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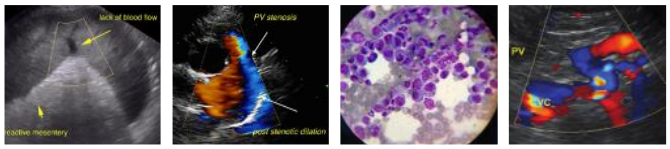

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Bella Snyder

SPECIES
Canine

BREED
Cockapoo

SEX
Spayed Female

AGE
11 Years

WEIGHT
7 kg

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Erin Wicks

HOSPITAL NAME
Shores VEC

REFERRING VET
Dr. Lupole

INVOICE
37459

DATE
5/6/22

PRESENTING CLINICAL SIGNS

Presented at our hospital for: Transfer from rDVM. Painful last Friday, started Carprofen. D+ Started Sunday night into Monday, V+ this morning. Decreased appetite. Previous Health Concerns: Back pain, allergies Current Medications: Carprofen, probiotic, Gabapentin Appetite/When did they eat last: NE Abnormal PE/Chem/CBC/UA Results: Rdvm bloodwork: Hct 35.4; Glob 12.7; NEU 0.87; Bands suspected; Mono 2.81; SDMA 21; Chlor 107; ALB 2.0; ALP >2000; CPL normal; Tense on abdominal palpation. Rdvm rads: mild loss of detail, hepatomegaly, o obv mass, obstruction or lesion. Brief AUS showed sludge in gall bladder, no obv masses, mild thickening of sm intestines.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is not fully distended, thereby affecting the ability to accurately measure wall thickness. Despite this, subjectively, the wall appears thicker than normal at the apex and the cranial portions of the dorsal and ventral walls. The contents of the urinary bladder are anechoic. 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 4.83 cm. The capsule is smooth. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present. Acoustic shadowing is present, thereby consistent with nephrolithiasis. There is no evidence of pyelectasia or pyelectasia. An accumulation of intrapelvic fat is noted. Blood flow is excellent. The surrounding mesentery is severely hyperechoic.

The **right** kidney measures 5.14 cm. The liver and right kidney are isoechoic. Findings are similar to the left kidney, however, nephroliths are not present.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.77 cm at the cranial pole, 0.61 cm at the caudal pole and 1.96 cm in length. The cranial pole is rounded and “nodular”. An obvious mass is not observed. The cranial pole I enlarged. No abnormalities are noted with the gland’s overall echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.92 cm at the cranial pole, 0.58 cm at the caudal pole and 2.12 cm in length. A well-circumscribed, echogenic nodule is observed at the cranial pole. It measures 0.70 cm in diameter and 0.84 cm in length. The cranial pole I enlarged. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable. The cranial pole measures 0.95 cm in a different view (slightly oblique).

Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. The mesentery surrounding the spleen is severely hyperechoic.

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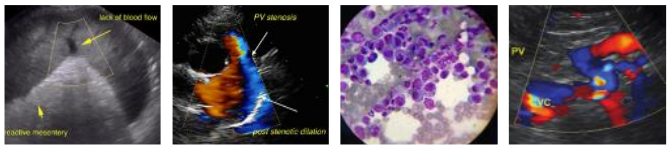

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Liver

Moderate hepatomegaly is suspected. The liver's borders are smooth, but mildly rounded. The liver is hyperechoic, and has a diffuse, mildly coarse or granular echotexture. The portal vein is slightly dilated, which is suggestive of portal hypertension. No obvious abnormalities are noted with the other hepatic vessels.

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

Gastrointestinal

A large amount of fluid and gas are present within the lumen of the stomach. The gastric wall is within normal limits in thickness. The individual wall layers are not very well defined. Peristalsis is decreased; an ileus is present.

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. Abnormally dilated loops of bowel are not observed.

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

The mesentery throughout the abdomen is markedly hyperechoic.

Pancreas

The **left limb** is diffusely hypoechoic. The surrounding mesenteric fat is severely hyperechoic, suggestive of saponification. Overt signs of neoplasia are not noted.

Other

Lymph nodes (LN)

Stomach LN measures 5.88 mm in diameter x 6.96 mm. It is mildly hypoechoic, but is primarily more prominent due to the severe hyperechogenicity of the mesentery surrounding it.

A mesenteric LN is mildly enlarged and "plump", measuring 6.27 mm in diameter.

Abdominal effusion

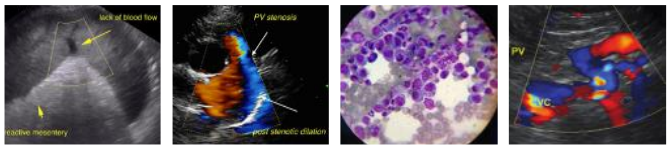
A very small amount of anechoic fluid is visualized ventral to the urinary bladder.

Heart

A very short video clip shows a short axis view of the heart. Subjectively, the lumen of the right ventricle appears dilated (enlarged).

ULTRASONOGRAPHIC FINDINGS

- The diffuse, mildly to moderately coarse or granular echotexture and mild hyperechogenicity of the liver may be due to reactive and vacuolar hepatopathies, respectively. Differential diagnoses include hepatitis. The latter may be primary (immune-mediated) or secondary in origin. Examples of secondary causes include, infectious agents, including parasites or viruses, toxins, including medications, and natural supplements. A vacuolar hepatopathy may occur secondary to stress or chronic illness, as well as hyperadrenocorticism (HAC). Other



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differential diagnoses for the mild hyperechogenicity include cholestasis, cholangitis/cholangiohepatitis, and cholecystitis.

- The presence of sludge in the gallbladder tends to be clinically insignificant, however, some dogs may show clinical signs of gastroesophageal reflux disease (GERD), therefore, obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor or ursodeoxycholic acid may be required depending on the patient's history.
- An ileus of the stomach is present. Although overt abnormalities of the gastrointestinal tract are not observed, gastritis secondary to vomiting appears to be present. Inflammatory bowel disease cannot be excluded. Infiltrative disease, such as neoplasia, is considered less likely. Dysbiosis is suspected.
- Many of today's findings are likely secondary to an adverse reaction to the administration of the non-steroidal anti-inflammatory. Obvious signs of neoplasia are not observed. However, further diagnostics, such as fine needle aspirates of the liver, spleen, lymph nodes and mesentery would be required to exclude neoplasia with certainty.
- Reactive hyperplasia of the lymph nodes is suspected.
- Acute pancreatitis in its early development cannot be excluded.
- Mild adrenomegaly of the cranial pole of the left adrenal gland. Adrenomegaly of the right adrenal gland, as well as presence of a well circumscribed echogenic nodule at its cranial pole. The nodule may be due to a benign adenoma, which may be functional. It does not possess criteria of malignancy. Bilateral adrenomegaly may occur be due to adrenal hyperplasia secondary to chronic illness, which is a form of stress. Pituitary dependent hyperadrenocorticism is also possible. Note, the adrenomegaly is considered an incidental finding.
- Mineralization and nephroliths are present in the left kidney. Mineralization is only present in the right. Changes in both kidneys are suggestive of age-related degeneration, however, one cannot exclude glomerulonephritis and interstitial nephritis, or pyelonephritis.
- The mucosa of the urinary bladder may be mildly thickened, however, it is not fully distended with urine and is therefore difficult to assess its thickness.

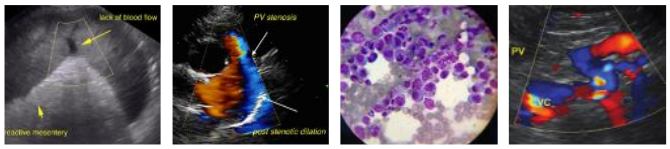
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A urinalysis, +/- urine culture and sensitivity, is suggested to exclude a possible urinary tract infection and pyelonephritis.

Treatment for acute GI upset is suggested, including intravenous fluids, analgesics, such as buprenorphine, fentanyl, CRI of lidocaine and ketamine, etc. depending on the severity of her abdominal pain. It should be noted that opioids can cause ileus.

Passing a nasogastric tube to remove the fluid may decrease Bella's discomfort.

Small, frequent meals are recommended.



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One to three subcutaneous injections of vitamin K at 0.5 mg/kg are suggested to help treat cholestasis every 8 hours.

Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor or ursodeoxycholic acid may be required depending on the patient's history.

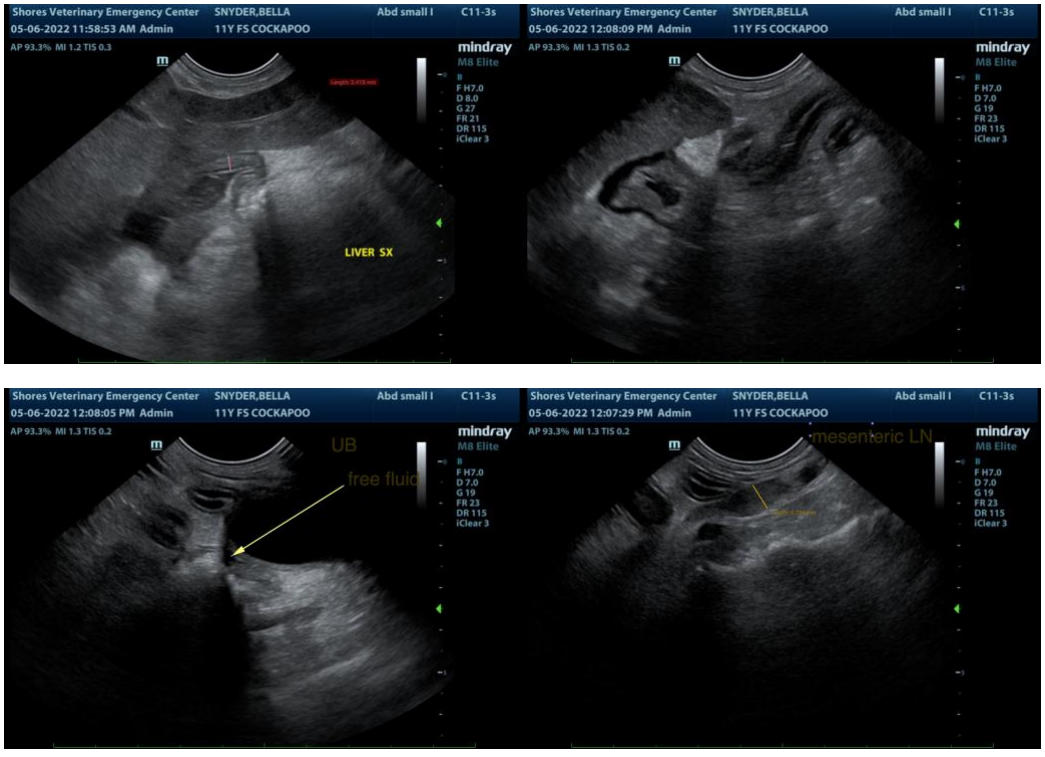
An arterial blood pressure is highly recommended.

A hepatoprotectant may be considered, although it may cause nausea and vomiting in some patients.

Further diagnostics, such as fine needle aspirates of the liver, spleen, lymph nodes and mesentery would be required to exclude neoplasia with certainty.

If further diagnostics are not pursued immediately, treatment for cholangitis/cholangiohepatitis and cholecystitis may be considered. Secondary ascending bacterial infections are common, particularly with dysbiosis. Although indiscriminate use of antibiotics is not normally recommended, one could begin treatment with a broad-spectrum antibiotic and reassess liver enzyme activities, including a GGT, in approximately 4 weeks, while Bella is *still receiving* the antibiotics. If an improvement is observed, the antibiotic should be continued for an additional two weeks.

Note, the adrenomegaly is considered an incidental finding. Further diagnostics are not recommended for the moment due to the risk of false positive results.



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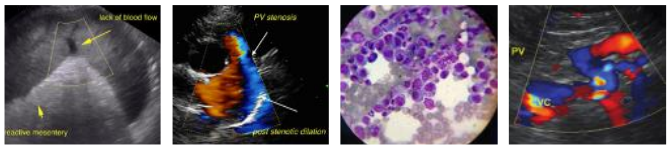

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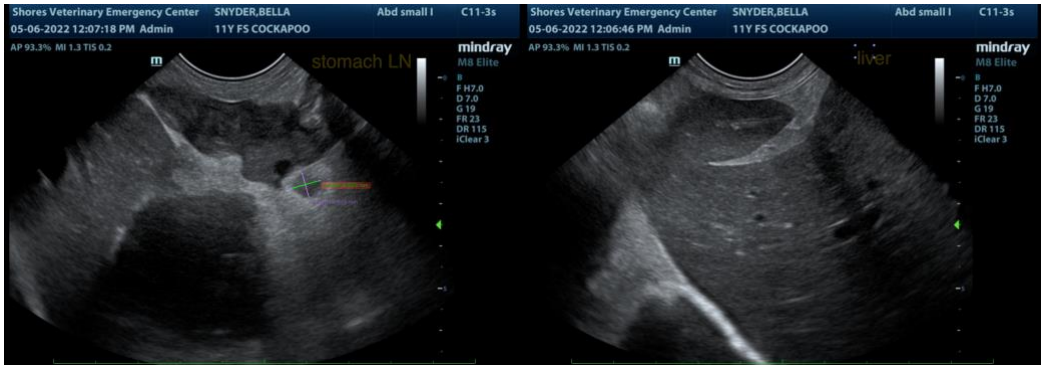

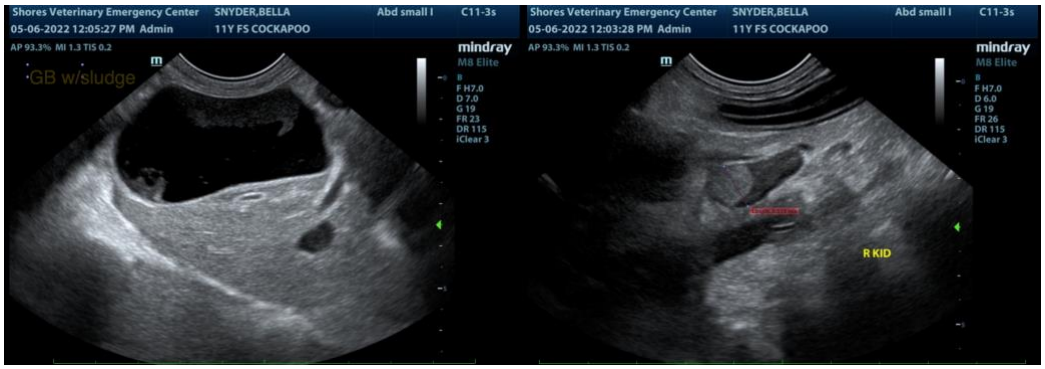

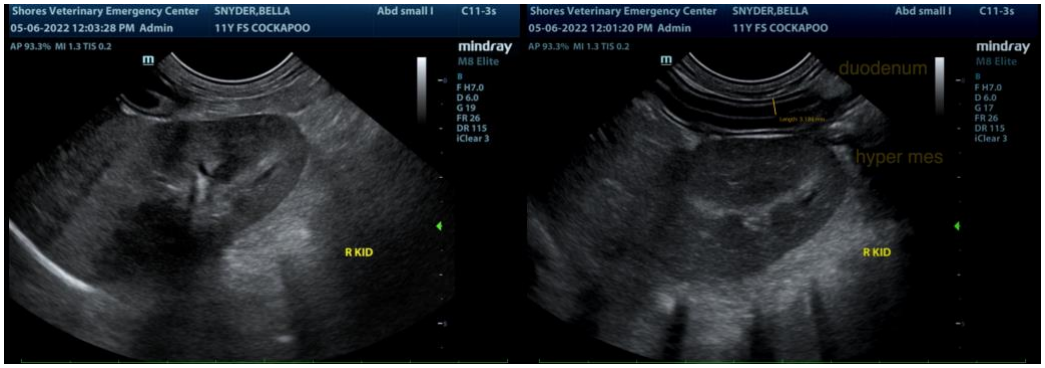

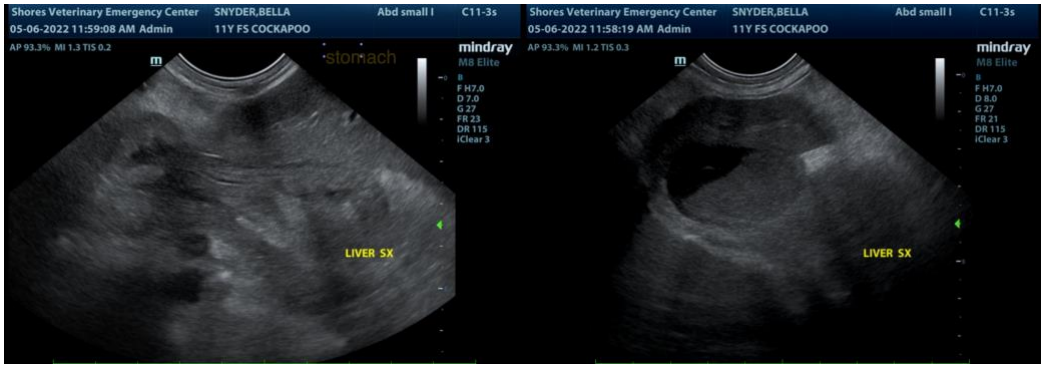

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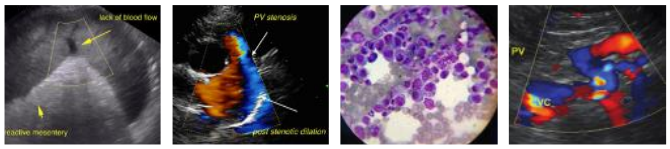

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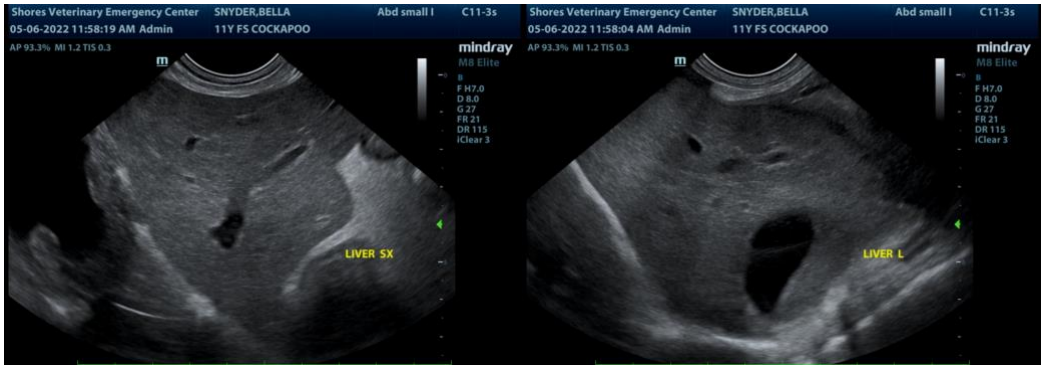

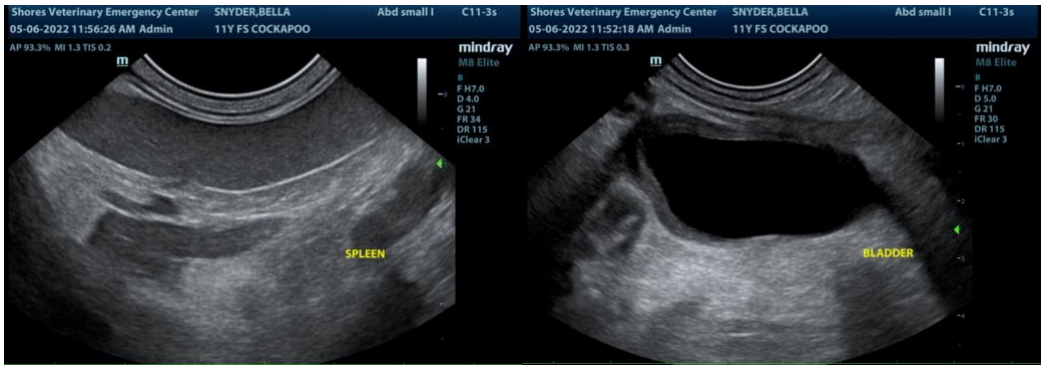

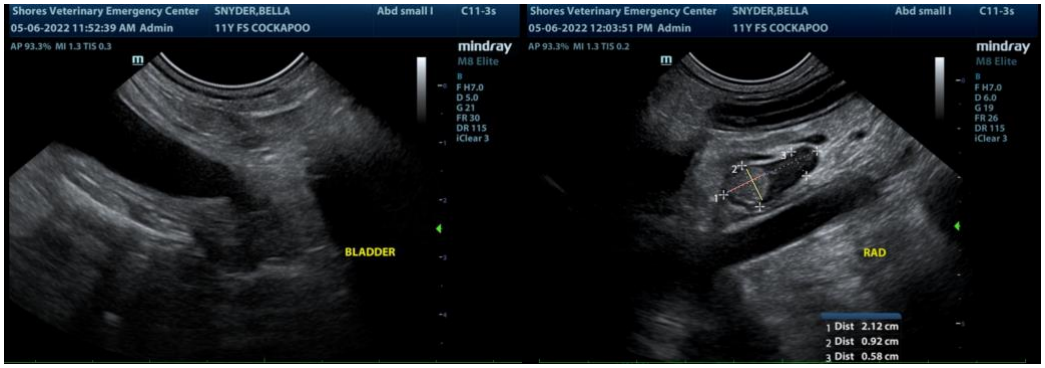

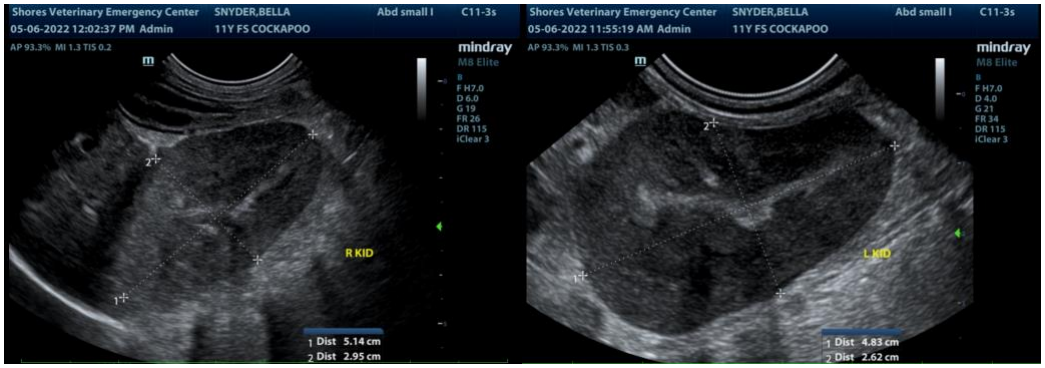

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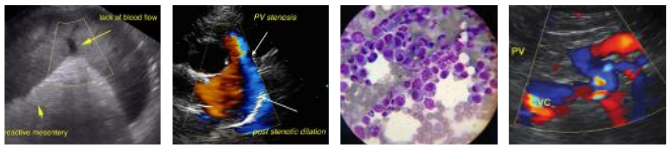

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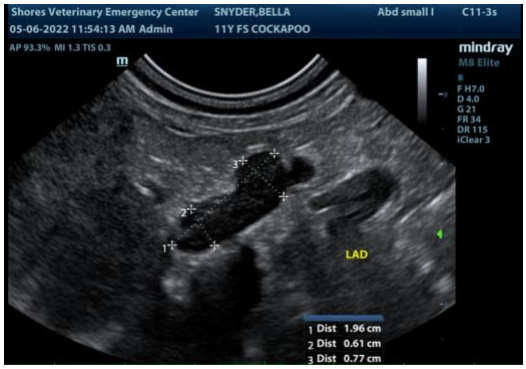

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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