAL

DEPARTMENTAL PROCEDURE

TITLE: TRAUMA RESUSCITATION THORACOTOMY

Date Adopted: XX

Date Revised: XX

Supersedes:

Date Reviewed: XX

DISTRIBUTION:

Nursing

STAFF LEVEL:

RN, GN, LVN, GVN

PROCEDURE:

Indications

1. Release of cardiac tamponade
2. Control of hemorrhage
3. Allow access for internal cardiac massage
4. Penetrating injury to the chest

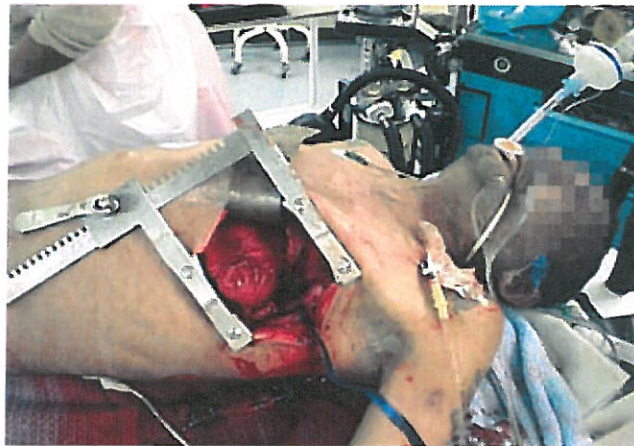
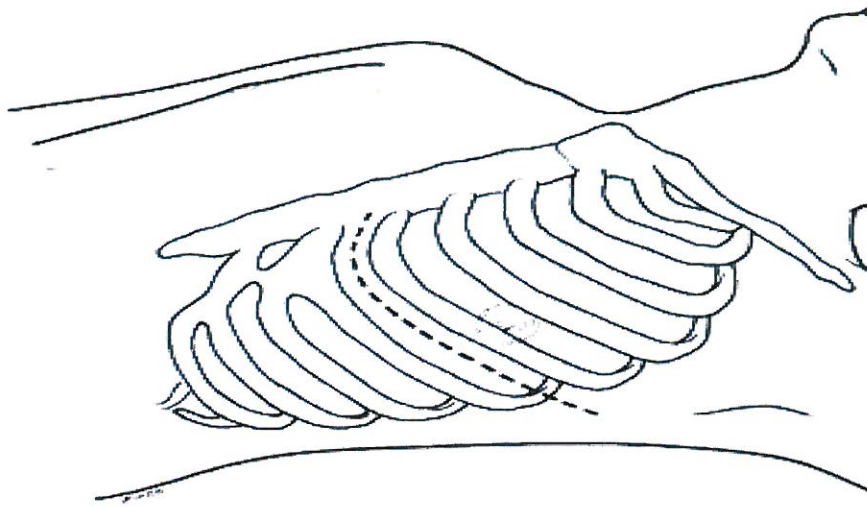
Equipment (PHOTO TO FOLLOW PROCEDURE)

- Thoracotomy tray with prep pack (call Central Supply)
- Internal defibrillator paddles
- Gloves, gown, mask, shoe covers, protective eye equipment
- Surgical prep solution

Procedure

Left-sided thoracotomy:

1. A supine anterolateral thoracotomy is the accepted approach for emergency department thoracotomy. A left-sided approach is used in all patients in traumatic arrest with injuries to the left chest.
2. After rapid skin preparation with large antiseptic-soaked swabs, a skin incision is made in the 5th intercostal space from the border of the sternum to the mid-axillary line. This is continued down through subcutaneous tissues to reach the intercostal musculature.
3. The intercostal muscles are incised with a combination of scalpel, heavy scissors and blunt dissection.
4. Insert the rib spreaders between the ribs and open.



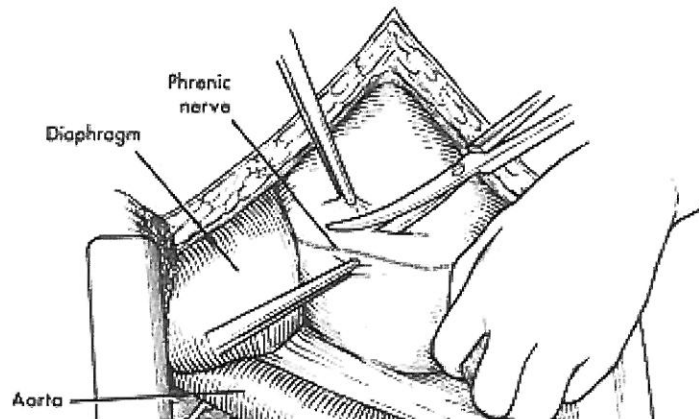
Right-sided thoracotomy:

1. Patients who are not arrested but with profound hypotension and right-sided injuries have their right chest opened first.
2. If the thoracotomy has to be extended to the other side of the chest, repeat the thoracotomy on the other side.
3. To divide the sternum, the Lipski knife will be used.
4. Once through the sternum the rib spreader is moved to the midline to open the chest at the sternum.
5. Division of the sternum results in transection of the internal mammary arteries. These will start to bleed once pressure is restored and will need clipping and ligation subsequently.

6. With a right-sided thoracotomy, the left chest will have to be opened and internal cardiac massage becomes necessary. Gaining access to the thoracic cavity should take no more than 1-2 minutes.

Relief of tamponade

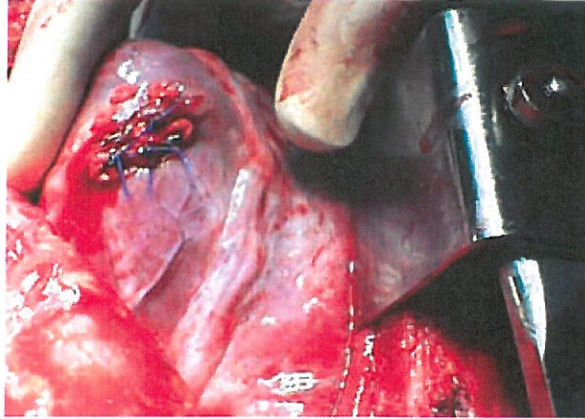
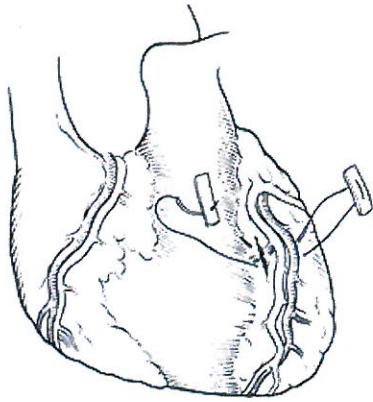
1. The pericardium is opened longitudinally to avoid damage to the phrenic nerve, which runs along its lateral border. It is difficult to visualize the phrenic nerve in the emergency thoracotomy.
2. The physician will make a small incision in the pericardium with scissors.
3. The pericardium will be torn longitudinally - this will avoid lacerating the phrenic nerve.
4. Evacuate any blood and clot from the pericardial cavity.



Control of hemorrhage

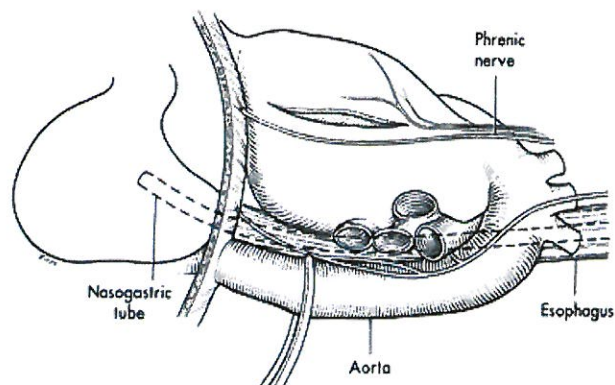
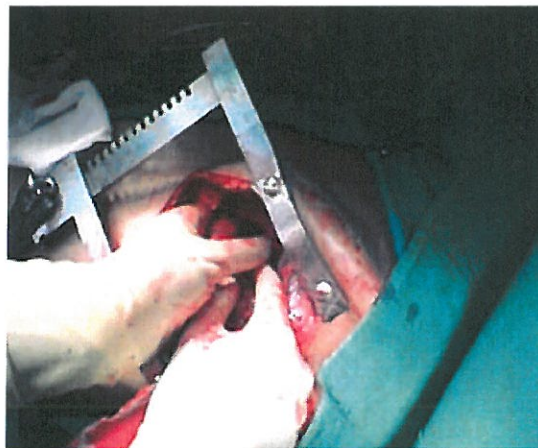
Cardiac wounds

1. Cardiac wounds should be controlled initially with direct finger pressure.
2. Large wounds may be controlled temporarily by the insertion of a urinary drainage catheter with inflation of the balloon.
3. Cardiac wounds can be directly sutured using non-absorbable 3/0 sutures such as nylon or polypropylene.
4. Teflon pledgets are unnecessary in the left ventricle but, if available, may be used in the right ventricle.



Internal cardiac massage

In traumatic arrest, internal cardiac massage should be started as soon as possible following relief of tamponade and control of cardiac hemorrhage. A two-handed technique produces a better cardiac output and avoids the low risk of cardiac perforation with the one-handed maneuver.



Cross clamping is done ideally at the level of the diaphragm, to maximize spinal cord perfusion; otherwise, cross clamping can be done just below the left pulmonary hilum. The lung is retracted anteriorly and the mediastinal pleura incised. Blunt dissection is used to separate the aorta from the esophagus and prevertebral fascia. This dissection should be enough to place a clamp across the aorta but not complete, to avoid avulsing aortic branches supplying the cord and thorax.

Nursing Assessment

1. Help with procedure.
2. Continue resuscitation as needed.
3. Help with defibrillation.
4. Maintain sterile technique.
5. Do documentation
6. Prepare for surgery if needed

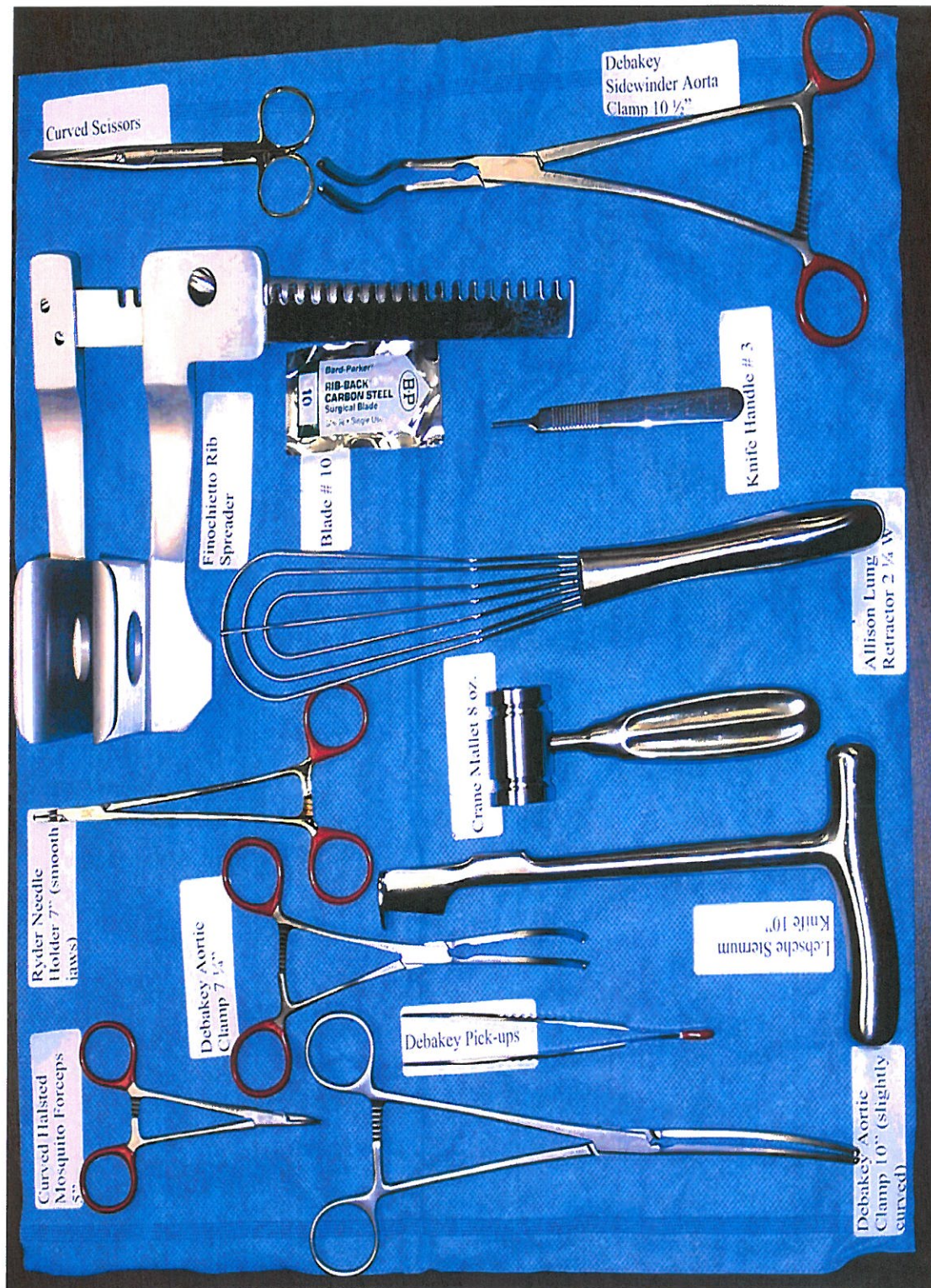
Complications

1. Infection
2. Bleeding/hemorrhage
3. Spinal ischemia if aortic cross clamp > 30 minutes
4. Death

REFERENCES:

American College of Surgeons, *Advanced Trauma Life Support*, 2014, Seventh Edition, Chicago, Illinois.

SIGNATURES:



TRAUMA RESUSCITATION THORACOTOMY