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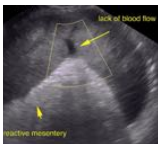
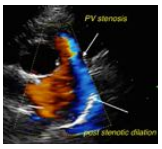
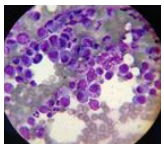
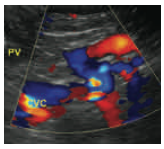

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1-800-838-4268 info@sonopath.com

PATIENT
Lucy Twardowski

SPECIES
Feline

BREED
Domestic Shorthair

SEX
Neutered male

AGE
8 years

WEIGHT
9.9 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Marti Williams

HOSPITAL NAME
Limestone VH

REFERRING VET
Dr. McCarthy

INVOICE
30658

DATE
5/23/22

PRESENTING CLINICAL SIGNS

History: Decreased appetite x 2 weeks, 2 lb weight lss, palpably large right kidney that is tender but not overtly painful on palpation but not probe pressue. 2/6 systolic heart murmur.
Abnormal PE/Chem/CBC/UA Results: USG 1.069, 2+ Blood, Protein 3+, Neuts 12.4k, Lymphos low at 816, else WNL

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is adequately 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 4.52 cm (3.80-4.40 cm); mild renomegaly. The capsule is smooth. The cortex is mildly hyperechoic, and a mild to moderate loss of the normal definition of the cortico-medullary junction is observed. Very mild mineralization of the diverticulae and pelvis is noted, without signs of nephroliths or pyelectasia. The surrounding mesentery is moderately hyperechoic. A scant amount of perirenal anechoic fluid is visualized.

The **right** kidney measures 5.68 cm (3.80-4.40 cm); severe renomegaly. A moderate amount of hyperchoic material and a trivial amount of anechoic fluid are observed subcapsularly. The material is more echogenic along the mesenteric border. The cortex is severely hyperechoic and very mildly irregular. The definition of the cortico-medullary junction is exaggerated by the hyperechoic cortex and echogenic material within the medulla. Mineralizations of the diverticulae and pelvis are observed. There are no signs of nephroliths. Hydronephrosis (longitudinal 1.7 cm) is present. A scant amount of perirenal anechoic fluid is observed. The surrounding mesentery is severely hyperechoic.

And in the *transverse* view the echogenic material is much more heterogeneous, consisting of hypo and hyper and hypoechoic, soft tissue regions. The sub capsular material measures 2.7 cm. The kidney in its entirety measures 6.35 cm.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The adrenal glands are not visualized.

Spleen

The spleen measures 6.7 mm (normal = 10 mm). It is diffusely miliary in echotexture, and subjectively, it is mildly hypoechoic. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

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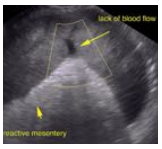

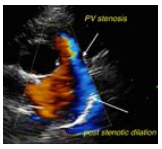

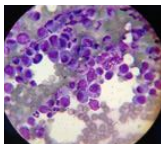
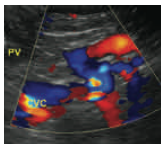

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Liver

There are no obvious signs of hepatomegaly. The liver's borders are smooth, but mildly rounded. A diffuse, mildly coarse or granular echotexture is observed, which may be due to a reactive hepatopathy. Subjectively, the liver appears mildly hypoechoic compared to normal, however this may be due to settings of ultrasound machine. It is hypoechoic to the falciform fat, which is normal. The walls of the portal veins are hyperechoic. No obvious abnormalities are noted with the hepatic veins.

The gallbladder wall is within normal limits in thickness and echogenicity. A small to moderate amount of echogenic material is present within the GB. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous, i.e. there are no signs of an obstruction.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. The submucosa appears more prominent than usual. The muscularis is not overly thickened, but appears prominent in some loops of jejunum. No abnormalities are observed with the ileocecal colic junction. A very small amount of ascites is present amongst the loops of bowel in the region of the ileocecal colic junction. Abnormally dilated loops of bowel are not observed.

The colonic wall is not thickened and mural detail is considered normal.

Pancreas

No overt abnormalities are observed with the echogenicity or echotexture of the left limb. There is no evidence of hyperechogenicity of the surrounding mesentery, i.e., signs of active pancreatitis are not present.

The right limb is difficult to evaluate due to the hyperechogenicity of the mesentery, which is inflamed due to the right kidney.

Other

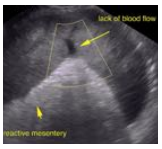
Lymph nodes

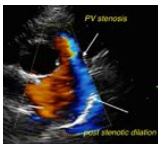
No abnormalities are observed, including those surrounding the ileocecal colic at junction.

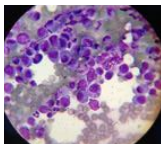
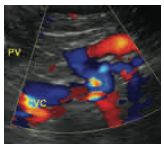
Abdominal effusion is visualized between a few loops of bowel in the region of the right kidney, as well as a scant amount surrounding both kidneys.

ULTRASONOGRAPHIC FINDINGS

- High index of suspicion of *bilateral* **renal** neoplasia, with the right kidney being more severely affected than the left. The disease appears to be emerging in the left kidney. Differential





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diagnoses include lymphoma or other round cell tumour, however, a carcinoma cannot be excluded.

- The **spleen** is on the low end of the normal reference range which may be due to mild or subclinical dehydration.
- The miliary pattern of the **spleen** is subtle and somewhat subjective. It may be due to extramedullary hematopoiesis and mild splenitis, however a "sensitive" ultrasound machine can "pick up" details that may not normally be seen and overinterpretation may occur. If the miliary pattern or "mottling" is more apparent than usual, differential diagnoses other than extramedullary hematopoiesis and mild splenitis due to antigenic stimulation may include early infiltrative disease, such as lymphoma or other round cell tumour. In conclusion, the interpretation of the spleen should take into account the experience with one's machine; if there is any doubt, a FNA of the spleen is warranted.
- **Reactive hepatopathy** is suspected, however infiltrative disease with lymphoma cannot be excluded. As mentioned above, subjectively, the **liver** appears mildly hypoechoic compared to normal, however this also may be due to the settings of the ultrasound machine and should be interpreted according to the experience with one's machine. It is hypoechoic to the falciform fat, which is normal. The hyperechoic walls of the portal veins may be due to inflammation, as well as deposition of fat, mineralization and/or fibrosis.
- The **gallbladder sludge** is most likely clinically insignificant. However, some patients may show clinical signs of gastroesophageal reflux disease (GERD). obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor may be required depending on the patient's history.
- The gastrointestinal changes may be clinically insignificant. However, subclinical inflammatory bowel disease is possible. Occult lymphoma cannot be excluded given the other changes observed on today's ultrasound.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Fine needle aspirates of the abnormal portion of the right kidney, and its cortex is suggested pending a coagulation profile. Power Doppler may be used to direct the needle. Avoid aspirating the medulla, although pyelocentesis may be performed if Lucy is painful to due increased pressure.

Fine needle aspirates of the spleen, +/- liver may also be performed.

Referral to an oncologist is suggested.

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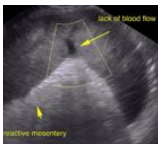
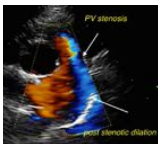
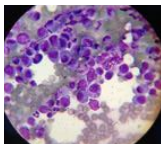
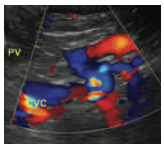

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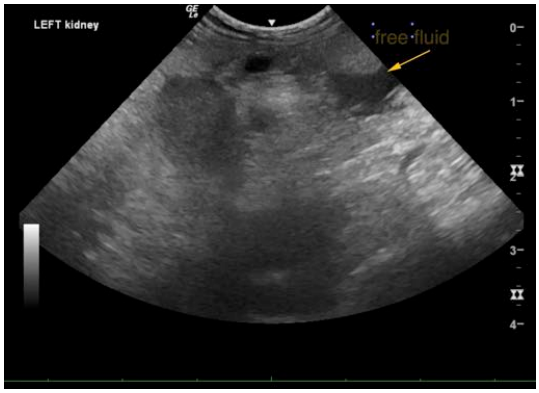

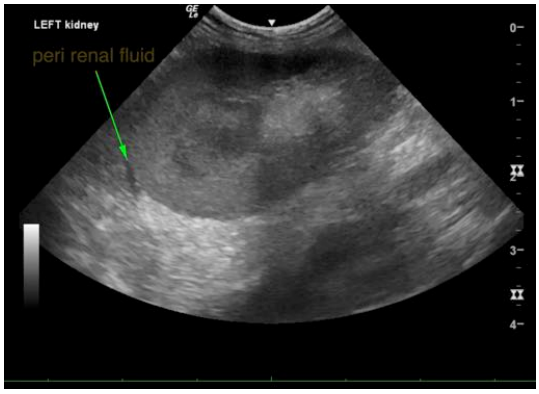

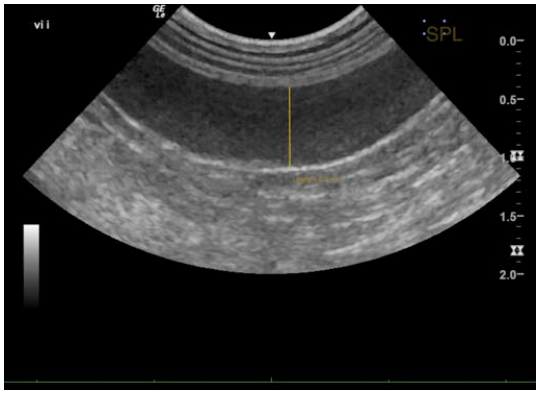

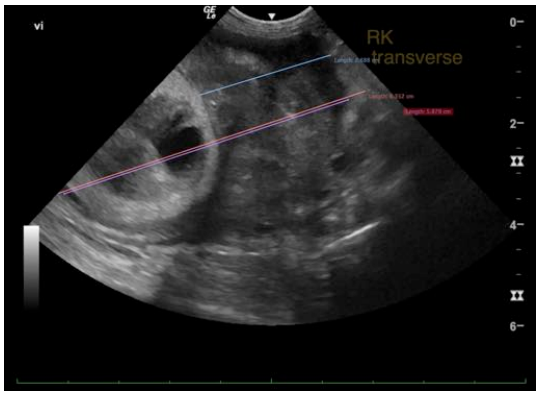

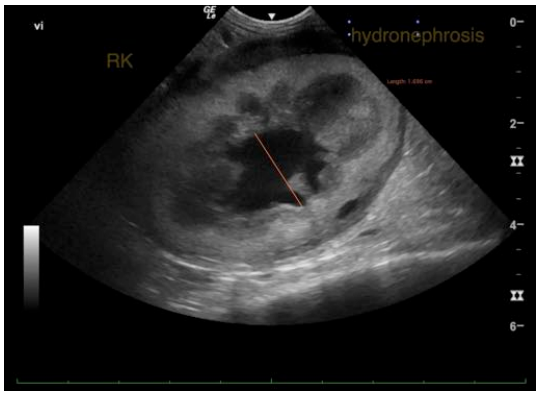

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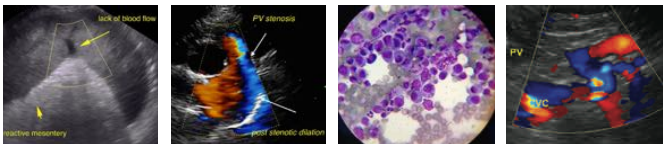

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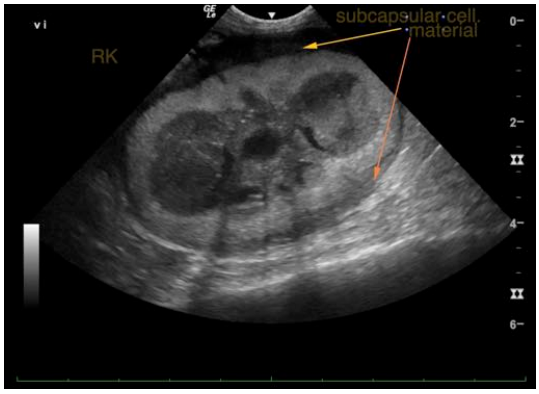

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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