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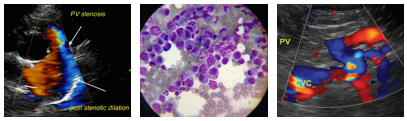

SonoPath

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**DATE**

3/16/22

**PATIENT**

Tom Tom Black

**SPECIES**

Feline

**BREED**

DSH

**SEX**

Neutered Male

**AGE**

12/10/08

**WEIGHT**

10.2 Pounds

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Rachel Brilhart RDMS

**HOSPITAL NAME**

Frederick Road VH

**REFERRING VET**

Dr. Franchini

**INVOICE**

36232

## PRESENTING CLINICAL SIGNS

Presented 10/2021 for not eating well, weight loss and vomiting. Owner is worried about his thyroid at this time due to his weight loss and increased appetite. BW revealed elevated WBCs. No thyroid profile in house. Treated with abx, cerenia and fluids with planned thyroid check when better. Thyroid blood panel one week later revealed elevated T4 and Free T4 with mild elevation of ALKP. Started on methimazole with recheck Thyroid recommended in 2-3 weeks. Owner returned on 2/8 for recheck and Free T4 still a bit elevated but all liver enzymes increased
significantly. Increased methimazole dose with recheck BW on 2/28. Thyroid now normal. Liver enzymes improved but still elevated. Owner reports pet seems restless and agitated. No more vomiting noted.

Current Medications: Methimazole 5mg BID increased from 2.5mg BID on 2/10/22.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

## ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

### *Urinary System*

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

The left kidney has a normal shape and size (3.95 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.

The right kidney has a normal shape and size (4.29 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.

### *Adrenal Glands*

The region of left adrenal (Cranial to left renal artery) is unremarkable but the adrenal is not distinctly visualized. No evidence of a mass effect.

The region of the right adrenal (between right cranial kidney and vena cava) is unremarkable, but the adrenal is not distinctly visualized. No evidence of a mass effect.

### *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. No focal parenchymal abnormalities are visualized.

### *Liver*

The liver is subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is mildly heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are primarily anechoic. The bile duct is prominent and mildly dilated at 0.24 cm. It followed a tortuous path. No obvious obstruction is visualized.

### *Gastrointestinal*

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.36cm 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 uniform diameter with minimal fluid distension. Wall thickness is normal to slightly increased. Bowel loops follow a typical curvilinear path with distinct wall layering, but some areas display a prominent muscularis layer which does not display the typical 1:3 muscularis:mucosa layer ratio. Jejunum wall measured 0.26 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

### *Pancreas*

The pancreas is prominent and hypoechoic as compared to the surrounding isoechoic mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

### *Free Abdomen*

Evaluation of the peritoneal cavity did not reveal any evidence of effusion. There are occasional prominent mesenteric lymph nodes. There is a small cluster near the ileocecal junction measuring 0.33 cm and 0.44 cm. The mesentery is generally of normal echogenicity.

## ULTRASONOGRAPHIC FINDINGS

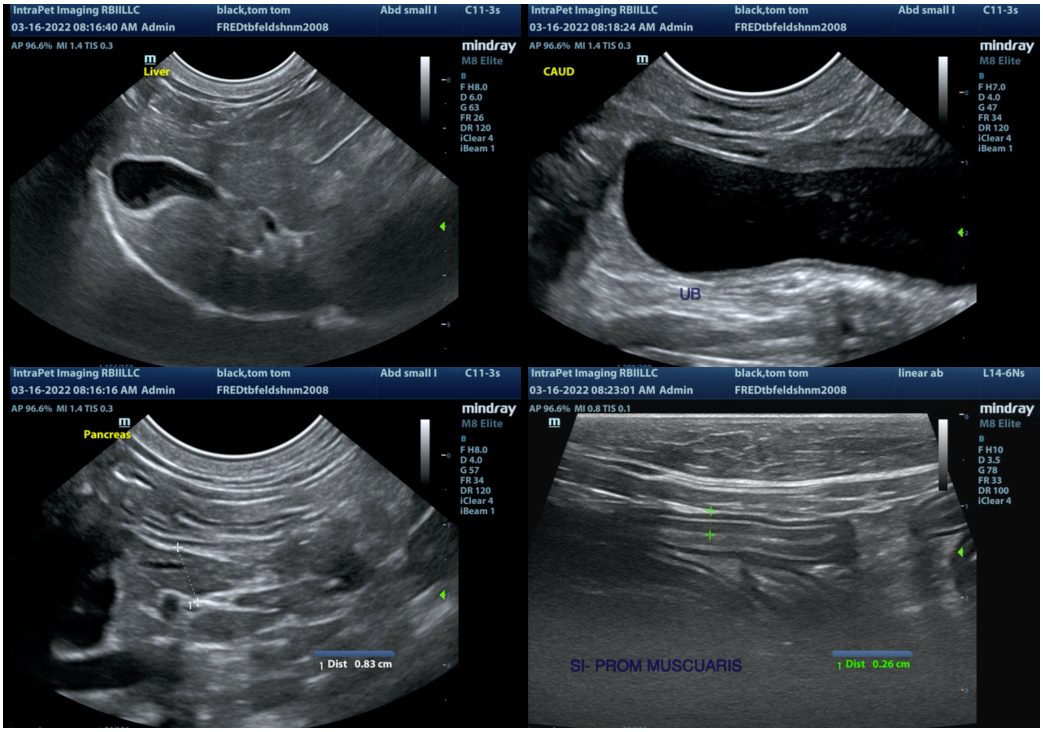
- Hypoechoic, prominent pancreas – The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation.
- Mildly heterogeneous liver – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.
- Mildly dilated, tortuous common bile duct – Dilation of the common bile duct could be consistent with a functional obstruction (i.e. primary hepatic disease resulting in hepatocellular swelling) or with an extrahepatic bile duct obstruction (ie. choledocholith, bile duct tumor, pancreatic disease, other).
- Prominent muscularis layer to the small intestine – The small intestinal wall changes are most consistent with an inflammatory process (i.e., inflammatory bowel disease) with a low possibility of emerging lymphoma.
- Prominent mesenteric lymph nodes – The prominent abdominal lymph nodes are most consistent with reactive lymphadenitis or lymphoid hyperplasia. Neoplastic infiltration is considered less likely.

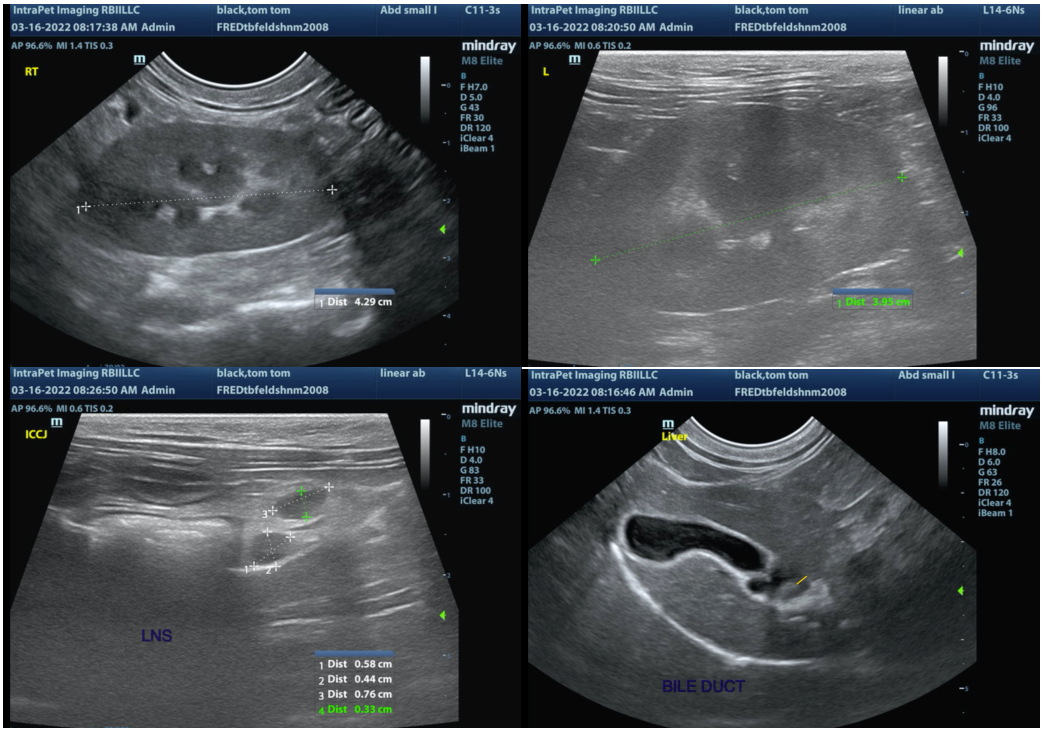
## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No focal lesions are visualized associated with the liver. The bile duct is somewhat dilated and tortuous, but there is no material or debris within the gallbladder, and an obstruction is not visualized (although cannot be completely ruled out). Findings are most consistent with a primary hepatopathy, although monitoring of the bile duct is recommended.

The changes observed in the liver are relatively mild and could be associated with age related change. This can be challenging, as hyperthyroidism can cause liver enzyme elevations, but unfortunately Methimazole can also cause liver enzyme elevations. I do not know if Methimazole is the cause, or some other process. Options to try to figure this out would include:

- Consider lowering Methimazole dose and see if liver values improve. Unfortunately, this can worsen the hyperthyroidism and cause liver enzyme elevations due to this, so it can be difficult to differentiate.
- Consider an alternative treatment for hyperthyroidism such as radioactive iodine. I would recommend a liver function test and possibly a fine needle aspirate of the liver prior to considering this.
- If liver enzyme elevations continue to rise, and liver function is abnormal, consider liver biopsies to further evaluate.
- Additionally, there is a prominent muscularis layer and some mildly prominent mesenteric lymph nodes. If surgery is pursued for a liver biopsy, then recommend biopsies of the GI tract and lymph nodes as well.
- Consider three view thoracic radiographs to rule out concurrent thoracic disease/involvement.






**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.

Kathleen Sennello DVM,MS, Diplomate ACVIM (Small animal Internal Medicine)
kathleen.sennello@sonopath.com