



IT'S YOUR CASE

Species: Canine

Breed: King Charles Spaniel

Sex: Male Neutered Age: 4.5 years

Clinical History:

Run over by owner this evening.

On the initial evaluation, dull lung sounds on the right thorax were noted. Thoracocentesis was attempted, which was unsuccessful. On blood gas analysis, repeatedly hypercapnia was noted ($p\text{CO}_2 > 60$). The patient's respiratory effort is increased. SPO_2 is low but he is comfortable with oxygen.

Anaemia is documented with low total protein, concerned for haemorrhage. Suspected blood clot in the urinary bladder. However, no other overt bleeding noted. Mild hyperlactataemia.

Anatomic regions: Thorax

Details of study and technical comments: A radiographic study of the thorax is presented for evaluation. The study consists of right and left lateral views as well as a ventrodorsal view.

Diagnostic interpretation:

THORAX:

Gas is in the pleural space resulting in displacement of the ventral cardiac silhouette from the sternum on the lateral views (red arrows). Streaking soft tissue is evidence on the left lateral view (orange arrows). There is increased serosal contrast resulting in improved conspicuity of the borders of the trachea (yellow arrows). The cranioventral mediastinum is heterogenous with gas and soft tissue (green arrows).

Alveolar pattern, evidenced by air bronchograms, is in the left caudal lung lobe (dark blue circle) while interstitial changes are in the right caudal lung lobe (light blue circle). The pulmonary vasculature is narrow in diameter as is the caudal vena cava (purple arrows).

The thoracic vertebral column, ribs and included orthopaedic structures are within normal limits.

There is mildly reduced serosal contrast in the right cranial quadrant of the abdomen on the ventrodorsal views, however, this is within normal limits on the lateral views. The gastric silhouette is moderately dissented with heterogenous ingesta and is normal in position. The margins of the liver and cranial spleen are normal.

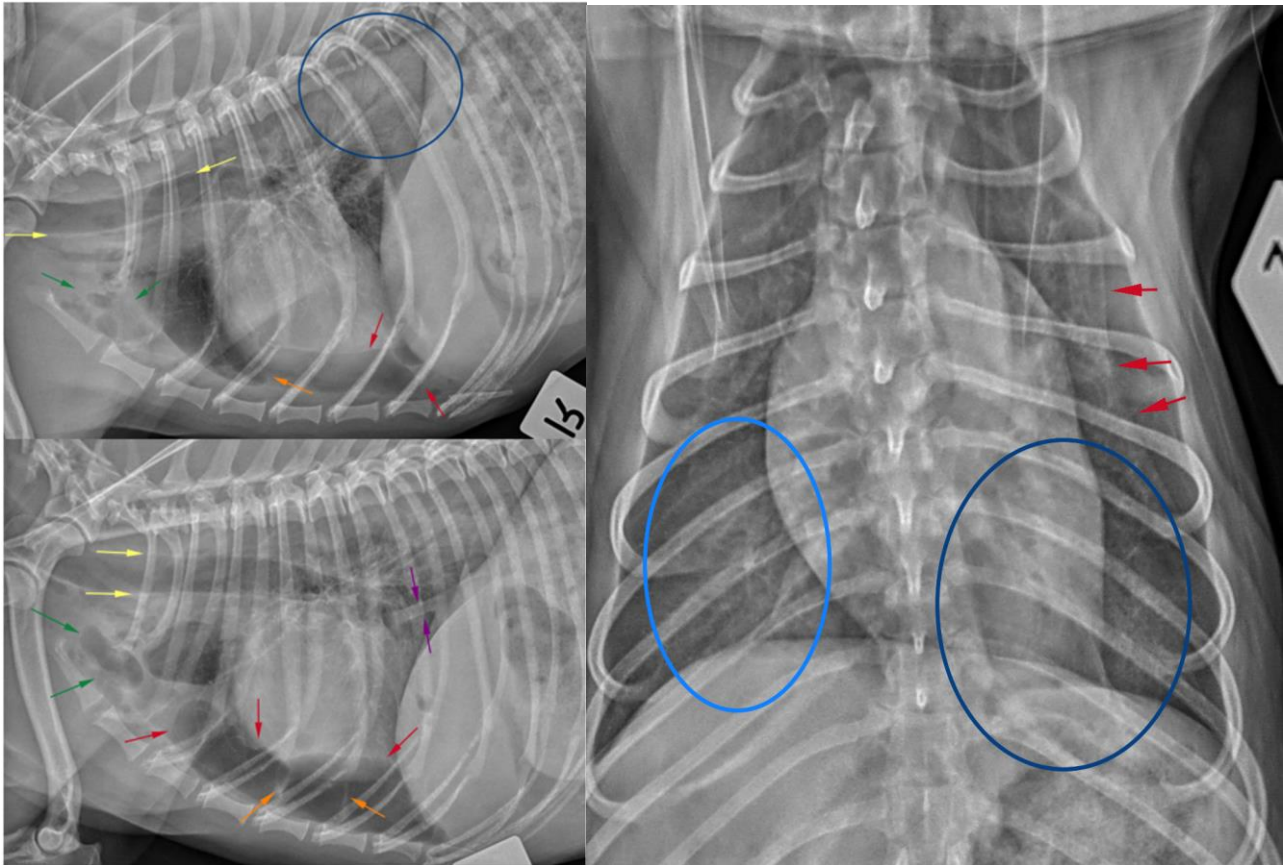


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This report is based on the available history and radiographic interpretation only and not on a physical examination of the patient. It has been prepared specifically for interpretation by the currently licensed and registered veterinary surgeon responsible for the care of this patient.



Conclusions:

- Pneumothorax, predominantly left-sided.
- Low volume stranding pleural effusion. Primary consideration is given to haemothorax.
- Pneumomediastinum +/- haemomediastinum.
- Alveolar changes of the left caudal and interstitial changes of the right caudal lung lobes are consistent with pulmonary contusion.
- Hypovascular pattern and small caudal vena cava. Primary consideration is given to hypovolemic shock associated with trauma.

Additional comments:

Pneumothorax is indicated by the rotation of the cardiac silhouette from the sternum on the lateral views. With gas in the pleural space, there is reduced expansion of the lung lobes and secondary atelectasis of the caudal subsegment of the left cranial lung lobe and right middle lung lobe. This reduces the physical support for the cardiac silhouette on the lateral view allowing for rotation from the sternum. On the ventrodorsal view, there is retraction of the lung margins that is most evident on the left side.

Concurrently there is sufficient volume of the caudal lung fields to assess the accuracy of alveolar (left) and interstitial changes (right). In light of recent trauma, this is indicative of interstitial haemorrhage/contusion. Often these changes will continue to mature through the first 72 hours following injury.



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Both of these findings can result in respiratory distress. Subjectively, the volume of pneumothorax is not marked. The changes in the caudal lung lobes are moderate to severe relative to the introduction of haemorrhage. Interventions, such as thoracocentesis, are frequently determined if the patient is nonresponsive to conservative medical management (including oxygen therapy) as this can result in expansion of the pulmonary rent and potential deterioration of stability. When choosing analgesic medications, consideration is often given to the potential for induction of panting. Thoracocentesis with the intent to withdraw air is often performed in the dorsal half of the thorax while the patient is in sternal recumbency.

The hypovolaemic pattern is consistent with shock. Excepting rib fractures, most fractures do not result in sufficient respiratory disruption to lead to hypercapnia.



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