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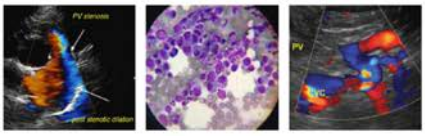

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PATIENT
Neko Stem

SPECIES
Feline

BREED
DSH

SEX
Neutered Male

AGE
14 Years 10 Months

WEIGHT
11.2 Pounds

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Amy Mayhew, LVT

HOSPITAL NAME
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Family Pet Practice

INVOICE
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PRESENTING CLINICAL SIGNS

Hx of gradual weight loss over the past two years, eating primarily canned diet, but multiple cat household and unclear how much/what food he eats. Mild increase in renal values over the past year, rule out underlying renal disease vs cachexia and DJD
Abnormal PE/Chem/CBC/UA Results: Last exam April 2022 Good BCS, but 2lb weight loss noted over past year or so. Muscle wasting evident, less active in home. Have discussed doing rads and trying pain management for suspect DJD based on exam. Discussed AUS to further rule out underlying renal disease/other metabolic causes. At that time: mild azotemia BUN 38.3 (15-32), Creat 1.6 (0.8-1.8) Creatinine slowly increased by 0.4 over the past year. T4 wnl. UA: trace protein noted - UPCR pending as well as urine culture. BP today was 154.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. 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 4.08 cm (3.80-4.40 cm). The capsule is smooth. Its overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths, however, mild pyelectasia (0.24 cm) is present. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 3.28 cm (3.80-4.40 cm). The capsule is smooth. Its overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths, however, mild pyelectasia (longitudinal = 0.17 cm; transverse = 0.42 cm) is present. The surrounding mesentery is hyperechoic, however, appears to be associated with the pancreas, rather than the kidney.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.31 cm. 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 0.40 cm. 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 7.1 mm (normal = 10 mm), echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly and its borders are smooth and sharp, to mildly rounded. The liver is moderately hyperechoic, i.e., it is moderately hyperechoic to the falciform fat. Its

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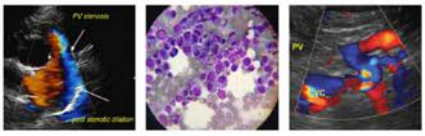

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echotexture is homogeneous. A hypoechoic nodule, measuring 0.83 cm in diameter x 0.99 cm in length, is noted subcapsularly. It does not disrupt the integrity of the capsule. No abnormalities are observed with the hepatic vessels visualized.

The gallbladder (GB) is moderately distended with a moderate amount of free floating, gravity dependent, and inspissated echogenic material. The GB wall is within normal limits in thickness and echogenicity. Sludge is present within the cystic duct, however, it is not overtly dilated or tortuous. The common bile duct measures 0.23 cm. There are no signs of an obstruction. No abnormalities are observed with the duodenal papilla.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. However the mucosa of the stomach is mildly prominent and mild fogging is present. No obvious abnormalities are observed with its peristalsis.

The duodenum is corrugated and moderately thickened at 0.34 cm. Fogging of both the mucosa and muscularis are present.

The small intestinal (SI) wall thickness is within normal limits to mildly thickened (0.28 cm). Although the definition of the wall layers is preserved, corrugation of multiple loops of SI is present, in addition to a prominent mucosa. Multiple lymph nodes in the region of the ileocecal colic junction are more prominent than usual and the surrounding mesentery is hyperechoic. Fogging of the muscularis of certain segments of jejunum is also evident. Abnormally dilated loops of bowel are not observed.

Gas and ingesta are present within the transverse colon.

The colonic wall is not thickened and mural detail is considered normal. Formed stools are present within the colon.

Pancreas

The **left limb** is mildly to moderately hypoechoic with slightly irregular contours. The surrounding mesenteric fat is mildly to moderately hyperechoic. In addition to the latter findings, a mildly coarse echotexture is noted, which is suggestive of age-related changes, such as nodular hyperplasia and fibrosis. Fibrosis may occur secondary to age, previous episodes of pancreatitis, mineralization, as well as amyloid deposition. Overt signs of neoplasia are not noted.

The **right limb** is mildly hypoechoic with a moderately to markedly hyperechoic mesentery. The surrounding duodenum is corrugated.

Similar changes are observed with the **body** of the pancreas i.e. signs of pancreatitis are visualized.

Other

Lymph nodes

Pancreatic lymph node in the region of the left limb is mildly enlarged, hypoechoic, and surrounded by a hyperechoic mesentery. It measures 0.39 cm in diameter x 0.49 cm in length.

Multiple lymph nodes in the region of the ileocecal colic junction are more prominent than usual and the surrounding mesentery is hyperechoic.

Abdominal effusion is not visualized.

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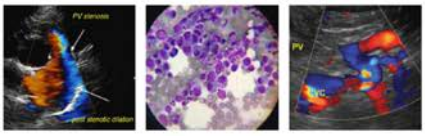

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ULTRASONOGRAPHIC FINDINGS

- **Pancreas**: Signs of active pancreatitis are evident, in addition to age related changes and fibrosis. Fibrosis may occur secondary to age, as well as previous episodes of pancreatitis, mineralization, and amyloid deposition. Overt signs of neoplasia are not noted.
- **Gastrointestinal tract**: Severe inflammation affecting multiple loops of small intestines is suspected based on the presence of corrugation, and other findings. A chronic enteropathy due to inflammatory bowel disease, food intolerance, dysbiosis, etc., is suspected. Although the definition of the wall layers is well preserved, neoplasia cannot be excluded with certainty. Differential diagnoses include lymphoma or other round cell tumour.
- **Lymph nodes**: The *very mild* lymphadenomegaly is more consistent with reactive hyperplasia, rather than infiltrative disease.
- **Liver**: The hypoechoic nodule is most likely due to nodular hyperplasia, which is a benign age-related change. Cholangitis/cholangiohepatitis is suspected, however, hepatic lipidosis may also be contributing to the diffuse hyperechogenicity.
- **Gallbladder**: Cholangitis/cholangiohepatitis and cholecystitis, including a suppurative component, due to an ascending bacterial infection from the GI tract, are suspected, in addition to cholestasis. Obtaining a history regarding signs of gastroesophageal reflux disease (GERD), from the client is suggested.
- *"Triaditis" cannot be excluded based on the above findings.*
- **Kidneys**: Pyelectasia may occur due to polydipsia and polyuria, which is not indicated in the history. Pyelonephritis cannot be excluded despite the absence of classical sonographic signs, particularly, in light of bilateral pyelectasia.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following are suggested

A urinalysis and urine culture and sensitivity to exclude pyelonephritis – results are pending.

A urine protein: creatinine ratio depending on the results of the urine culture - results are pending.

Arterial blood pressure – within normal limits.

Spec fPL, cobalamin, and folate, to assess for hypocobalaminemia and dysbiosis.

Analgesia for visceral pain, such as buprenorphine (0.005-0.01 mg/kg sublingually every 8-12 hours) for a minimum of 10-14 days. Continue for 3-4 weeks, and possibly longer, if an improvement is noted. The dose and frequency may be weaned to the minimum effective dose and then administered as needed.

+/- gabapentin

Supportive care (maropitant, mirtazapine, SQ fluids, etc.)

If signs of GERD present, 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO q12h)

Cholangitis/cholangiohepatitis and cholecystitis cannot be excluded, including a secondary ascending bacterial infection. Although indiscriminate use of antibiotics is not normally recommended, one could start treatment with a broad-spectrum antibiotic if an improvement is not observed with the above therapies.

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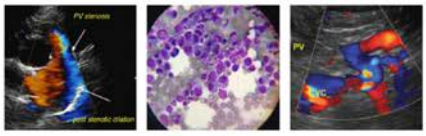

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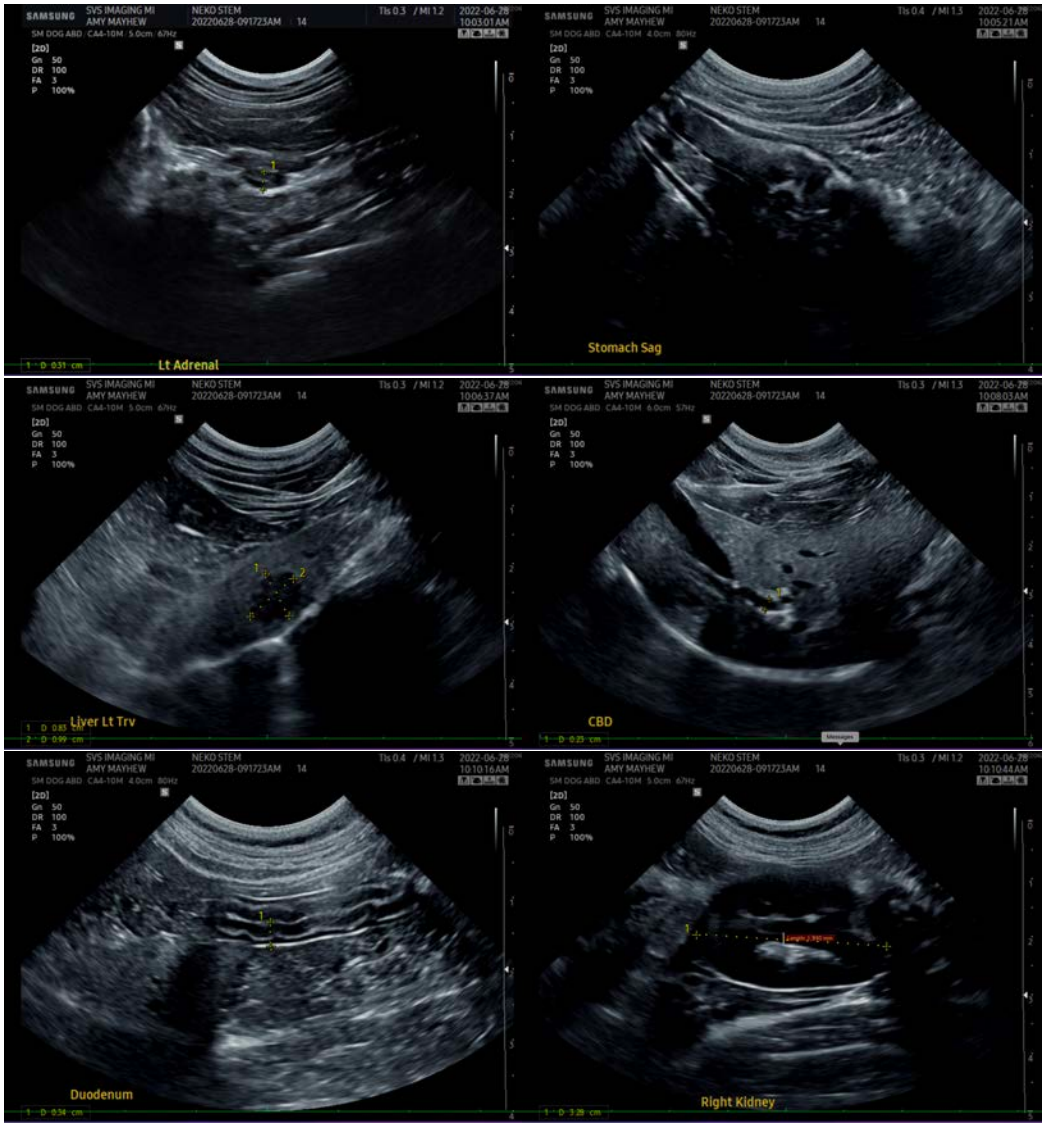
Deworm depending on risk of exposure, including other pets in house that go outdoors, providing Neko is eating with enthusiasm.

Dietary trial (veterinary prescription brand hypoallergenic, i.e., hydrolyzed or novel protein); ensure appetizing to prevent hepatic lipidosis, sarcopenia and cachexia. If soft stools develop, supplement with psyllium as these diets can be restricted in fibre.

Endoscopy and biopsies of the upper and lower GI tract are required to obtain a definitive diagnosis of inflammatory bowel disease vs. neoplasia. If little to no improvement is observed with the above treatment suggestions and further diagnostic tests are not pursued, although not ideal, empirical treatment for severe inflammatory bowel disease or lymphoma may be considered.



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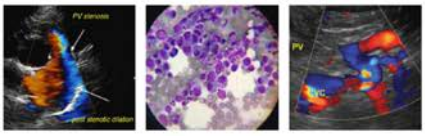

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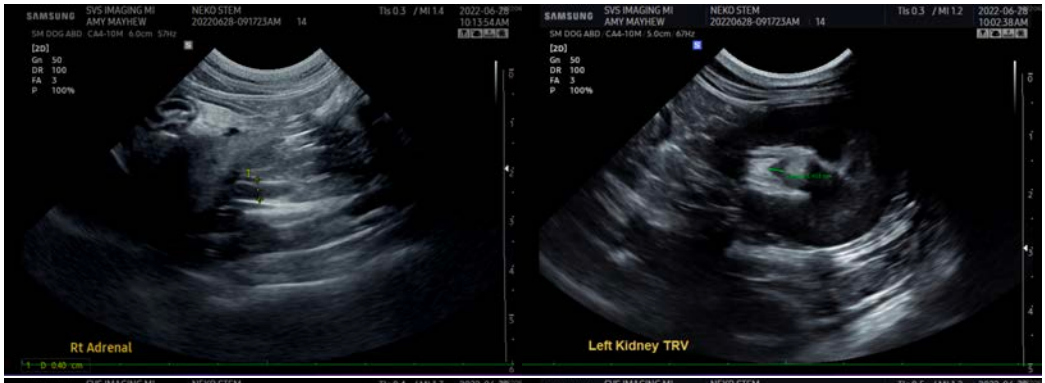

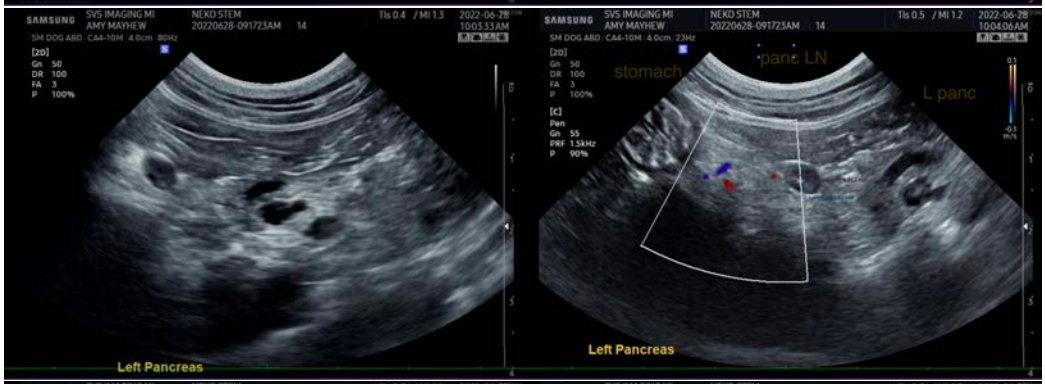

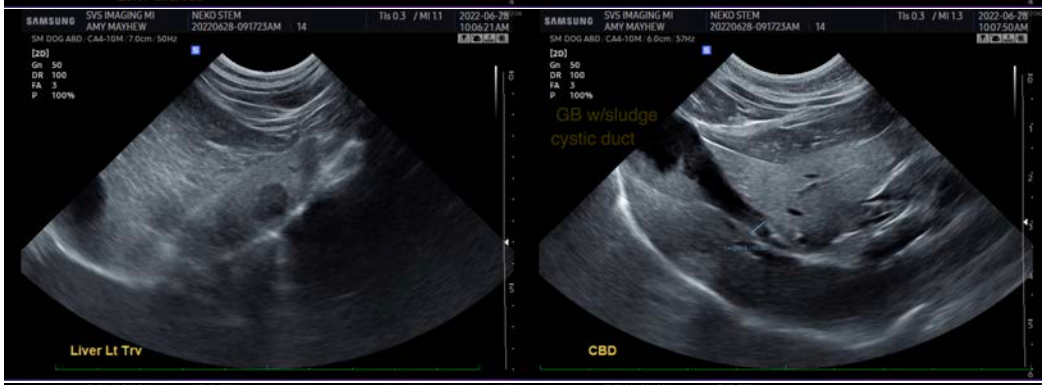

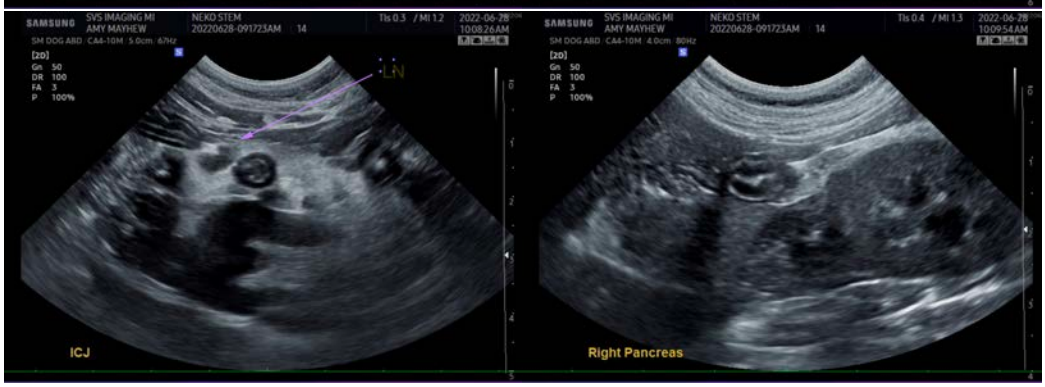

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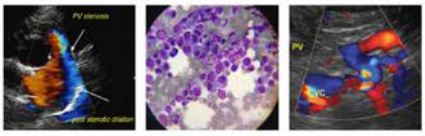

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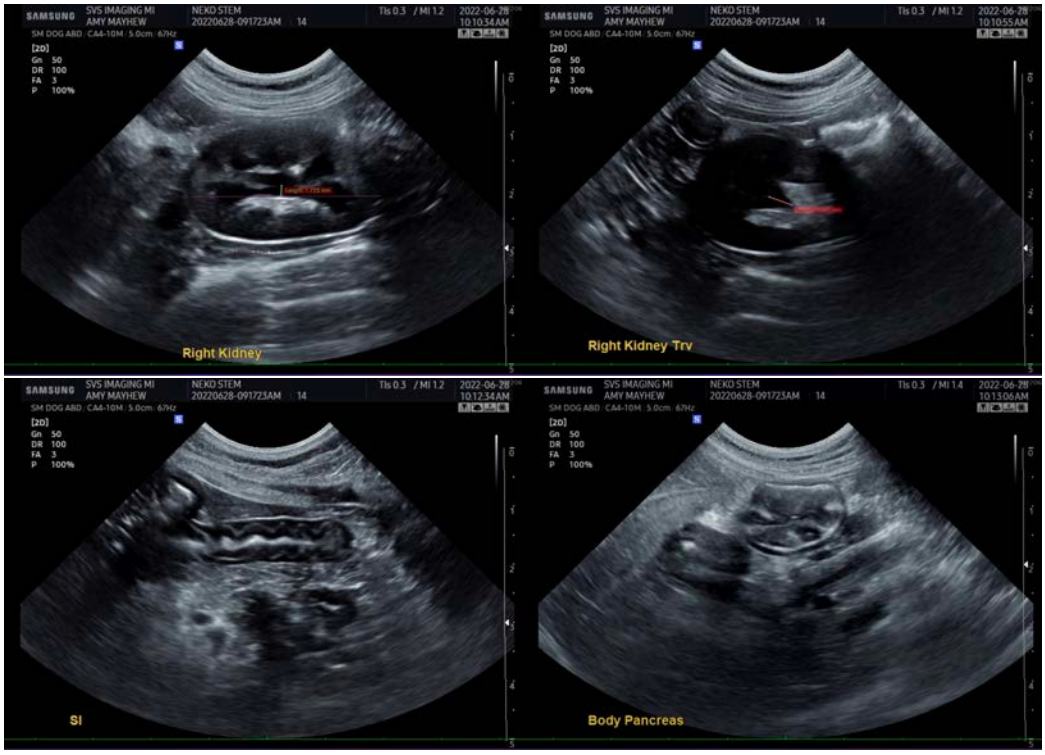

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Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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