

**DATE PRESENTING CLINICAL SIGNS**

12/22/21

History: Pet presented for lethargy, vomiting, and decreased appetite of a few days' duration on 12/21/2021. Physical exam mild dehydration and painful abdomen. Supportive care of SQ fluids, Cerenia, and Famotidine started this PM.

PATIENT

Mack Gallagher

Current Medications: Supportive care of SQ fluids, Cerenia, and famotidine started this PM.

Lab Results: Bloodwork shows elevation of ALK P 931; ALT >5000; T. bili 5.5; WBC 21.8.

Date of Previous IntraPet Ultrasound: 10-9-2019.

Sedation: Not required for a full diagnostic ultrasound.

Stat Report: REQUESTED.

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**BREED**

Yorkie X

Urinary System

The urinary bladder is moderately distended with anechoic urine. There is mild mucosal irregularity diffusely in the urinary bladder wall. The area of the trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear to have a smooth mucosal surface and no mass effects visualized. There are at least 1-2 hyperechoic shadowing structures visualized in the dependent portion of the urinary bladder, most consistent with stones. These measure 0.75 cm. Correlate findings with radiographs to determine the number and size of stones present.

SEX

Neutered Male

AGE

10/31/09

The prostate is normal in size (0.6 cm) and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

WEIGHT

6.8 Pounds

The left kidney has a normal shape and size (3.76 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

INTERPRETED BY

Kathleen Sennello DVM,
MS, Diplomate ACVIM
(Small Animal Internal
Medicine)

The right kidney has a normal shape and size (3.82 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

IMAGING PERFORMED BY

Stephanie Pearce
RDMS, RVT

Adrenal Glands

The left adrenal gland is normal in size measuring 0.55 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

HOSPITAL NAME

Frederick Road VH

The right adrenal gland is normal in size measuring 0.50 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

REFERRING VET

Dr. Cannon

Spleen

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. There are occasional hyperechoic foci, the largest measuring 0.58 cm x 0.42 cm.

INVOICE

33624

Liver

The liver is large in size and normal in echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. No focal nodules or cystic lesions are observed. There is a large amount of hyperechoic mesentery surrounding the liver.

The gallbladder lumen is significantly distended. The wall of the gall bladder appears mildly/moderately thickened, measuring from 0.32-0.22 cm with a slightly irregular mucosal surface. Luminal contents are primarily anechoic, but there is some adherent debris present. The cystic and common bile ducts are not visible. There is some patchy inflammation around the gallbladder, but no free fluid.

Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Duodenum wall measured 0.4 cm. Jejunum wall measured 0.32, 0.28 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

There appears to be some hard shadowing stool within the large intestine, obscuring visibility in some areas. There is no observed generalized colon wall thickening or loss of layering.

Pancreas

The pancreas is large and hypoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is evidence of regional mesenteric inflammation. Consistent with mild to moderate pancreatitis.

Free Abdomen

There is a moderate amount of free abdominal fluid. No evidence of a mesenteric lymphadenopathy, but the omentum is generally hyperechoic, particularly in the cranial abdomen and the area of the liver and pancreas.

Other

A brief view of the heart was submitted. No significant pericardial effusion was seen.

PRIMARY FINDINGS

- Large, heterogeneous liver – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy. An inflammatory process is favored due to the surrounding inflammation present.
- Hyperechoic, distended gallbladder with mildly/moderately thickened gallbladder wall – An obvious cause for the gallbladder distention is not visualized, and the amount of debris within the lumen is not significant. However, the wall does appear thickened, and there is inflammation with a bilirubin elevation, so possible cholecystitis would have to be considered.
- Hypoechoic pancreas with surrounding hyperechoic mesentery – The pancreatic changes are most consistent with mild/moderate pancreatitis/pancreatic inflammation. Recommend fPLI testing and continued monitoring for improvement or possible development of a pancreatic abscess. Consider fine needle aspirate if not improving.
- Hyperechoic shadowing foci within the urinary bladder – Findings are consistent with cystic calculi. Recommend radiographs to further evaluate the size and number of stones present.

- Free fluid and large amount of inflammation in the cranial abdomen – Recommend obtaining fluid sample for fluid analysis, cytology +/- culture.

SECONDARY FINDINGS

- Hyperechoic foci within the spleen – The appearance of these foci favors a benign process, but underlying neoplasia cannot be excluded as a possibility.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

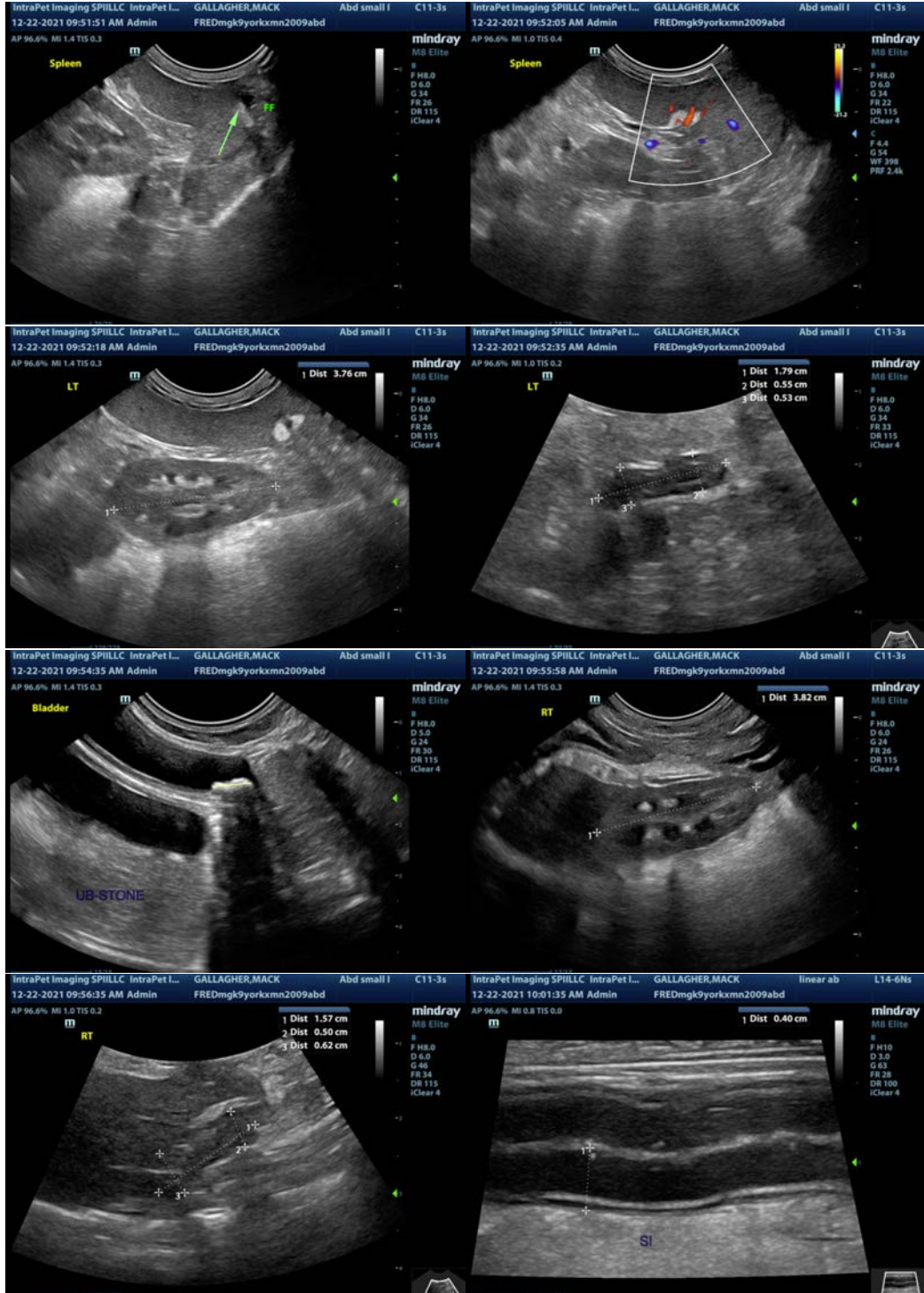
There is severe inflammation within the cranial abdomen along with some free abdominal fluid. Given the bloodwork findings, gallbladder disease would be a primary concern, and the gallbladder is distended with a thickened wall, but there is no free fluid directly around the gallbladder, so it is questionable if this is the primary source or concurrent finding. The liver is heterogeneous, which could be consistent with cholangiohepatitis, and the pancreas is prominent. All of these factors are likely contributing, but it is difficult to know what the initiating factor is. Typically, with severe gallbladder disease, I am accustomed to seeing more debris within the gallbladder, but this could be an atypical presentation.

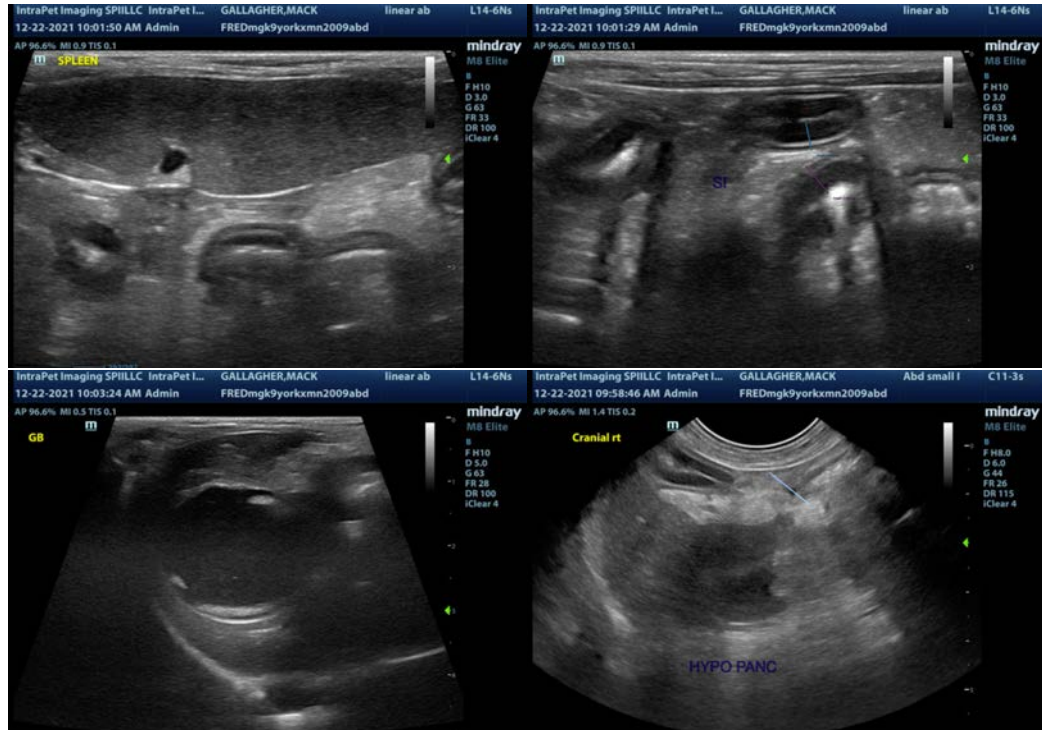
Recommend fluid analysis and cytology +/- culture to rule out a bile peritonitis. Options moving forward include:

- A more conservative approach, which would be medical management for pancreatitis and cholangiohepatitis with broad-spectrum antibiotics, pain medication, nausea medication, Denamarin +/- Ursodiol, and close monitoring of liver values and fluid analysis to rule out a bile peritonitis.
- More aggressive intervention would include either advanced imaging of the abdomen or exploratory surgery to further evaluate the gallbladder to try to rule out the possibility of rupture, advanced disease, need for removal, etc. The liver should be biopsied and the pancreas evaluated at this time as well.

This patient needs to be monitored very closely for progression of illness and the possible need for emergency surgery. Additionally, consider screening for Leptospirosis.







The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

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