



PATIENT

Dennis Kloss

SPECIES

Feline

BREED

DSH

SEX

Neutered Male

AGE

3 Years

WEIGHT

18.5

INTERPRETED BY

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

IMAGING PERFORMED BY

Jessica Green

HOSPITAL NAME

Stanglein Vet Clinic

REFERRING VET

Dr. Erin Rothrock

INVOICE

44520

DATE

1/26/23

PRESENTING CLINICAL SIGNS

P has a weeklong history of decreased appetite, and slightly jaundiced skin. Liver enzymes were mild to moderately elevated. Rads unremarkable. Current meds: Cerenia, NaCl with Kcl IV, Metronidazole, Ampicillin, Denamarin, Prednisolone, Mirataz ointment.

Abnormal PE/Chem/CBC/UA Results: 1/26/23 ALT 187, ALKP 316, TBIL 6.3, conj bili 4.0, unconj bili 2.3, Ca 7.7, BUN 11, K 3.0... 1/23/23 ALKP 272, ALT 372, BUN 6, Chol 31, Crea 0.6, Na 166, Tbil 5.4.. Rads unremarkable.

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.

Kidneys are large in size with increased cortical echogenicity. Normal smooth peripheral margination and shape are maintained. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. A hyperechoic band parallel to the corticomedullary border is present in both kidneys. There is no evidence of pyelectasia, mineral or infarcts observed. The right kidney measures 5.57 cm. The left kidney measured 5.7 cm.

Adrenal Glands

The right adrenal gland is normal in size (1.74 cm long x 0.38 cm thick), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

The left adrenal gland is normal in size (1.9 cm long x 0.36 cm thick), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

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.

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. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

The gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. The cystic duct is tortuous in appearance and mildly dilated, measuring 0.65 cm dilated, but can't be traced to the end of dilation in these images. There is not a significant visible presence of multiple dilated tubes within the liver to indicate significant post-hepatic cholestasis, but that can't be ruled out.



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Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is mildly distended with echogenic non-shadowing luminal contents and gas consistent with normal ingesta. There is no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

The visible small intestines are normal in wall thickness and layering. Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is mildly distended with echogenic non-shadowing luminal contents and gas consistent with normal ingesta. There is no evidence of obstruction, foreign material or infiltrative disease. The proximal small bowel appears mildly hyperperistaltic.

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

Pancreas

The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. 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

- **Feline renomegaly** – These renal changes can be seen with glomerular or interstitial nephritis, FIP, amyloidosis, acute tubular necrosis or infiltrative neoplasia such as lymphoma. Normal variant due to fat deposition cannot be ruled out but is less common in an enlarged kidney.
- **Bilateral medullary rim sign** - This finding is of unknown clinical significance and can be a normal variant, often idiopathic. Medullary rim sign can be present with renal disease including FIP, lymphoma, hypercalcemic nephropathy, Leptospirosis, tubular disease, other and should be interpreted in combination with other more specific indications of kidney disease such as isosthenuria, proteinuria, azotemia, etc. This is a common incidental finding in patients with diabetes mellitus.
- **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.

SECONDARY FINDINGS

- Large amount of urinary bladder debris

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

These changes are most consistent with an intrahepatic cholestasis. Post-hepatic cholestasis cannot be definitively ruled out given the mildly dilated cystic bile duct but is considered less likely. Given the combination of liver and kidney changes, infiltrative disease, including round cell neoplasia such as lymphoma, or infectious disease such as FIP versus other are a concern. Given the lack of azotemia, hyperglobulinemia, etc., however, it could be (especially if this is a large cat) that these kidney changes



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are a normal patient variant combined with fat deposition, and the liver changes are a benign hepatic lipidosis secondary to another benign gastrointestinal disease, even parasitic disease, other. Therefore, recommendations include fine needle aspirates of the liver as well as the kidneys if patient's coagulation status is appropriate.

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Additionally, if not recently evaluated, a urinalysis and, if indicated based on urinalysis results, urine culture are recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

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In the meantime, 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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Pending results of above, if a diagnosis is not obtained, 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.

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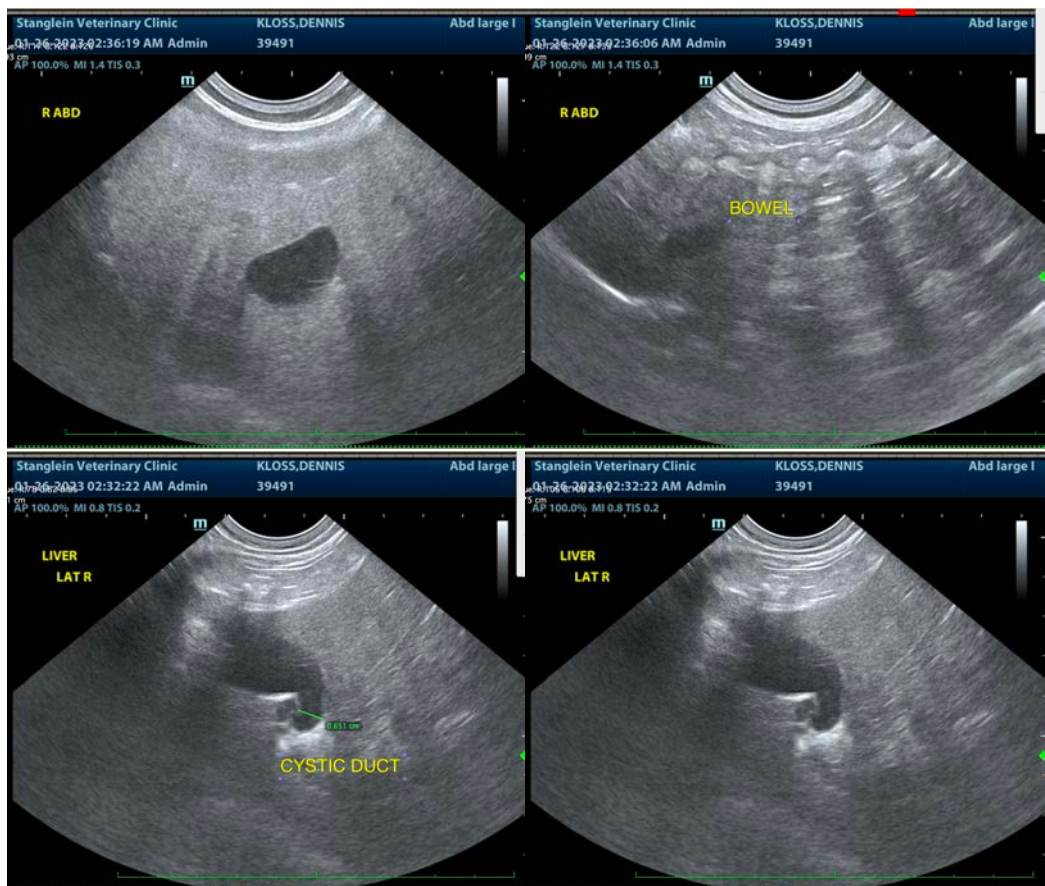
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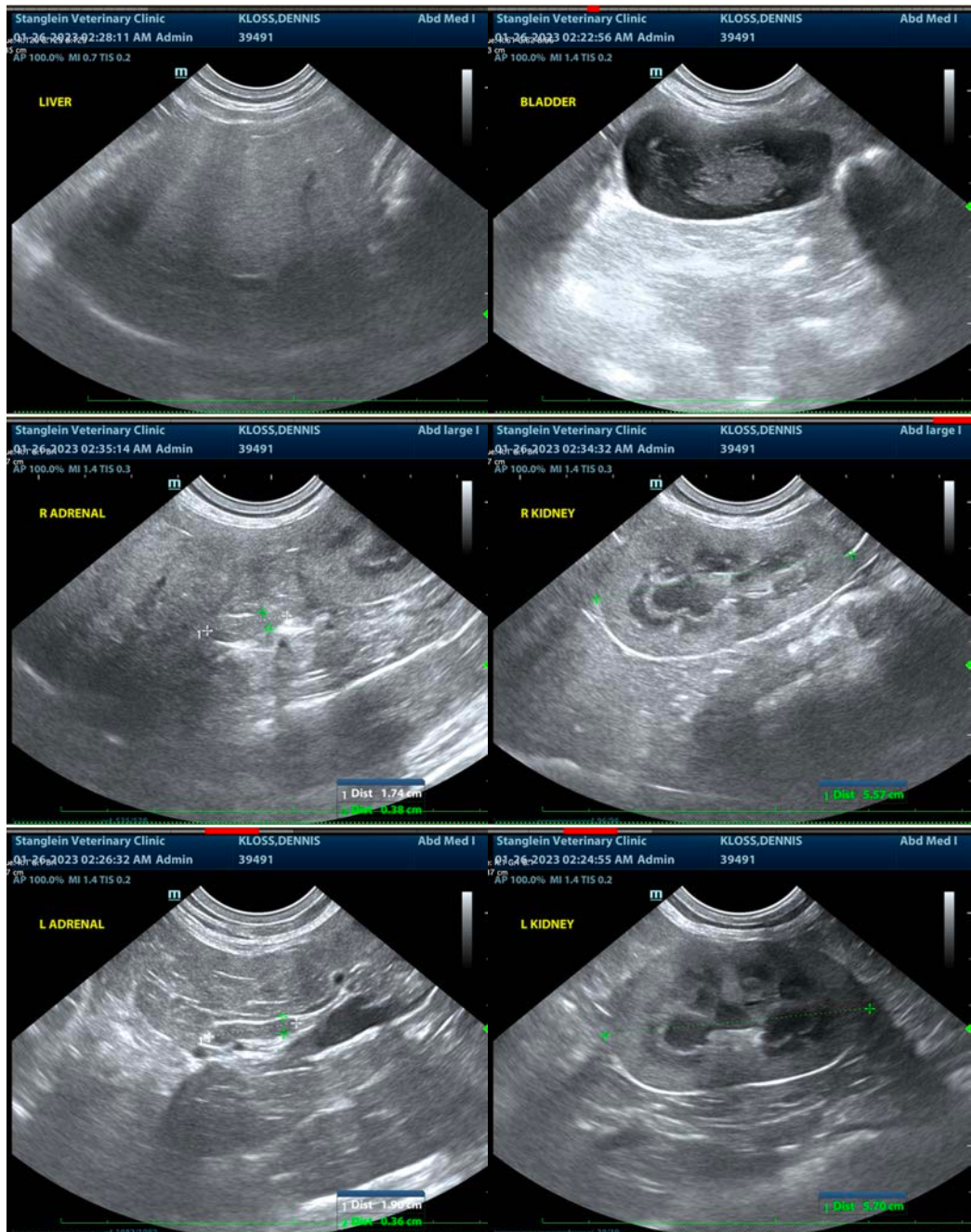
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Beth Johnson, DVM, DACVIM
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