



Diaphragm Injury- Laparoscopy


Steve Eubanks, MD
Chair of Academic Surgery
Executive Director of the Institute for Surgical Advancement
AdventHealth Orlando
Professor of Surgery- University of Central Florida
SAGES Past President



Disclosures

EB Surgical
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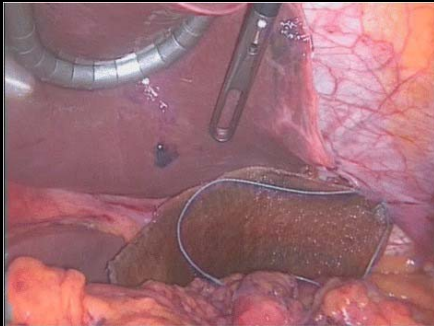
Founder/Partner





Diaphragm Injury

Is there a role for minimally invasive surgery in the management of traumatic injury of the diaphragm?



Diaphragmatic Rupture

Blunt or Penetrating
Acute or delayed diagnosis
Occurs in 5% of blunt trauma to the torso
Occurs in 8% of patients with blunt trauma to the chest

Diaphragmatic Rupture

Diaphragmatic tears from blunt trauma are most frequently caused by MVAs and falls.

Mortality rates range from 15-40% in patients with blunt rupture

Associated injuries occur in 80-100% of patients

Associated injuries commonly involve head trauma, liver, spleen, aorta, pelvis, lung, long bones

Lung injuries are the most common cause of death associated with rupture of the diaphragm



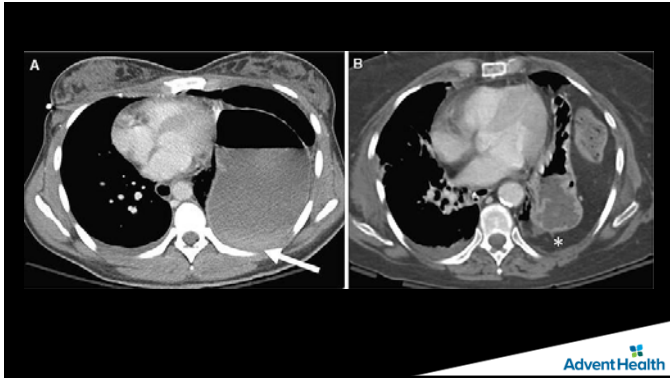
Diaphragmatic Rupture

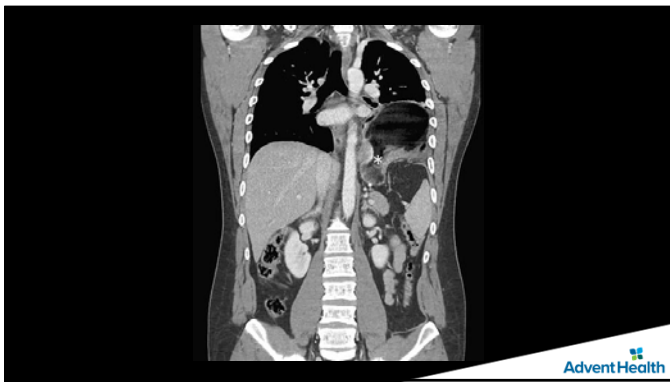
A blow to the side is 3 times more likely to cause rupture of the diaphragm than a blow to the front

50-80% of ruptures occur on the left

Rupture on the right is usually associated with significant liver injury.

Mortality is higher with right-side diaphragmatic rupture





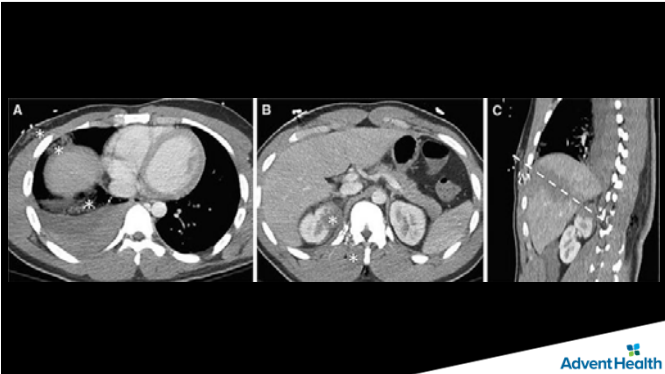


Diaphragmatic Rupture

Bilateral rupture of the diaphragm occurs in 1-2% of cases of injury to the diaphragm.
Mortality is much higher with bilateral rupture.

Diaphragmatic Rupture

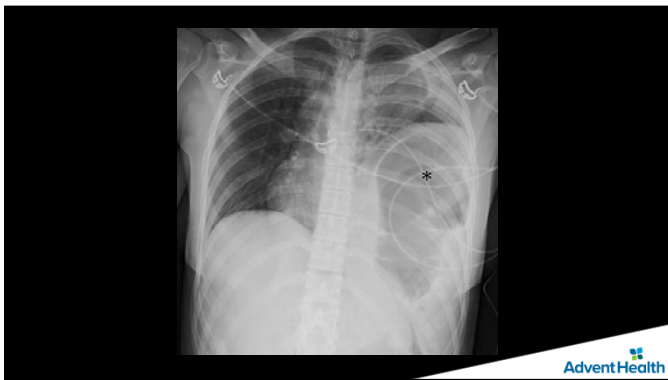
Penetrating trauma accounts for 12-20% of diaphragmatic ruptures.
GSWs or stab wounds to the lower chest or upper abdomen raise the index of suspicion for diaphragm injury.
Mortality rates are reported to be 10-30% with penetrating injuries to the diaphragm with almost 100% of deaths due to associated injuries.



Diaphragmatic Rupture

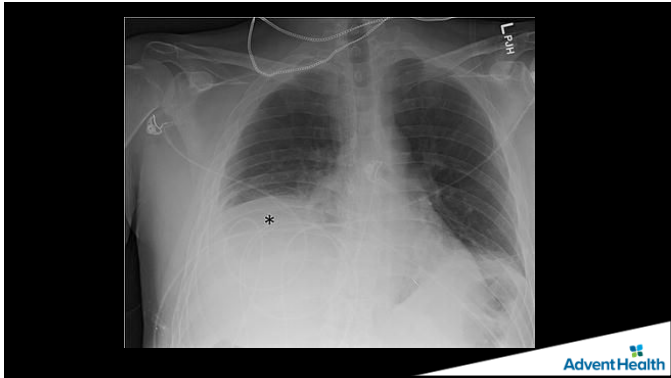
Presentation:

- Chest pain
- Abdominal pain
- Shortness of breath
- Decreased breath sounds
- Cough
- Bowel sounds in the chest

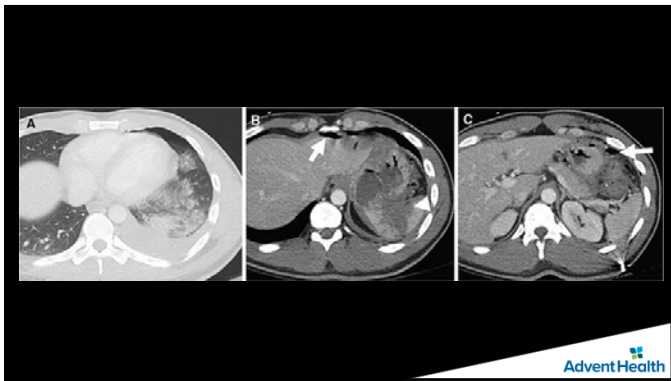


Diaphragmatic Rupture

Diagnosis can be difficult with plain chest x-rays
Hemothorax and pulmonary contusions can obscure injury
CT scan only demonstrates injury to the diaphragm
preoperatively in 31-43% of cases.
Diagnosis is usually made at laparotomy

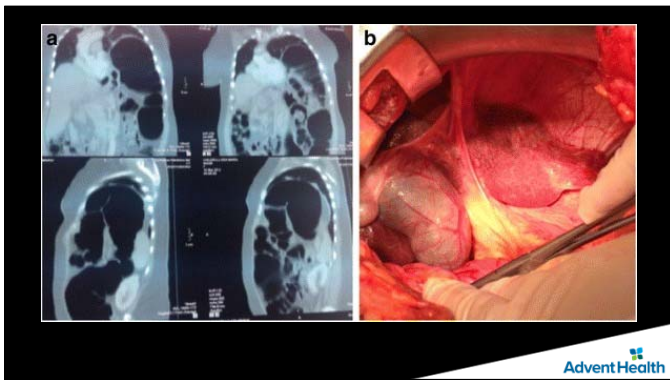




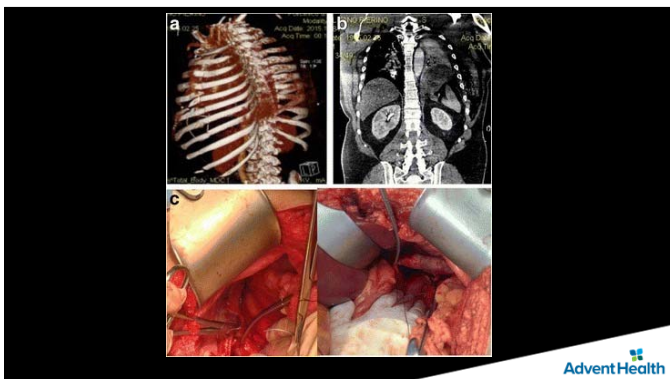




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Diaphragmatic Rupture

The role of minimally invasive surgery in the management of diaphragm injuries is limited.

The patient must be hemodynamically stable, able to tolerate pneumoperitoneum, and not possess associated injuries in need of open surgery to save the patient's life or reduce morbidity.

MIS is frequently used in delayed diagnosis or chronic hernias of the diaphragm.

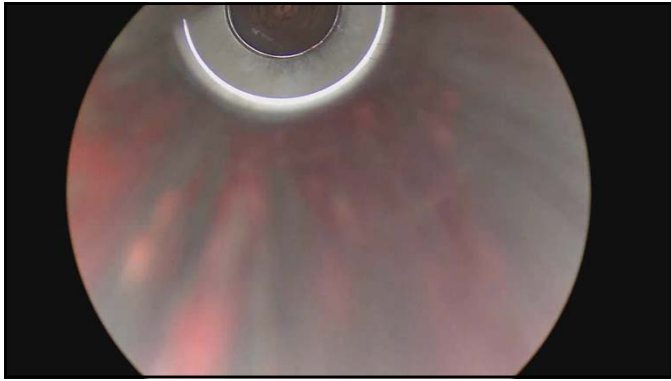
Diaphragmatic Rupture

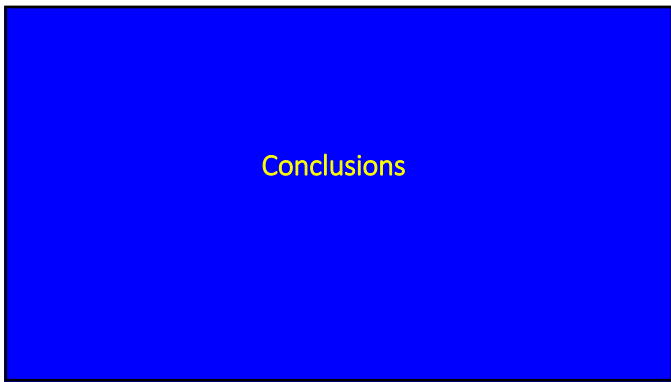
Thoracoscopy can be very effective in diagnosing and treating chronic hernias of the diaphragm.

Laparoscopy requires a well-prepared OR team and a surgeon with effective MIS and laparoscopic suturing skills.

Primary suture repair, sutures with plegets, mesh reinforcement of suture repair and mesh bridge repairs are reasonable options with laparoscopy.

Pablo Achurra, MD
Catholic University of Santiago, Chile





Conclusions
