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Clinical Sonography & Telecytology
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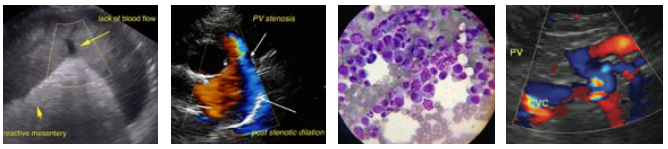

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Zoe Murray

SPECIES
Canine

BREED
Cavalier Spaniel

SEX
Spayed Female

AGE
7 years

WEIGHT
13.2 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Cassidy Braverman

HOSPITAL NAME
Bush AH

REFERRING VET
Dr. Newman

INVOICE
30363

DATE
5/12/22

PRESENTING CLINICAL SIGNS

History: intermittent diarrhea/ vomiting over the last 2 years every 2-3 months. Has had pancreatitis multiple times, although cpl wnl now. Presented this week for lethargy, anorexia. Weight loss over last year. Concerned about cause of weight loss, low alb
Lab 1.9, was 2.4 in Aug (2.7 low norm), glob low at 4.3 rest wnl including cpl no protien in u/a

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is not fully distended. Its contents are anechoic. The wall is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 4.23 cm. The capsule is smooth. A thick hyperechoic band is observed along the medulla, traversing parallel to the corticomedullary junction, which accentuates the definition of the cortico-medullary junction. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. Blood flow is within normal limits. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 4.50 cm. Findings are similar to the left kidney, however, the surrounding mesentery is mildly to moderately hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.42 cm at the cranial pole, 0.43 cm at the caudal pole and 1.40 cm in length. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.41 cm at the cranial pole, 0.49 cm at the caudal pole, and 1.26 cm in length. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

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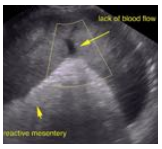
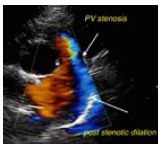
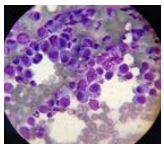
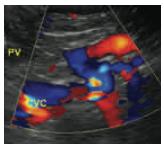

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Liver

There are no obvious signs of hepatomegaly. The liver's borders are smooth and sharp. A diffuse, mildly coarse or granular echotexture is observed. It is very mildly hyperechoic, but remains within normal limits with regard to echogenicity, i.e., it is hypoechoic to the spleen. Portal markings are prominent. No obvious abnormalities are noted with the hepatic vessels. The mesentery surrounding the liver is hyperechoic.

The gallbladder (GB) wall is mildly thicker than usual (1.3 mm) and mildly hyperechoic. A small amount of echogenic material is present within the GB. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous, i.e. there are no signs of an obstruction.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. Subjectively, the submucosa is thicker than usual. No obvious abnormalities are observed with its peristalsis. The mesentery medial to the stomach is moderately to severely hyperechoic. A foreign body is not evident.

A moderate amount of granular ingesta, fluid and gas are present within the duodenum peristalsis appears mildly decreased, i.e. to and fro motion is observed. The duodenum is within normal limits in thickness and the definition of wall layers is preserved. The mesentery surrounding the GI tract is hyperechoic.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved, however, fogging of the mucosa of the jejunum is observed. A moderate amount of granular ingesta, fluid and gas are present within the lumen of the jejunum. Decreased peristalsis is noted, i.e., a to and fro motion is observed. Abnormally dilated loops of bowel are not observed.

The colonic wall is not thickened and mural detail is considered normal.

The mesentery surrounding the intestinal tract throughout the entire abdomen is moderately to markedly hyperechoic. This is suggestive of steatitis.

Pancreas

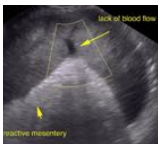
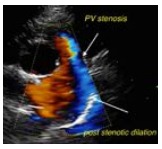
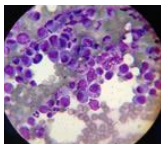
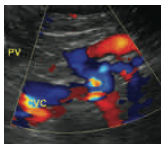
The left limb is of mixed echogenicity, i.e., a portion is mildly to moderately hypoechoic, while another region has a mildly coarse echotexture. These changes are suggestive of mild edema and fibrosis, most likely due to previous episodes of pancreatitis. The surrounding mesentery is hyperechoic. A smoldering pancreatitis cannot be excluded. Signs of neoplasia are not appreciated.

An in-depth evaluation of the right limb is not possible due to the large amount of gas in the surrounding gastrointestinal tract.

Other

Lymph nodes

No abnormalities are observed

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Abdominal effusion A very small amount of anechoic fluid is visualized mid-abdomen, amongst the intestines.

ULTRASONOGRAPHIC FINDINGS

- A mild vacuolar hepatopathy due to chronic illness (chronic vomiting) could be the cause of the mild, diffuse hyperechogenicity of the **liver**, however, cholestasis, and suppurative cholangitis/cholangiohepatitis are also possible.
- **Gallbladder sludge with mild thickening of gallbladder wall**; cholecystitis cannot be excluded. Some dogs may show clinical signs of gastroesophageal reflux disease (GERD), therefore, obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor or ursodeoxycholic acid may be required depending on the patient's history.
- The **left limb of the pancreas** show changes consistent with mild edema and fibrosis, most likely due to previous episodes of pancreatitis. However, the surrounding mesentery is hyperechoic. Therefore, a smoldering pancreatitis cannot be excluded, despite the spec cPL within the normal reference range. Signs of neoplasia are not appreciated.
- The **gastrointestinal** abnormalities are subtle and somewhat subjective. They may be caused by chronic vomiting, however, underlying inflammation, such as inflammatory bowel disease, including a food intolerance, cannot be excluded. Infiltrative disease, such as lymphoma or other round cell tumour, is considered unlikely, however, biopsies are required to exclude neoplasia with certainty. A protein losing enteropathy, including lymphangiectasia, is suspected, given the scant amount of ascites observed.
- The **mesentery** surrounding the intestinal tract throughout the entire abdomen is moderately to markedly hyperechoic. This is suggestive of steatitis.
- **Renal changes** are suggestive of age related degeneration, however a component of the changes may be due to previous episodes of inflammation, ischemia and fibrosis. Pyelonephritis cannot be excluded.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following is suggested to exclude underlying gastrointestinal and pancreatic diseases

- Deworming, (e.g., fenbendazole), even if receiving monthly heartworm prevention.
- Diet trial (veterinary prescription low fat, hypoallergenic, hydrolyzed or novel protein) due to history of pancreatitis, for example, Purina HA. Royal Canin Hypo HP possible, but is higher in fat. Low fat, hypoallergenic diets also available through Rayne.
- Obtain a history regarding signs of GERD
- If signs of GERD, 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO q12h)
- serum cobalamin, folate, TLI to exclude underlying EPI as cause of weight loss, particularly due to previous episodes of pancreatitis.
- Endoscopy and biopsies of the upper and lower GI tract diet, if no response to deworming, diet trials and other suggestions, above
- Empirical treatment with corticosteroids (1 mg/kg/day) possible, IF further diagnostics are not pursued, *following* administration of above treatments

A urine culture and sensitivity may be considered to exclude possible pyelonephritis.

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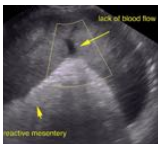
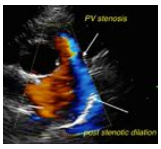
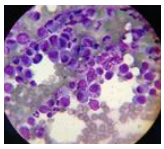
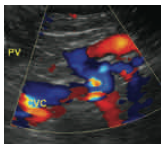

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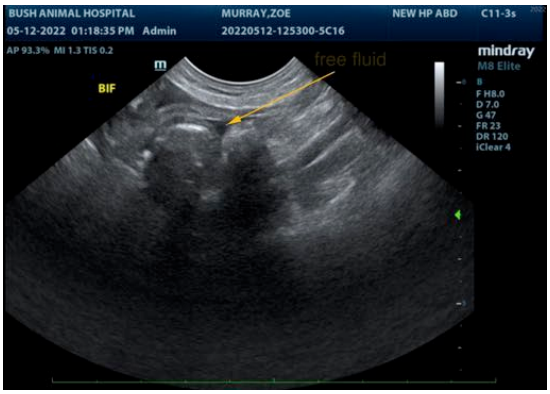

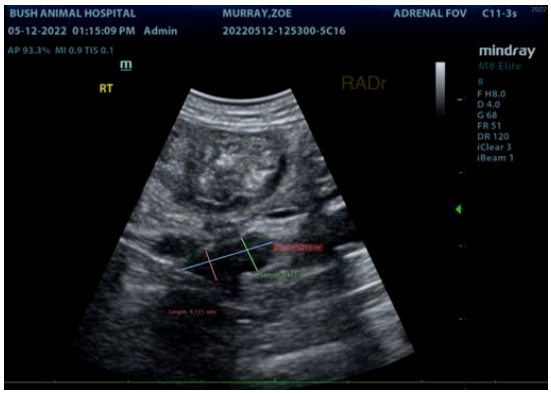

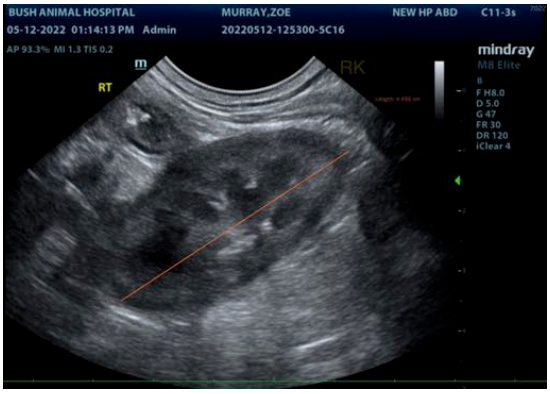

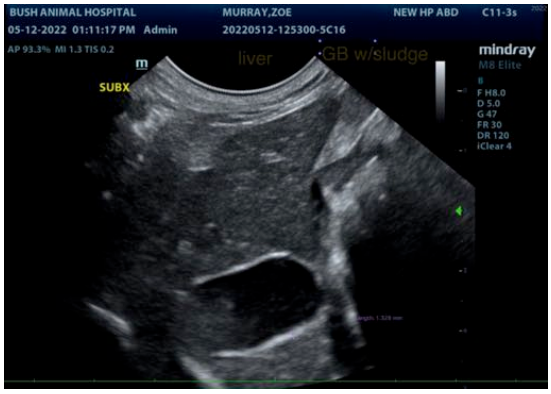

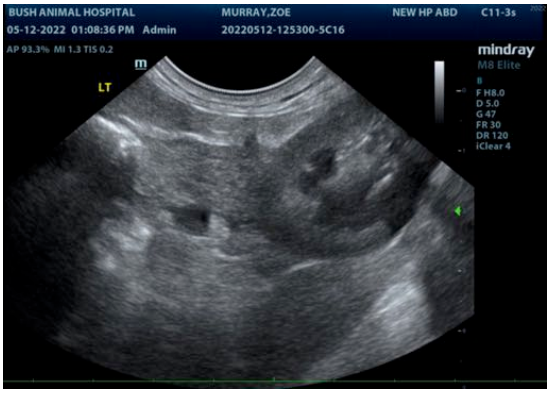

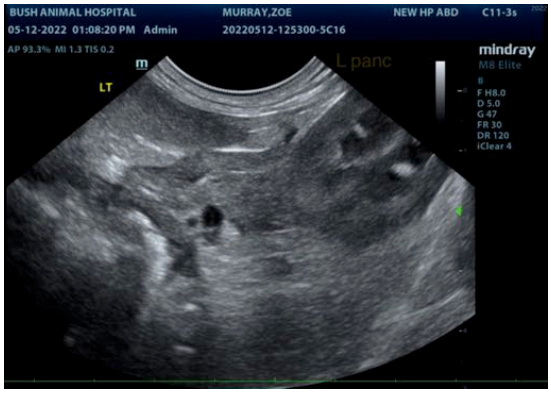

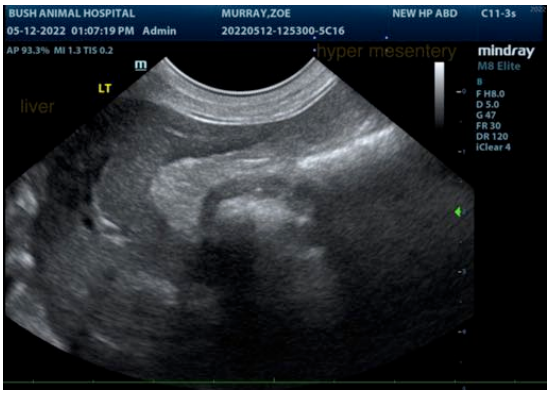

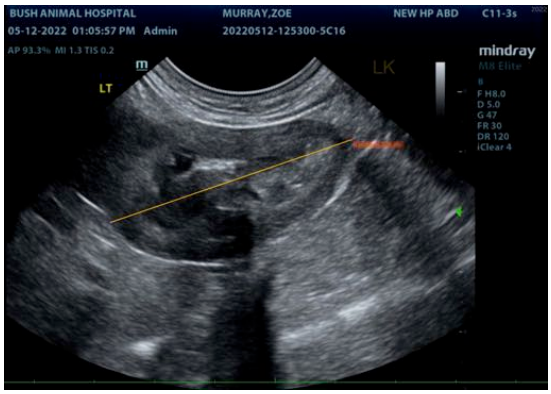

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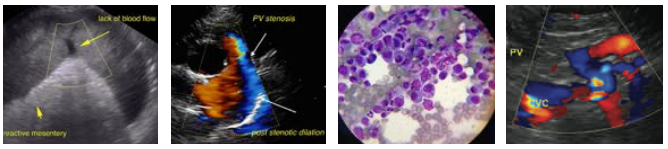

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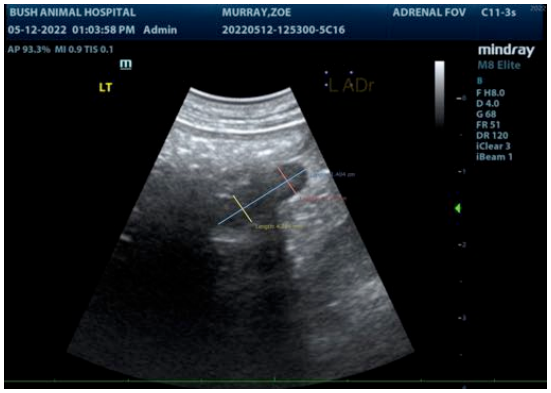

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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