What's Your Radiographic Diagnosis?

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What's Your Radiographic Diagnosis?
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HISTORY
The patient was a one year old male beagle who had been hit by a car four days ago. The referring veterinarian had diagnosed a luxation of the right coxo-femoral joint and a possible diaphragmatic hernia. It was reported that the patient was eating and drinking normally following the accident. Respiratory rate and effort were, however, markedly increased.

 Upon clinical examination the respiratory rate was 80 per minute and the heart rate was 130 per minute. Upon auscultation of the chest, heart and lung sounds could faintly be heard on the left side, but were very pronounced on the right side. Clinical evidence of hip luxation was also noted.

Blood was submitted to the clinical pathology laboratory for a CBC, BUN, and SGPT. Urine was submitted for a complete urinalysis. Right recumbent lateral and ventrodorsal radiographs were taken of the chest (Fig. 1 and Fig. 2). What is your radiographic diagnosis?

Figure 1. Right lateral view of the thorax.
Figure 2. Ventrodorsal radiograph of the thorax.

**DIAGNOSIS**

Pneumothorax and severe emphysema of the cardiac lobe of the left lung. The lateral radiograph (Fig. 1) reveals the heart pushed upward off the sternum due to abnormally enlarged cardiac lobe. The trachea is also elevated. Just posterior to the base of the heart are radiopaque densities that are suspected to be hematomas that developed from trauma in that area of the lung. The outline of the diaphragm seems to be intact, however there is an abnormal sloping seen caudoventrally from the apex of the heart. This is due to the pressure placed upon the diaphragm by the extremely enlarged cardiac lobe.

The ventrodorsal radiograph (Fig. 2) reveals the cardiac silhouette displaced far to the right by the affected lobe. The border of the diaphragm, although intact, is displaced caudally on the left. There is evidence of a severe interstitial emphysema of one of the lobes of the left lung and also the presence of a mild pneumothorax.

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TREATMENT

Thoracic surgery was performed the following day. Upon exploration, the cardiac lobe of the left lung was observed to be very markedly enlarged with evidence of diffuse emphysema. Several large hematomas were present on the lung surface near the pulmonary veins. A lobectomy was done, a chest drain installed, and the thorax closed in the usual manner. After four days of uncomplicated recovery, open reduction of the hip luxation was completed. Seven days later the patient was released.

DISCUSSION

Clinically, a diaphragmatic hernia was suspected following initial examination. However, radiographs revealed the true cause for the clinical signs observed. Radiographs were again taken of the chest four days post-operatively. The lateral view (Fig. 3) reveals normal sternal contact by the heart, loss of the radiopaque densities (hematomas) posterior to its base and for the most part, loss of the pneumothorax.

Figure 3. Right lateral radiograph of the thorax post-operatively.
The ventrodorsal view (Fig. 4) shows a return of the outline of the diaphragm to normal and the heart now displaced somewhat to the left. This displacement is occurring due to the defect following the excision of the affected lobe.

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