We have got breath sounds but no cardiac output!

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ABSTRACT

Tension pneumothorax is a potentially fatal event. Needle decompression is the currently accepted first line intervention. In our case this was achieved with the thoracic trocar. However due to the small size (approx. 5 mm) diaphragmatic hernia defect and the ball valve effect of the hernia sac and the cystic omental sac, air was unable to escape from the thoracic cavity despite discontinuing abdominal insufflation. It was only after the laparotomy incision was made and the diaphragmatic defect was manually opened that the physiology returned to normal.

CASE

Our patient was a 5 week old male 3.18 kg born at 38 weeks gestation who presented for diagnostic laparoscopy with reduction of recurrent diaphragmatic hernia. He was prenatally diagnosed with bilateral congenital diaphragmatic hernia. At day of life 2 he underwent left diaphragmatic hernia repair using thoracoscopy. At time of surgery, our patient presented to the OR for laparoscopic repair and the surgeon manually opened the diaphragmatic defect and evacuated the air resulting in the patients hemodynamics returning to normal. Our patient was then converted to an open repair because of the occlusion of the defect from the cystic lesion in the abdomen. It was only after the laparotomy incision was made and the diaphragmatic defect was manually opened did the physiology return to normal.

PREOPERATIVE vs POSTOPERATIVE CHEST RADIOGRAPHS

- Preop CXR shows normal appearing right lung and inflated left lung remnants seen in the left apex. The mid and lower left chest opacity represents the omental cyst and hernia sac with fluid, crossing the diaphragmatic boundary into the left lower chest. Postop CXR shows the left chest tube terminating in the mid lung zone, the pneumothorax in the lower lung zone (see arrow), and the mediastinum has returned to midline. The right lung is aerated as well as the left upper lobe.

- Laparoscopic view of the abdominal LUQ. Arrow indicates the recurrent right diaphragmatic hernia opening. It was through this hole air from the abdominal insufflation entered into the chest. The omentum and hernia sac caused a ball-valve effect leading to tension pneumothorax.

- Signs of Pneumothorax
  - Difficulty with ventilation/respiratory distress
  - Desaturation
  - Hypotension
  - Heart rate changes
  - Unilateral chest expansion
  - Auscultate percuss
  - Tracheal deviation

REFERENCES
