A case of delayed hemothorax

MANIKANDAN K KATHAMUTHU
Department of Cardio Thoracic Surgery,
MADRAS MEDICAL COLLEGE AND GOVERNMENT GENERAL HOSPITAL

Abstract:
Inter costal chest drain is one of the commonest modes of intervention in cases of chest trauma. Complications of chest drainage have been recorded related to insertion site, position, technique, leaks, pain and infection. Delayed bleeding after insertion of chest drain has been reported as a rare complication. But internal mammary artery erosion by the chest drain tube has not been reported as a cause for delayed hemothorax. This case report shows such a patient who presented to cardiothoracic department with massive hemothorax five days after chest drain.

Keyword: Delayed hemothorax, chest drain complications, internal mammary artery erosion.

Introduction:
Chest drain was introduced by Hewett in 1867. It is a life saving intervention practiced commonly by surgeons followed by physicians and intensivists. In a teaching institution, it is even taught to a house surgeon to perform under supervision. But it is not without risk especially when inserted in an emergency situation without proper knowledge of anatomy and technique.

Case report:

55- years-old gentleman presented with history of polytrauma following RTA 2 days ago. General surgery/ Trauma care team assessed the patient initially and diagnosed multiple rib fractures with right hemothorax. [Figure 1]A chest drain was inserted for the right hemothorax by the general surgery team.
Figure-1- CT Chest showing fracture ribs with right hemothorax
Two days following the chest drain insertion, a repeat chest X-ray showed a partially collapsed right lung with pneumothorax and chest drain tube was seen going close to the liver. [Figure 2, Figure 3] A CT chest and abdomen was done. General surgical team suspected a tube malposition and possible liver injury. Chest drain tube was repositioned following which lung expanded. [Figure 4, Figure 5].

Figure-2- Right pneumothorax with partially collapsed lung
Figure-3- CT Chest showing the chest tube appearing very close to liver

Figure-4- CT chest showing expanded lung after tube repositioning

Figure-5- CT chest showing chest drain appearing to pass through lung

But a few days after, there was a fresh bleeding noted in the drain. [Figure 6] Cardiothoracic surgeon's opinion was sought and an urgent exploratory thoracotomy was planned for a possible liver or lung injury.
A posterolateral thoracotomy was done which revealed a massive hemothorax. [Figure 7, Figure 8, Figure 9] Packing of the thoracic cavity done and findings were noted after resuscitation.

Diaphragm was intact. There was no lung laceration and there was no bleeding from the intercostal vessels or fracture rib sites. Pericardium was intact. Chest drain was seen going anteriorly and near its tip, a torrential spurting of blood was noted from the right internal mammary artery. [Figure 10]

Underrunning of the right internal mammary artery was done using 2/0 polyglactin sutures. [Figure 11] Thoracotomy wound closed after placing a new chest drain. Patient improved post operatively but died 1 week later because of ARDS.

**Discussion:**

Chest drain tubes are inserted for various indications and are life saving but is not without potential life threatening complications especially when inserted in an emergency situation. Chest drainage is an invasive procedure and complications can result due to inadequate knowledge of thoracic anatomy or inadequate training and experience. These complications can simply be classified as technical or infective. Trocar technique is by far associated with a higher rate of complication. Complications of chest drainage have
been recorded related to insertion site, position, technique, leaks, pain and infection. But delayed bleeding after days after insertion of chest drain due to erosion of internal mammary artery by the tube has not been reported in the literature commonly. Prompt recognition and treatment is essential for the management of these complications.

**Conclusion**

Chest drain is not without risk. Adequate training experience supervision is needed especially in a teaching institution to avoid known complications. This delayed bleedininf and internal mammary artery injury is rare complication can happen to any one. It should be suspected especially when the tip of the chest drain lies anteriorly and prompt cardiothoracic referral should be obtained.

**References**


