IMAGING PERFORMED BY

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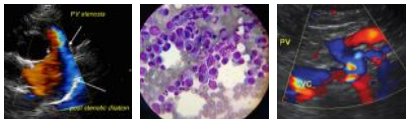

SonoPath
Clinical Sonography & Telecytology
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DATE

4/10/23

PATIENT

Raven Bohnenberg

SPECIES

Feline

BREED

DSH

SEX

Spayed Female

AGE

9/1/13

WEIGHT

12.5 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

HOSPITAL NAME

Animal Emergency Hospital

REFERRING VET

Dr. Kalwa

INVOICE

21931

PRESENTING CLINICAL SIGNS

History: Went To Abby Animal Hospital 4pm yesterday. Dr. Travis Kuhlman Recommended Visiting Due To Raven's Liver Issues. Hepoticlypo-something. O is bloodwork. She is lethargic, not eating or drinking at all today. Last ate some treats and drank yesterday at 6 pm. Lost weight Not eating, not drinking- today 4/6/23 rDVM Chem 17, PE, SQ fluids, Cerenia injection bloodwork - Chem 17 -Glucose 104 - BUN/CREA wnl - TP, Alb, Glob wnl - ALT 434; ALKP 152, GGT 20; Tbili 11.2 - Chol High 255, - Amylase/ lipase wnl ATO: -Adopted from the SPCA ~8 hours ago- was 1.5 years old, FELV/FIV negative - Hx of occasional vomiting- thought diet related- if gets certain types of food/ cheese - Fine up until last week - Last week started vomiting, yowling, vomiting most days throughout the week – Decreased eating- now not eating, drank a little yesterday - indoor only - No new animals - No toxins ingstion - Noticed P yellow on wednesday - Thursday went to rDVM discussed guarded prognosis discussed fluids at rDVM vs at AEH- Mrs on disability tried out patient but it didnt work- Mrs wanted to get her looked at at least - Mrs considering peaceful passage- Does not want in hospital euthanasia - Lost weight very light

Current Medications: Ondansetron, Gabapentin, Buprenorphine, Metronidazole, Mirtazapine, Amoxicillin, Denamarin, Cerenia.
Lab Results: See attached.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Rachel Brilhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately distended with anechoic contents. No masses or inflammatory changes are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface. A 0.46 cm cystolith is noted along the dependent wall.

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. There is no evidence of infarcts observed. The left kidney measured 3.85 cm. The right kidney measured 4.4 cm. Mild bilateral pyelectasia is present, as are nonobstructive punctate nephroliths.

Adrenal Glands

Left adrenal gland is normal in size (0.49 cm), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

Right adrenal gland is normal in size (0.49 cm), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

Spleen

Spleen is subjectively large in size with subtly scalloped or undulating capsular contour. Parenchyma is normal in echogenicity with a mildly coarse/heterogenous echotexture. No focal nodules or masses are observed. Splenic vasculature appears normal.

Liver

Liver is subjectively enlarged (swollen contour). Mild parenchymal remodeling with diffusely mildly coarse architecture and increased portal markings is present. No focal nodules or masses are observed. Visible vasculature and biliary tree appear normal without distension or congestion.
Gallbladder is moderately distended with anechoic bile as well as suspended and gravity dependent echogenic debris. The wall is smooth without visible thickening. The cystic and common bile duct are dilated, measuring 0.6 cm dilated, ending at an echogenic density at the duodenal papilla, that may represent a mucus plug or debris or tissue such as a nodule cannot be definitively ruled out.

Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

The visible small intestine demonstrates areas of thick muscularis layer relative to mucosa (disruption of the normal 1:3 muscularis:mucosa ratio). Small intestinal submucosa is slightly irregular, thick and hyperechoic, without evident loss of layering appreciated. The lumen of the small intestine is empty with no evidence of obstruction or foreign material.

The visible colon is normal in wall thickness and layering. Contents are consistent with normal formed feces and gas.

Pancreas

Pancreas is prominent in size with swollen irregular contour. Parenchyma is heterogenous characterized by hyperechoic tissue remodeling intermixed with ill-defined hypoechoic nodules. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen

There is no evidence of peritoneal effusion. There is no apparent lymphadenopathy.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Hypoechoic hepatomegaly-This appearance is consistent with an acute hepatopathy or acute cholangiohepatitis. Infiltrative neoplasia (round cell neoplasia) should also be considered.
- Gallbladder debris combined with the dilated cystic and common bile duct and suspected mucus plug at the level of the duodenal papilla are all consistent with cholangitis/cholangiohepatitis and at least a partial posthepatic cholestasis. A nodule at the level of the duodenal papilla vs debris is possible but considered less likely.
- Inflammatory bowel disease (IBD) pattern – Thick muscularis has been reported with infiltrative bowel disease including both benign inflammatory disease as well as infiltrative neoplasia such as lymphoma. No aggressive lymphadenopathy, loss of layering, etc. is noted to make lymphoma more probable, but lymphoma cannot be definitively ruled out without tissue sampling.
- Pancreatic nodular hyperplasia – Infiltrative neoplasia cannot be ruled out but is considered less likely. Low grade, smoldering chronic pancreatitis cannot be ruled out and should be suspected in the face of appropriate clinical signs.

Secondary Findings

- A urinary bladder cystolith

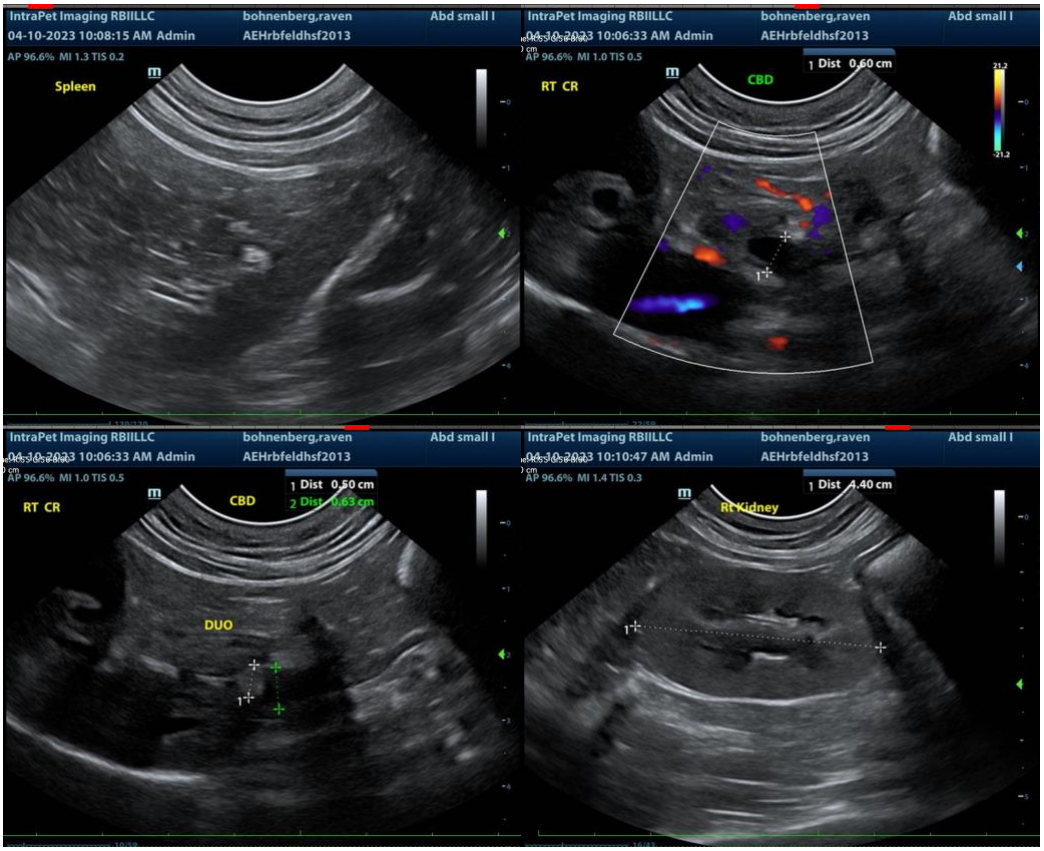
- Age-related kidney changes with mild bilateral pyelectasia and nonobstructive bilateral punctate nephroliths- Differentials for pyelectasia include pyelonephritis, diuresis, congenital malformation or ureteral or lower urinary tract obstruction.

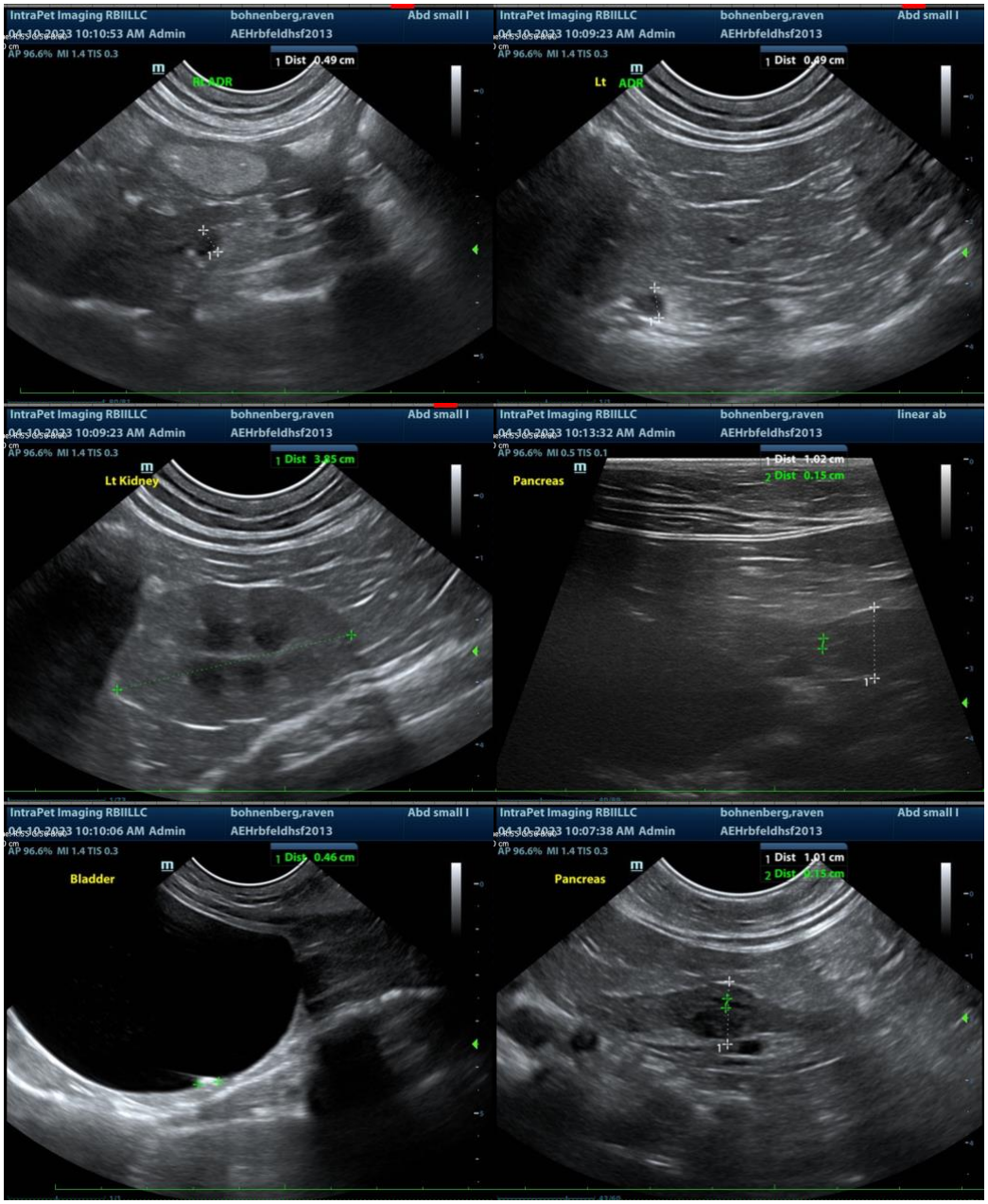
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The pathology described above is most consistent with cholangiohepatitis, possibly chronic active pancreatitis and concurrent infiltrative/inflammatory bowel disease or "triaditis". An infiltrative neoplastic disease, such as lymphoma affecting the bowel, liver, spleen, etc., is possible but considered less likely.

Further investigation to help rule out lymphoma could be performed in the form of fine needle aspirates of the liver, +/- the spleen, if patients coagulation status is appropriate, and/or, ultimately, biopsies of the gastrointestinal tract. However, in the meantime, a gastrointestinal malabsorption panel (including cobalamin, folate, TLI and PLI) to Texas A&M GI Laboratory is recommended for further evaluation of GI and pancreatic function. If not recently evaluated, Urinalysis and, if indicated based on urinalysis results, urine culture is recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

While awaiting pending results, treatment recommendations include fluid therapy, anti-emetics, gastroprotectants, hepatic nutraceuticals such as ursodiol and/or Denamarin, and broad-spectrum antibiotics. Nutritional support is critical to prevent/manage concurrent hepatic lipidosis, so appetite stimulants and/or, if indicated, feeding tube placement is also recommended.

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bohnenberg,raven
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Dist 0.49 cm
Rt ADR
IntraPet Imaging RBIILLC
bohnenberg,raven
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bohnenberg,raven
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Pancreas
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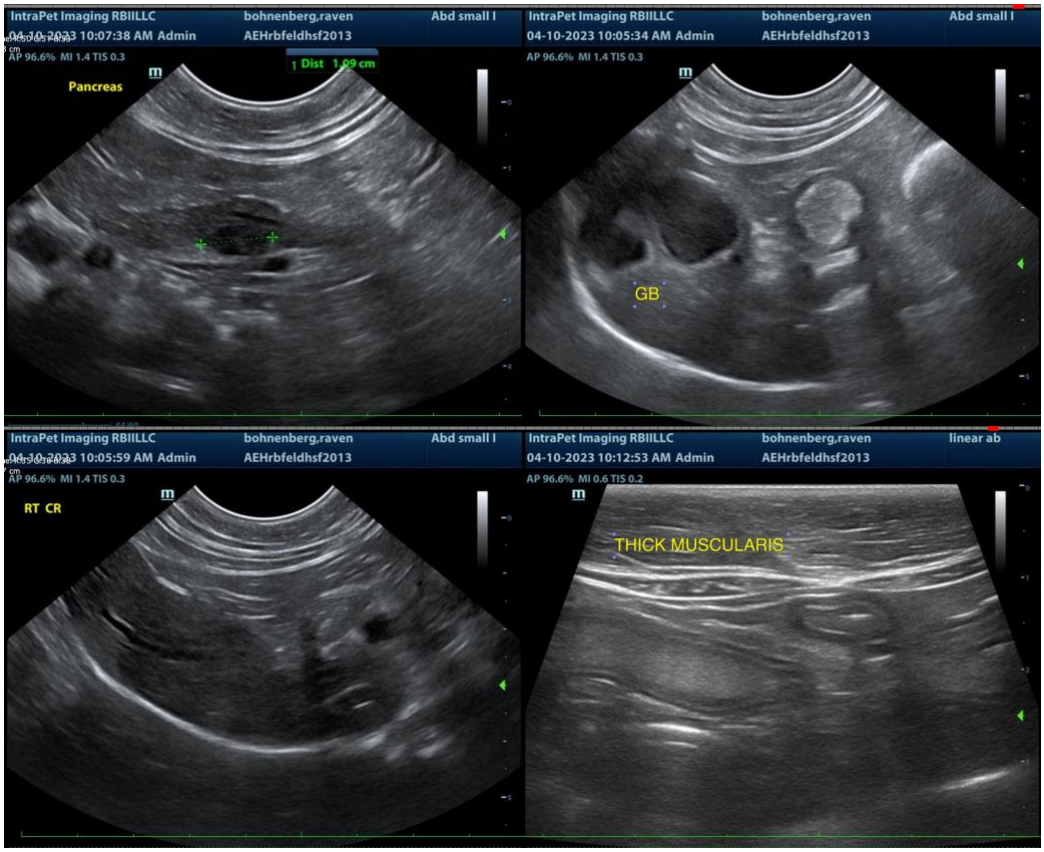
Pancreas



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.

Beth Johnson, DVM DACVIM
Beth.Johnson@SonoPath.com