

What's Your Diagnosis?

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Signalment: 9-year-7-month old female spay American Miniature Eskimo dog

Presenting Complaint: The patient presented on 5/30/17 with signs of lethargy and for not acting like herself. She had also had melena. She has had a history of anemia and thrombocytopenia of unknown origin since March 2016.

Brief History: The patient presented for a depressed demeanor, lethargy, and respiratory distress. She had a four week duration of regenerative anemia (hematocrit: 17%), and further bloodwork also suggestive thrombocytopenia. Ultrasound at this point also revealed a 5cm hepatic mass on the right lateral liver. She was tested for red blood cell surface antibody, which returned as normal and scheduled for surgery.

In April 2016, abdominal CT prior to surgery for hepatic mass removal found that the mass was no longer present. Her bloodwork at this point again confirmed anemia (hematocrit: 27.9%) and thrombocytopenia. She had elevated liver values (ALT 3600, ALP 3325, and bilirubin 0.4) and normal iron values. It was believed that the hepatic mass was potentially a hematoma, and responsible for the anemia. She was started on SAM-E (225mg) and Vitamin E succinate at this point to address the thrombocytopenia.

In June 2016, the patient presented for a collapsing episode. A Grade II left sided systolic murmur was noted at this time along with second degree AV block on ECG. Her bloodwork showed nonregenerative hypochromic anemia, thrombocytopenia, and normal liver values.

Bloodwork from July 2016 again showed thrombocytopenia and anemia.

Workup at KSU VHC for thrombocytopenia remained inconclusive at this point.

Physical Exam Results: On physical exam, the patient was bright, alert, and responsive. She had a temperature of 100.8F, fair pulses, a heartrate of 114bpm, and was panting. She weighed 13.6kg. She had a thin hair coat and was given a body condition score of 5/5. She had some dental calculus. Her abdomen was tense and difficult to palpate, but not noticeably painful. A sinus arrhythmia was noted, but no heart murmurs were appreciated. Her gum mucous membranes were a pale pink (CRT <2s) albeit her scleral membranes and skin were icteric. A rectal exam was not performed at this time. No other abnormalities were noted.

Bloodwork abnormalities: Bloodwork showed a normocytic, hypochromic, and nonregenerative anemia (HCT 28%), thrombocytopenia (51 K/uL) with giant platelets, and a chronic inflammatory leukogram with a possible stress/corticosteroid component (hypersegmented neutrophil nuclei). Patient also had elevated liver values (ALP 5313, ALT 774, and total bilirubin 7.5).

Diagnostic Plan: Abdominal radiographs to check liver for former mass and cause of elevated liver values. Plateletcrit values were also to be calculated to re-evaluate thrombocytopenia.

Radiographic Interpretations: Two view abdominal radiographs were taken.



Figure 1: VD Abdominal View

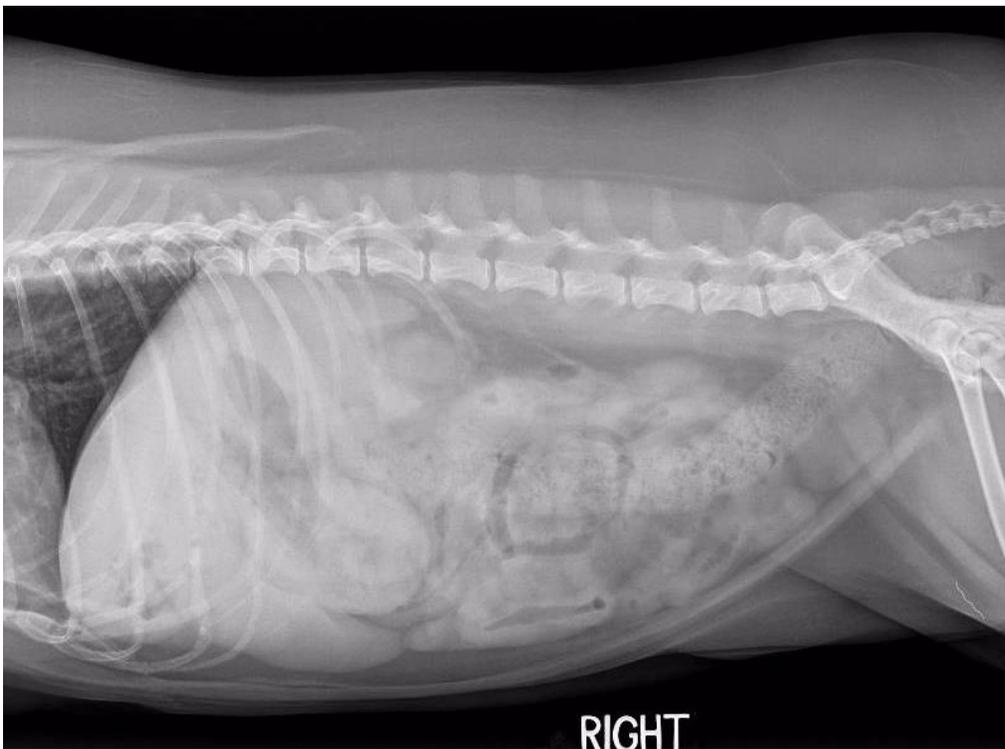


Figure 2: Right Lateral Abdominal View

Findings:

- Caudoventral rounding of liver lobes and caudally displaced gastric axis suggest hepatomegaly.
- Multiple focal gas opacities are noted in the mid-ventral aspect of the liver (in the region of the gallbladder).
- The abdomen is pendulous with sufficient serosal detail.
- A 1.8cm linear metal opacity is noted laterally, superimposed with the cranial left and right thighs.

Conclusions:

- Hepatomegaly with causes including infiltrative disease (inflammation, infection, or neoplasia), nodular hyperplasia, or a metabolic/endocrine disease.
- Gas opacities in the mid-ventral aspect of the liver are consistent with emphysematous cholecystitis, hepatic abscess, and abscessing neoplasia.
- Metal opacity is most likely an incidental finding.
- Thorax, bone, and soft tissue structures otherwise appear within normal limits.

Ultrasound Recommended:



Figure 3. Gall Bladder

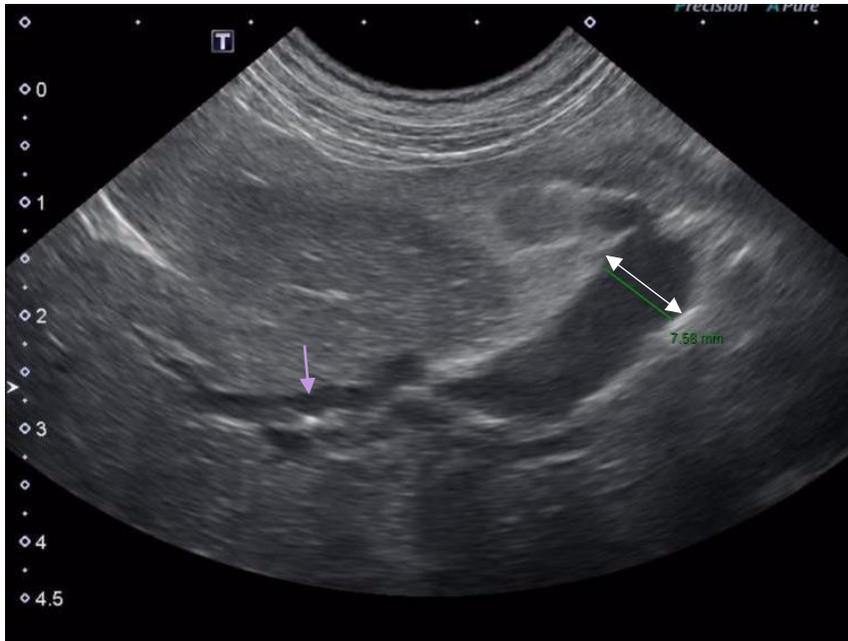


Figure 4. Dilated Bile Duct

Findings:

- The liver, right and left kidneys, right and left adrenal glands, spleen, pancreas, gastrointestinal tract, and the urinary bladder were all within normal limits.
- The gallbladder appeared enlarged with a thickened wall and multiple focal circular hyperechoic nodules within the lumen (Figure 3). Reported reverberation artifact present and width 11.1mm.
- The extrahepatic bile duct is enlarged with 7.58mm measured in Figure 4 and 7.6mm reported (white arrow). Purple arrow indicates common bile duct.
- The intrahepatic bile duct is reported to be dilated at 2.9mm.
- A small amount of anechoic peritoneal effusion was also reported.

Conclusions:

- Emphysematous cholecystitis
- Intrahepatic bile duct distension and enlargement of common bile duct could be due to mechanical obstruction or inflammation.
- Peritoneal fluid drawn via ultrasound-guided aspiration was analyzed and suspected to be a transudate.

Diagnosis: Suspect emphysematous cholecystitis with peritoneal effusion

Plateletcrit values also fell within reported values (Kelley 2014), which suggests that the thrombocytopenia is noted due to enlarged platelets obscuring the actual thrombocyte count rather than lack of production or overconsumption.

Discussion: Emphysematous cholecystitis (EC) is an infection diagnosed on the basis of radiographic demonstration of air in the wall or lumen of the gallbladder or tissues adjacent to the gallbladder or in the

biliary ducts with the absence of an abnormal communication between the gastrointestinal tract and biliary tract (Sunnapwar et al. 2011). It is a rare disease in dogs, with *C. perfringens* and *E. coli* most often cultured from the region (Armstrong et al. 2000). The exact cause of the disease remains unknown in dogs, with clinical signs varying as well, albeit signs such as vomiting, lethargy, and abdominal tenderness have been reported (Armstrong et al. 2000). It is suggested that obstruction of the cystic duct may be a predisposing factor for disease development (Thrall 2013). Plain abdominal radiographs can diagnose EC alone, albeit ultrasonography and computed tomography can also provide more sensitive results. On abdominal radiographs, films should show a sphere-shaped gas opacity in the region corresponding to the gallbladder. On ultrasonography, gas in the gallbladder wall or lumen can cause hyperechoic echoes with reverberation (Armstrong et al. 2000).

In humans, EC has a high rate of mortality and is associated with a higher incidence of complications such as perforation and gangrene (Sunnapwar et al. 2011). Fears over rupture due to necrosis and weakening of the gall bladder encourage surgery to be performed immediately post-diagnosis. In both human and veterinary literature, patients have been medically treated with antibiotics successfully (Armstrong et al. 2000); however, due to fears over gallbladder rupture and abdominal contamination, immediate surgery is the preferable treatment.

Case Follow Up:

The patient was presented to surgery for consult and scheduled for cholecystectomy. Prognosis at this time was guarded as gas within the wall of the bladder had not been noted by the clinicians before, and there were concerns over the gallbladder wall being friable and potentially rupturing when handled during the procedure. She received vitamin K and a blood transfusion prior to surgery to help with her low red blood cell percentage. During surgery, it was determined that a gallbladder stone had caused an obstruction, and the stone and gallbladder were removed by standard cholecystectomy with a stent placed in the common bile duct for future patency. She also had an esophageal feeding tube and a urinary catheter placed at this time.

Works Cited

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