

Introduction

- Thoracentesis removes excess fluid from the lungs for diagnostic or therapeutic purposes.
- Complications following chest procedures include pneumothorax, bleeding complications, air embolism, and pulmonary re-expansion edema

| | Incidence | Presentation | Treatment | Prevention/ Monitoring |
|------------------------------|-----------|--|--|--|
| Pneumothorax | < 2% | Acute dyspnea and pleuritic pain | Conservative, Needle decompression, chest tube | Serial chest x-ray following procedure |
| Bleeding Complications | 0.18% | Unstable patient or rapid fluid re-accumulation | Conservative, VATS, thoracotomy | Avoid intercostal vessels below ribs |
| Air Embolism | 0.13% * | Chest pain, coughing, dyspnea, and cardiovascular collapse | Patient repositioning, s upportive treatment | Valsalva maneuver during catheter removal, When no guide wire in place, occlude needle hub with finger |
| Pulmonary Re-expansion Edema | < 1% | Dyspnea, cough, chest discomfort, and hypoxemia | Supportive treatment | Limit volume withdrawn, especially with first time patients |

Methods

- Cases were complications following chest procedures done within the University of Louisville Hospital System

Results

Air Embolism



72-year-old male with history of end stage renal disease had tunneled line placed for hemodialysis. During removal of the tunneled line a sucking sound was heard coming from catheter immediately prior to removal. Patient immediately complained of chest pain and became hypoxic to mid-80s. Oxygen saturation returned to 100% after administration of 4L oxygen/min via nasal canula and placing patient in Trendelenburg. Chest radiograph immediately following the procedure did not demonstrate air embolism. Patient's symptoms resolved and oxygen was discontinued after 5 hours.

Bleeding Complication



61-year-old female with history of laryngeal cancer presented with a paraspinial/lung mass. The first transverse non-contrast CT was obtained prior to the procedure. The second image was taken during the procedure. The last image was taken following the procedure and demonstrates a right lung hematoma.

Pneumothorax



65-y.o. female w/ history of colon cancer s/p chemo/resection presented outpatient for CT-guided lung biopsy of spiculated left upper lobe nodule. The first image is a transverse non-contrast CT was taken prior to the procedure. The middle image was taken one hour after the procedure showing a large left-sided pneumothorax. Chest tube was placed during interval period. The final image was obtained one day after the procedure and shows resolution of the large pneumothorax.

Pulmonary Re-expansion Edema



50-year-old male with aortic valve endocarditis, MRSA bacteremia, and history of aortic valve stenosis. First image shows moderate to large right pleural effusion on CT Chest. Second image shows immediate post-thoracentesis chest radiograph with improved aeration of the right lower chest. Third image shows new opacity overlying the right base which represents re-expansion pulmonary edema. The patient expired 1 hour following the last CXR.

Discussion

- In our case series, only the re-expansion pulmonary edema case resulted in mortality.
- Patients with other complications responded to standard management and were promptly discharged.