**PATIENT**

Onyx Cooney

SPECIES

Feline

BREED

Domestic Shorthair

SEX

Neutered Male

AGE

14 years

WEIGHT

9.8 Pounds

INTERPRETED BYLisa Carioto, DVM,
DVSc, Diplomate
ACVIM**IMAGING PERFORMED BY**

Amy Mayhew LVT

HOSPITAL NAME

SVS Imaging Michigan

REFERRING VET

Exclusively Cats

INVOICE

31192

DATE

6/22/22

PRESENTING CLINICAL SIGNS

History: Decreased appetite that has progressed to anorexia Weight loss
 Abnormal PE/Chem/CBC/UA Results: BW NSF

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System**

The **urinary bladder** is adequately distended. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra. A very small amount of free floating sediment is present, however, there is no evidence of cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 4.04 cm (3.80-4.40 cm). The capsule is smooth. The cortex is hyperechoic, i.e., it is hyperechoic to the spleen. However, its overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 4.08 cm (3.80-4.40 cm). The capsule is smooth. The cortex is hyperechoic, yet, its overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.57 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.

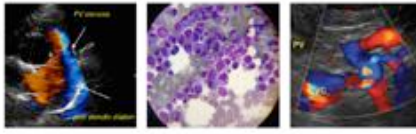
The **right** adrenal gland measures 0.45 cm at the cranial pole, 0.43 cm at the caudal. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size 9.97 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

Although overt hepatomegaly is not present, the liver is subjectively "generous" with smooth, but mildly rounded borders. Its echotexture is homogeneous, but diffusely hyperechoic, i.e. it is isoechoic to the

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falciform fat. A hyperechoic mass effect (1.53 cm in diameter x 2.01 cm in length is noted ventrally (subcapsularly) in the caudate lobe. It does not disrupt the integrity of the capsule. Multiple small anechoic nodules of variable size and shape are present within the mass, i.e. a cystadenoma is suspected. No obvious abnormalities are noted with the hepatic vessels.

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The **gallbladder** (GB) is moderately distended with a small amount of free floating, gravity-dependent and inspissated echogenic material. The GB wall is within normal limits in thickness, but mildly hyperechoic. Edema is not present surrounding the GB. The cystic duct is dilated, but remains within the normal reference range. It is however, tortuous. The common bile duct is distended and corrugated (0.34 cm), with hyperechoic walls. Furthermore, the parenchyma and mesentery along the trajectory of both the cystic and CBD are hyperechoic. These signs are consistent with inflammation. A physical obstruction is not evident.

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Gastrointestinal

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

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Duodenum: Gas is present within the duodenum which is mildly thicker than usual at 0.27 cm. Stippling of the mucosa is present.

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The small intestinal wall thickness varies between the normal reference range to thicker than normal, i.e., between 0.24 cm to 0.32 cm. The ileocecal colic junction is mildly to moderately thickened with presence of fogging and occasional stippling of the mucosa. The surrounding mesentery is hyperechoic compared to usual. Lymphadenomegaly is present (see below). A few segments of jejunum are thickened (0.29 cm), have prominent wall layers with fogging and stippling of the mucosa and muscularis, as well as a mild ileus.

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A large amount of gas is present throughout the small intestines and transverse colon, with signs of decreased or ineffective peristalsis, i.e., a “to and fro” motion, as mentioned above. Abnormally dilated loops of bowel are not observed.

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

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Pancreas**HOSPITAL NAME**

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The **left** limb is mildly hypoechoic and slightly enlarged. It also has a mildly coarse echotexture, consisting of hypoechoic nodules and pinpoint to punctate, hyperechoic foci, scattered throughout the parenchyma. The surrounding mesentery is mildly hyperechoic. Although overt signs of pancreatitis are not present, signs are suggestive of mild inflammation, i.e. pancreatitis, as well as age related changes, including both nodular hyperplasia and fibrosis. Signs consistent with neoplasia are not appreciated.

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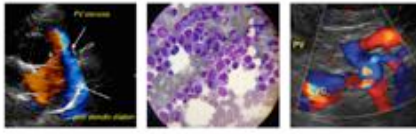
The **right** limb is slightly hypoechoic, but is not as hypoechoic as the left, but has a similar coarse echotexture.

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**PATIENT***Other*

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Lymph nodes**SPECIES**

Lymphadenomegaly of the lymph nodes in region of the ICCJ (0.76 cm). The LNs in this region are also hypoechoic compared to normal. Their borders remain smooth.

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Abdominal effusion is not visualized.**BREED**

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ULTRASONOGRAPHIC FINDINGS**SEX**

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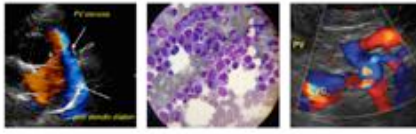
- **Gallbladder (GB):** Cholangitis/cholangiohepatitis and cholecystitis, including a suppurative component, due to an ascending bacterial infection from the GI tract, are suspected, in addition to cholestasis. Obtaining a history regarding signs of gastroesophageal reflux disease (GERD), from the client is suggested.
- **Liver:** Cholangitis/cholangiohepatitis is suspected. Hepatic lipidosis may also be contributing to the hyperechogenicity. A cystadenoma is suspected in the caudate lobe.
- **Gastrointestinal (GI) tract:** Severe inflammation is suspected, for example, a chronic enteropathy due to inflammatory bowel disease, food intolerance, dysbiosis, etc. 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, however, *a chronic enteropathy is considered more likely.*
- **Lymph nodes:** The mild lymphadenomegaly is more consistent with reactive hyperplasia, rather than infiltrative disease.
- *“Triaditis” cannot be excluded.*
- **Pancreas:** Although overt signs of pancreatitis are not present, mild, active or a smoldering pancreatitis, cannot be excluded. Age related changes, including both nodular hyperplasia and fibrosis are observed. Fibrosis may be an age-related change, secondary to previous episodes of pancreatitis, mineralization and amyloid deposition. Signs of neoplasia are not appreciated.
- **Kidneys:** Renal architecture is excellent for a cat of Onyx’s age, therefore, the severe hyperechogenicity of both cortices cannot be ignored. Subclinical pyelonephritis must be considered as a cause, in addition to glomerulonephritis and interstitial nephritis.
- **Urinary bladder:** Although the free floating sediment is mild to moderate and most likely clinically significant, it should not be disregarded due to the noted with the kidneys.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A urinalysis and urine culture and sensitivity to exclude pyelonephritis

If negative, a urine protein: creatinine ratio in a few weeks (once hepatic and biliary abnormalities stabilized) due to risk of false positive (systemic inflammation).

Depending on how proactive the clients would like to be, can either start with fine needle aspirates of the liver and culture of both the liver and bile (pending coagulation profile), or the following:



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Analgesia for visceral pain, such as buprenorphine (0.005-0.01 mg/kg sublingually every 8-12 hours) for a minimum of 7-10 days. Continue for 3-4 weeks if an improvement is noted; the dose and frequency may be weaned to the minimum effective dose during that time.

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+/- gabapentin

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

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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.

SEX

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Deworm depending on risk of exposure, including other pets in house that go outdoors, once eating with more enthusiasm.

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TLI, serum cobalamin, and folate, to assess for underlying maldigestion and malabsorption disease and dysbiosis (+/-SNAP PLI or Spec fPL), depending on response to above treatment plan and diagnostic tests.

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A single dose of vitamin K (0.5 mg/kg SQ) due to cholestasis.

Dietary trial (veterinary prescription brand hypoallergenic, i.e., hydrolyzed or novel protein); ensure appetizing to prevent hepatic lipidosis, sarcopenia and cachexia

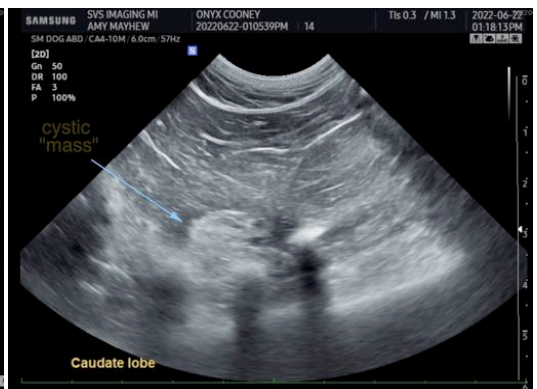
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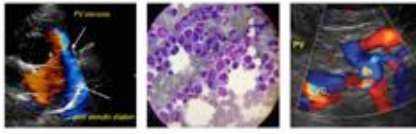
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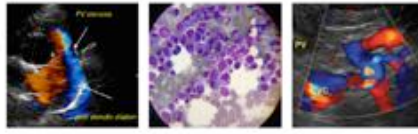
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SVS Mobile Imaging MI 734-637-7711
svsimagingmi@gmail.com



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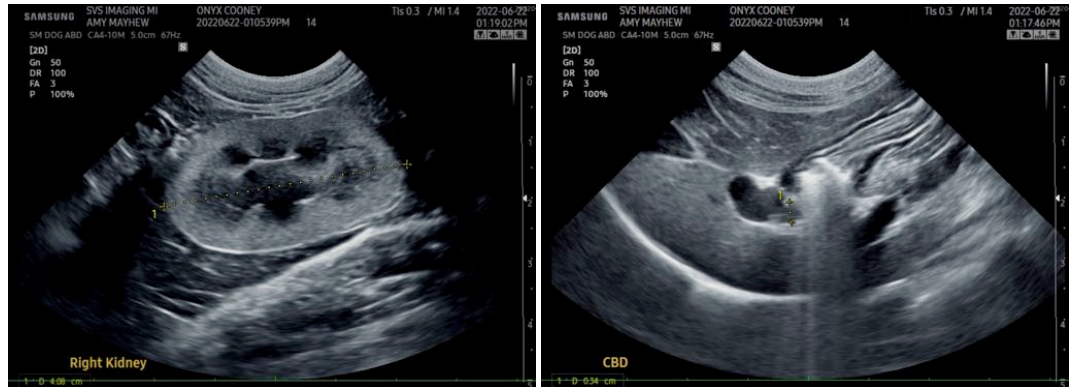
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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

Lisa.Carioto@sonopath.com

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