

**DATE PRESENTING CLINICAL SIGNS**

11/1/22

Teddy has been losing weight and is PU/PD. He was diagnosed on 10/18 with diabetes but did not get started on insulin right away because the owners were going on a trip. He vomited on Friday, was lethargic and had a decreased appetite and was diagnosed at the emergency clinic with a mild case of DKA. Bloodwork showed liver values that were a lot more elevated than on the 18th and low potassium and chloride values. A urine culture had also been performed on 10/18 and showed a mild growth of E.coli and Proteus mirabilis.

PATIENT

Teddy Komoroski

SPECIES

Feline

Current Medications: Started on lantus insulin 1 unit bid, given cerenia 6mg sid, 12.5mg marbofloxacin sid and supplemented with K+.

Lab Results: 10/18/22: AST=80, ALKP=91, GLU=442, K=4.0

10/28/22: ALT=842, ALKP=239, GLU=239 (no insulin on board), K=2.7, Cl=101

Date of Previous IntraPet Ultrasound: No previous.

BREED

DSH

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

SEX

Neutered Male

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System**

Urinary bladder is adequately distended. It has a normal uniform wall thickness. Contents include primarily anechoic fluid with occasional echogenic non-shadowing debris, most consistent with incidental suspended lipid in a cat, possibly combined with exfoliated cells, mucous and/or small blood clots. Both sterile inflammation as well as urinary tract infection can also present with echogenic debris. No masses or cystoliths are observed. The trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

AGE

5/1/07

WEIGHT

9 lb 10 oz

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 pyelectasia, mineral or infarcts observed. The left kidney measures 4.01 cm. The right kidney measures 4.39 cm.

INTERPRETED BYBeth Johnson, DVM
DACVIM**Adrenal Glands**

The right adrenal gland is normal in size (0.57 cm), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

IMAGING PERFORMED BY

Rachel Brillhart RDMS

The left adrenal gland is normal in size (0.52 cm), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

HOSPITAL NAMECat Sense Feline
Hospital**Spleen**

The spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). No focal nodules or masses are observed. Splenic vasculature appears normal.

REFERRING VET

Dr. Sinclair

Liver

Liver is subjectively enlarged (swollen contour) without disruption of architecture. It has a normal homogenous echotexture. Parenchyma is diffusely hyperechoic characterized by less prominent than normal portal vein walls and increased echogenicity relative to the spleen and falciform fat. An approximately 1.0 cm discrete hyperechoic nodule is noted near the gallbladder, as well as a second 0.50 cm hypoechoic nodule close by, both in the mid liver. Additionally, there is an approximately 0.50 cm anechoic nodule/cyst in the caudal right liver. Visible vasculature and biliary tree appear normal without distension or congestion.

INVOICE

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The gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.

Gastrointestinal

The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) 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 is empty with no evidence of obstruction or foreign material.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

Pancreas

The observed pancreas appears appropriately isoechoic to surrounding omental fat. The capsule is mildly irregular in shape. Parenchyma is mildly heterogenous and coarse. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen

There is no evidence of free peritoneal effusion noted in these images.

There is no apparent lymphadenopathy noted in these images.

PRIMARY FINDINGS

- **Hyperechoic hepatomegaly** – This appearance is most consistent with benign hepatic lipidosis. Infiltrative disease such as amyloidosis or round cell neoplasia, such as mast cell tumor or less likely, lymphoma, is also possible.
- **Liver cyst as well as both a hyperechoic and a hypoechoic nodule** – The nodules trend in appearance towards the benign. Differentials include nodular hyperplasia, fibrosis of an old hematoma, granuloma, myelolipoma, even a benign biliary cystadenoma in a senior cat. While considered less likely, infiltrative hepatic neoplasia or round cell neoplasia, or even metastatic disease can mimic benign lesions and cannot be definitively ruled out.
- **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.

SECONDARY FINDINGS

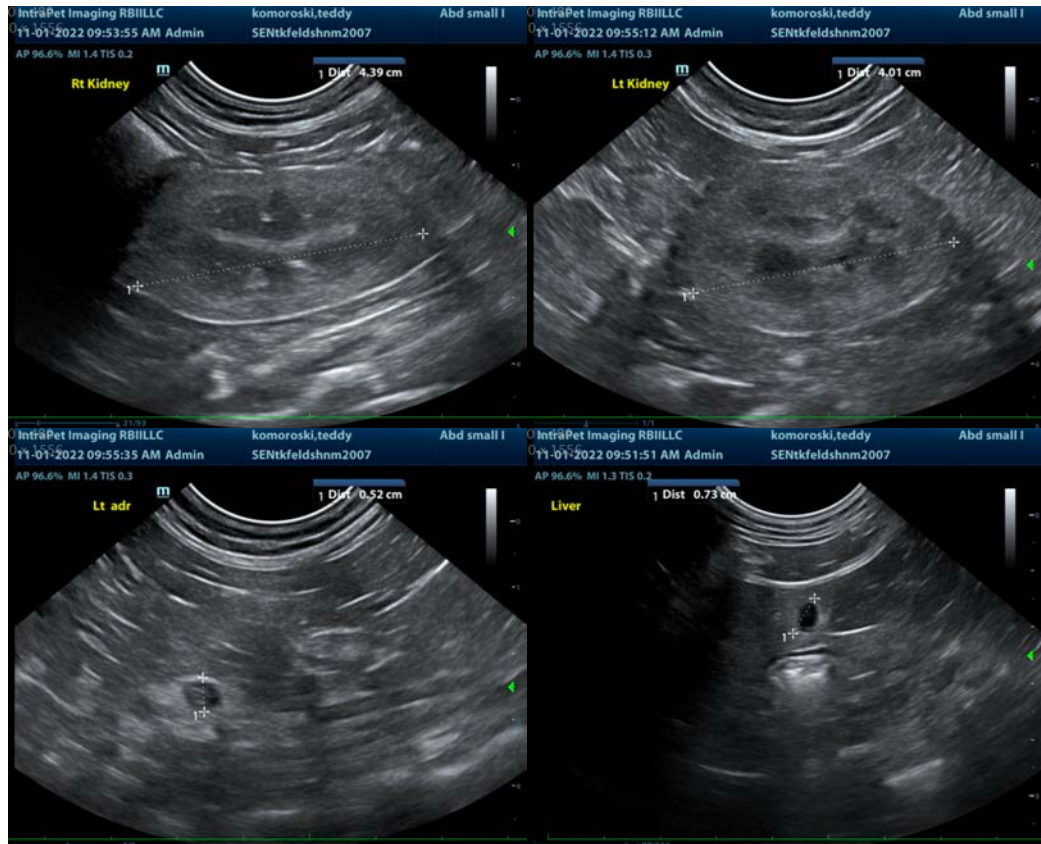
- Urinary bladder debris
- **Pancreatic age-related remodeling** – Mild irregularities are consistent with benign age-related change. Low-grade smoldering chronic pancreatitis cannot be ruled out and should be suspected in the face of appropriate clinical signs.
- Age related kidney changes

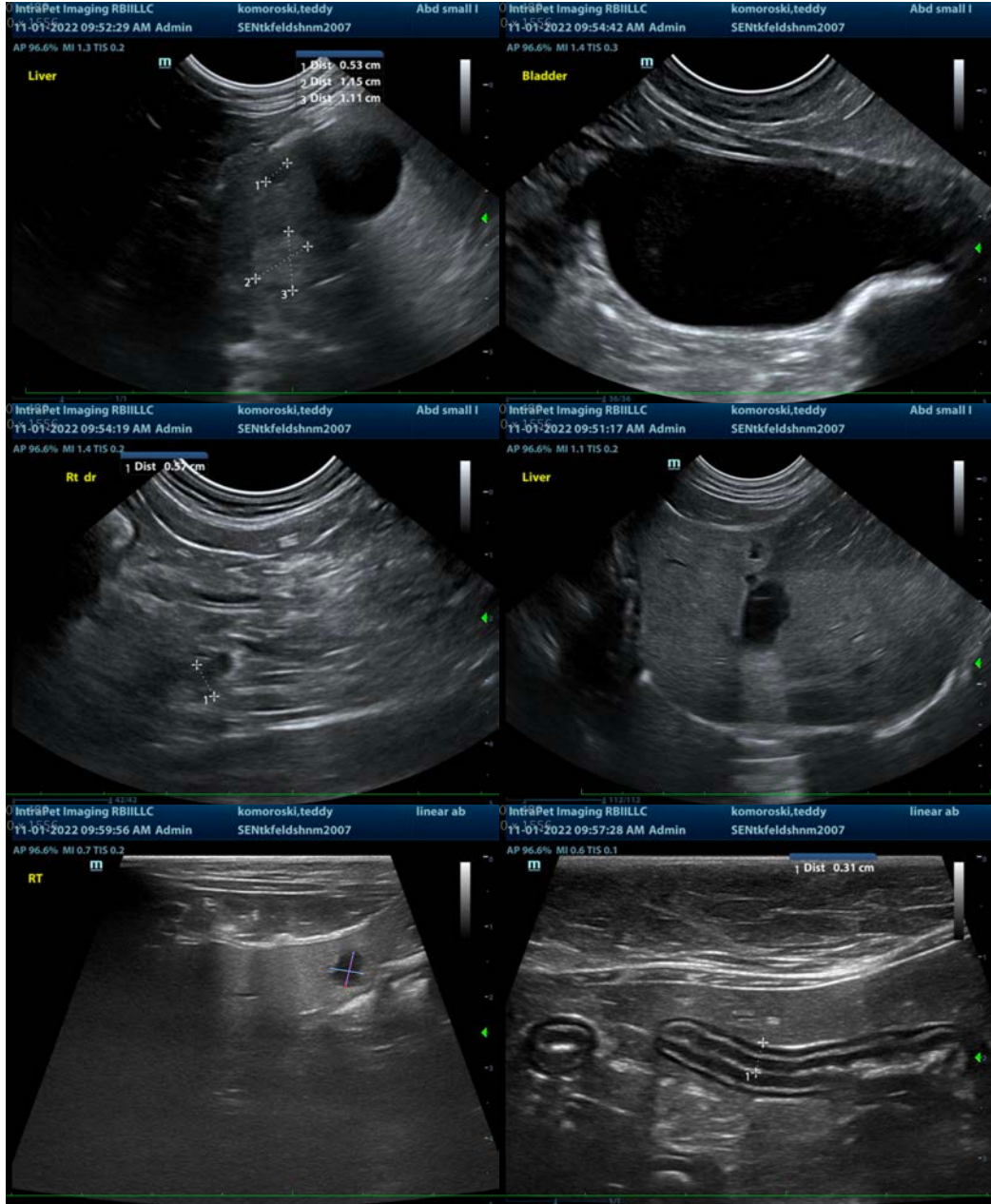
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

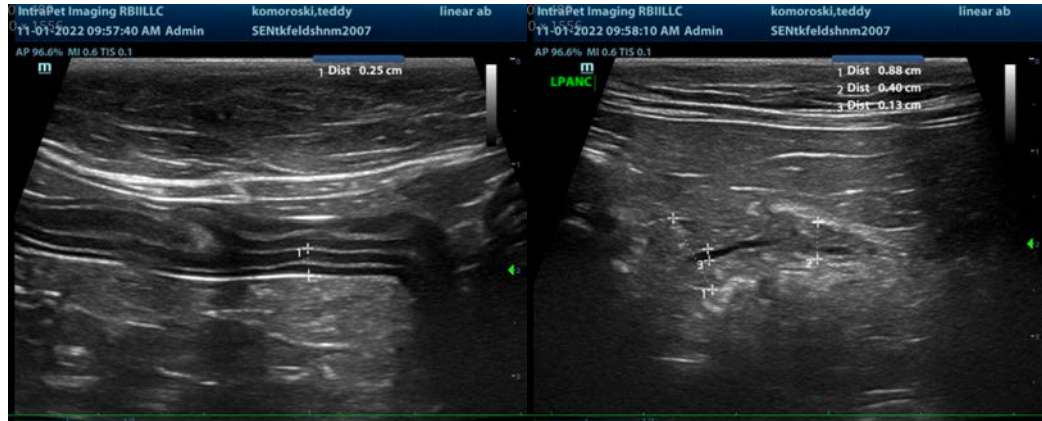
Further diagnostic recommendations for this patient include:

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.

A fine needle aspirate of the liver could be considered if patient's coagulation status is appropriate. Ultimately, however, this patient's clinical signs are likely the result of unregulated diabetes and a secondary urinary tract infection. Therefore recommendations include immediate supportive of hydration status, the ketoacidosis, the electrolytes abnormalities, etc., as well as broad-spectrum antibiotics based on culture and sensitivity results, followed ultimately by insulin therapy at home and monitoring for improvement versus progression.







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.

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