The Thai Journal of Veterinary Medicine

Volume 42
Issue 2 *July, 2012*

Article 20

7-1-2012

WHAT IS YOUR DIAGNOSIS

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Signalment

A 5-year-old male, mixed breed dog

History

The dog was hit by a car a couple days ago. He had mild dyspnea and anorexia afterward. He could lie on his side without respiratory distress.

Clinical Examination

There were many skin contusions with mild soft tissue swelling on the right side of the body. Bone crepitation could not be detected via palpation. The mucous membrane was normal with mild delayed CRT. Complete lung dull was observed from the left caudal lung lobe area. Hematologically, mild anemia and marked increase of liver enzymes were detected.

Radiographic Examination

Plain ventrodorsal and right lateral thoracic and abdominal radiography were performed to evaluate intrathoracic and intraabdominal organ abnormalities.

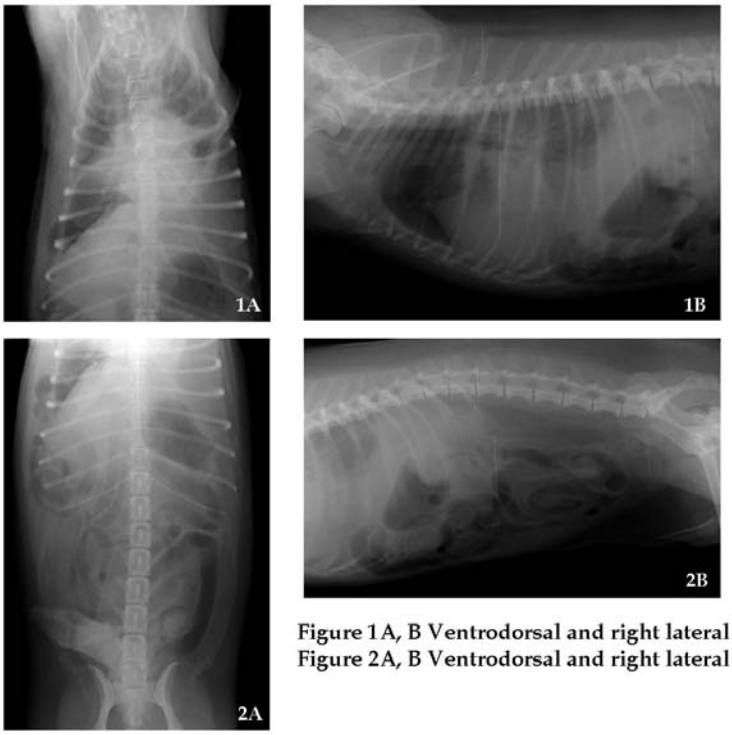

Figure 1A, B Ventrodorsal and right lateral thoracic radiographs
Figure 2A, B Ventrodorsal and right lateral abdominal radiograph

Give your diagnosis and turn to the next page.

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Radiographic findings

Ventrodorsal and lateral thoracic radiographs (Fig 1A, B) revealed well-marginated soft tissue opacity inside the left pleural cavity and abnormal inflation of the left caudal lung lobe. There were a loss of clarity of the cardiac silhouette and diaphragmatic outline on the left diaphragmatic crus. Pleural fissure in pleural cavity was widened. Ventrodorsal and lateral abdominal radiographs (Fig 2A, B) showed moderate amount of gas filled along small bowel loop. There was a right cranioventral displacement of the small bowel into subcutaneous area outside thoracic cavity. Splenic silhouette could not be detected on the left cranial abdominal cavity. Liver and stomach were radiographically normal.

Radiographic diagnosis

Traumatic diaphragmatic hernia (TDH)
Paracostal hernia

Discussion

Trauma is a common cause of acquired diaphragmatic hernia (DH) in dogs and cats. The cranial displacement/malposition of abdominal viscera and secondary fluid formation usually reduce lung infiltration. Liver, spleen, stomach, small intestine and omentun are common herniated organ because of their position close to diaphragmatic thorax. Radiographic findings of DH can be varied (obvious or obscured). A large solid abdominal organ or gas-filled bowel loops passing into pleural cavity through a hole in the diaphragm is easily detected. In DH accompanying with caudal lung lobe consolidation and hemothorax, on the other hand, the use of survey radiography for final diagnosis is uncertain. Positive and negative contrast peritonography can provide an evidence of abnormal communication between abdominal and thoracic cavities. Further investigation with caution should however be taken. An iodine contrast medium may induce additional pleural fluid causing further compression and atelectasis of the lung. If air is used, a large amount of injected air passing from peritoneal cavity to pleural cavity can produce pneumothorax which then causes more respiratory deficit. Animal should be in standing, sitting or sternal positioning to facilitate breathing and minimal stress while performing ultrasonography.

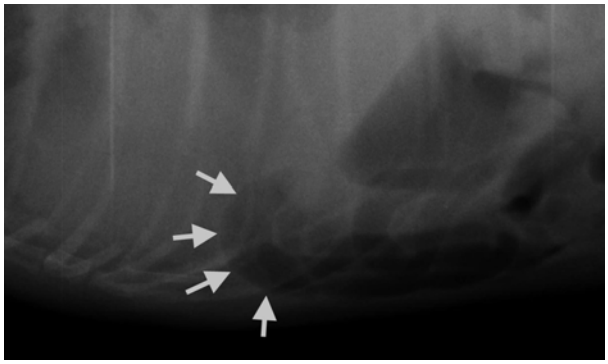

Figure 3 Gas-filled small bowel loop (white arrows) displaced into subcutaneous area outside the right ventral thoracic cavity; an inconclusive diagnosis of diaphragmatic hernia via lateral radiograph alone.

Reference

Farrow, C.S. 2003. Diaphragmatic Hernia. In: Veterinary Diagnosis Imaging the Dog and Cat. C.S. Farrow (ed.) 1st ed. St. Louis, Missouri: Mosby. 473-479.