What's Your Diagnosis?
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Class of 2012
Case#: 085865

Signalment: 5 year old female spayed terrier mix

Presenting complaint: The patient presented for ongoing complications due to traumatic injury.

History: The patient was hit by a car on 3/1. The patient went to the rDVM who diagnosed a broken left tibia and right coxofemoral craniolateral luxation on radiographs. The rDVM attempted to treat the luxation with closed reduction twice before referring to KSU CVM. The patient received an injection of polyflex (ampicillin) the day prior before presentation. The patient had been anorexic since the injury and recently became lethargic. An acute episode of vomiting occurred 1.5 weeks before presentation.

Physical exam: Temperature: 103.7 F; Pulse: 140 bpm, strong; Respiration: 32 breaths/min
The patient was depressed but responsive. Abrasions were present on the medial aspects of the left and right hind limbs from the inguinal area extending to the stifle. The right hind paw was swollen. The patient was painful on extension of the right hip and flexion of the left tarsus. The patient was unable to support her hind limbs.

Diagnostic plan: Radiographs, blood work, neurologic exam, and possible closed reduction of right coxofemoral luxation and tibial fracture with splint application.

Blood work: A CBC and chemistry panel were submitted. Neutrophilia and lymphopenia were present on CBC. ALT and ALP were elevated. All other parameters were unremarkable.

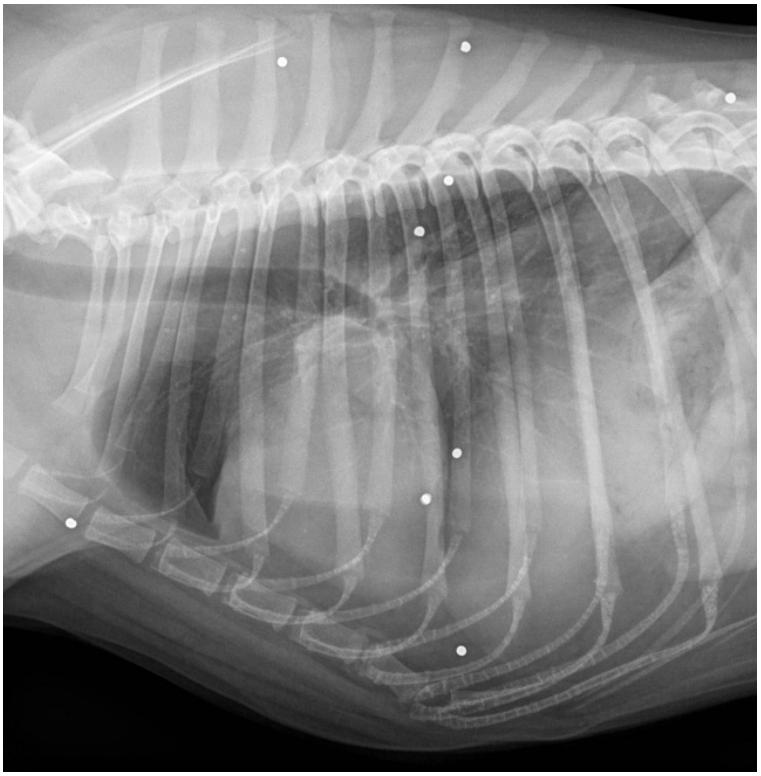

Figure 1 – Right lateral, thorax

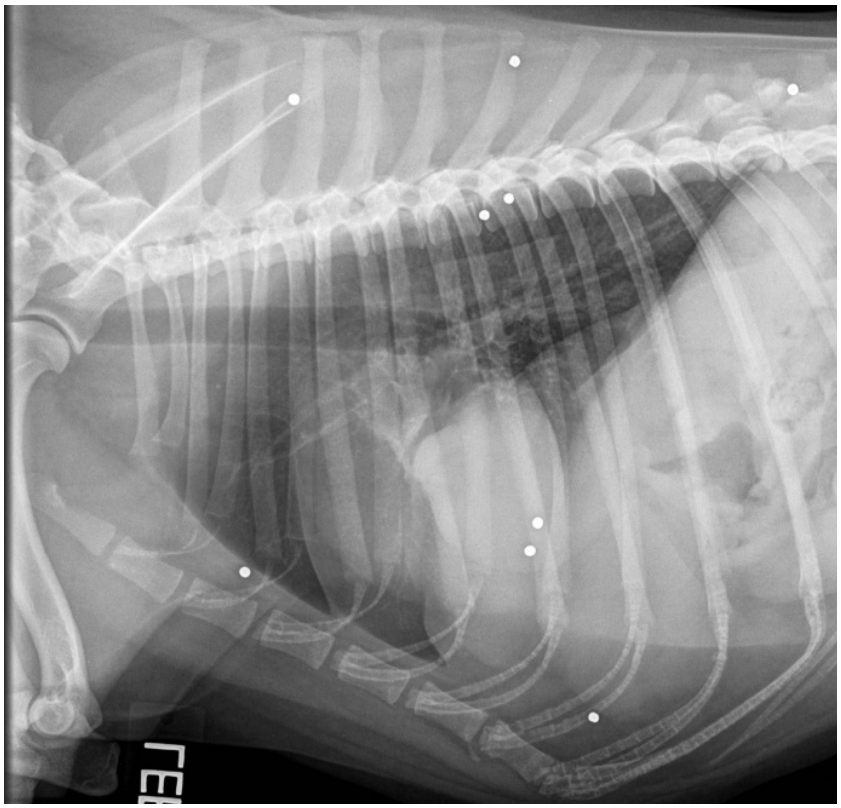

Figure 2 – Left lateral, thorax

Figure 3 – VD view, thorax

Radiographic findings: There is a soft tissue opacity within the right caudoventral and mid thorax causing border effacement of the right crus of the diaphragm and of the right caudal cardiac silhouette margin. This opacity is partially superimposed with the caudal half of the cardiac silhouette lateral view. There is fluid opacity within the pleural space in the right hemithorax, causing visualization of widened pleural fissure lines and retraction of the right middle and right caudal lung lobes from the thoracic wall. Within the limitation of superimposition, the cardiac silhouette is normal in size and shape. Pulmonary vasculature is unremarkable. In the limited view of the cranial abdomen, the stomach, spleen, and visible portions of the liver are cranially displaced. Multiple small round metallic BBs are superimposed with the thorax and extrathoracic soft tissues.

Radiographic conclusion: Differentials include right-sided diaphragmatic hernia with pleural effusion, pulmonary contusions, or neoplasia. Differentials for pleural effusion include hemorrhage, transudate, or exudate.

Images of the left tarsus (not pictured) also indicated a fracture of the left medial malleolus.

Case conclusion: Owners elected humane euthanasia and declined necropsy.

Discussion:

Diaphragmatic hernias are a common injury resulting from high velocity blunt force trauma, such as a motor vehicle accident. There is a sudden increase in intraabdominal pressure which causes the lungs to deflate, resulting in a sudden decrease in thoracic pressure. The gradient between the two cavities can lead to a tear in the muscular portion of the diaphragm. The abdominal viscera then herniate into the thoracic cavity. This can result in sudden respiratory distress but can also be asymptomatic immediately after a traumatic incident. Additionally, on physical exam, the absence of lung sounds or the presence of GI sounds in the thorax are indicative of a hernia. The animal may present weeks later with respiratory, gastrointestinal, or cardiovascular clinical signs. The liver is the most commonly herniated organ and can result in venous occlusion, leading to hydrothorax. Diagnosis is made by radiography or ultrasonography, although gastrointestinal positive contrast studies using barium or iohexol may be necessary. Blood work abnormalities are nonspecific. If the liver is herniated, serum alanine aminotransferase and serum alkaline phosphatase may be elevated. The only treatment is herniorrhaphy. Chronic hernias have a higher mortality rate than acute hernias but either case has a good to excellent prognosis if the patient survives the early postoperative period.

References:

Kahn, C.M. (ed). 2005. Merck Veterinary Manual. Merck & Co., Inc. Whitehouse Station, NJ. 1178.

Fossum, T.W., et al. 2007. Small Animal Surgery. Mosby Elsevier. St. Louis, MO. 903-906.