Hemothorax Guidelines

1. Place chest tube if HTX present per chest tube protocol (1)
   a. Pigtail or large bore chest tube (14-32F) (2-4)
   b. One dose of antibiotics starting just prior to placement (5, 6)
      i. 1st generation cephalosporin
2. Order post-procedure CXR
3. If radiographic evidence of retained HTX
   a. If within 24 hours, consider placing 2nd chest tube
   b. Order a contrasted chest CT on day 3 if HTX is still present on CXR (7)
      i. If ≥300mL HTX (formula \(v = d^2 \times l\)) \(^1\) present on CT (8, 9)
         1. VATS on or before day 7 (1, 7-13)
         2. Consider intrapleural -tPA (11, 14-18) if poor operative candidate or other indications (t-PA is contraindicated in any patient with intrathoracic arterial bleeding/injury including pulmonary laceration and/or intercostal bleeding). Administration of TPA is not intended to prevent VATS in operative candidates. \(^2\)
            a. 24mg t-PA in 48mL NS (t-PA concentration 0.5mg/mL) injected in chest tube daily x 3 days (16, 19-21) using sterile technique
            b. Clamp chest tube x 1 hour (20)
            c. Roll patient to ensure distribution throughout chest
            d. Unclamp tube and allow drainage
      ii. If < 300 mL HTX present, no additional intervention needed (1, 8)
4. If no radiographic evidence of retained HTX
   a. Place tube to water seal if no evidence of PTX on morning CXR and no air leak in tube
   b. Remove chest tube when output < 200 mL/24hr (22)

\(^1\) \(d\) = greatest depth of hemothorax on a single CT image, \(l\) = greatest length of the hemothorax.

\(^2\) To find the Trauma Retained Hemothorax order set in eStar you must type “hemothorax” in the order section, order set will then populate for you. It will not come up if you type t-PA or alteplase.
Hemothorax with clinical indication for chest tube

Place chest tube with preprocedure antibiotics (1st gen cephalosporin)

- Ongoing Transfusion requirement
- ≥ 1500mL initial output
- ≥ 200mL/hr output x 4 hours

Unstable

Stable

Persistent opacity on CXR after chest tube

Consider 2nd chest tube. ONLY if less than 24 hrs from initial chest tube placement

Chest tube output < 200mL/24hr and no air leak

Reassess in 24 hrs

Yes

No

CT on Day 3 to evaluate retained hemothorax (contrasted preferred)

Calculate volume (v=πd²/4)

Hemothorax ≥ 300mL

Hemothorax < 300mL

Chest tube to water seal +/- CXR

VATS ≤ Day 7

If poor operative candidate consider:
- Intrasleural IPA
- IR drain

Continue on -20 cm H2O wall suction

Yes

No
