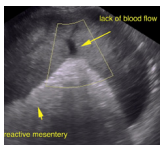

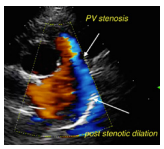

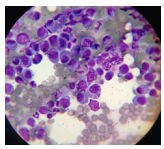
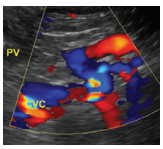

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PATIENT

Cooper Pence

SPECIES

Canine

BREED

German Shepherd X

SEX

Neutered Male

AGE

12 Years

WEIGHT

49.6 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

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PRESENTING CLINICAL SIGNS

Hx of PU/PD noted in 2018. Abdominal U/S performed - L adrenal nodule noted (measured 0.8cm x 0.47cm). BP WNL LDDST WNL Patient ultimately diagnosed w/ hyperparathyroidism and had parathyroidectomy performed 1/2020. Bloodwork done 1/2022 @ time of annual exam - elevated liver values noted. NO health concerns @ that time. Owner elected to start Denamarin and recheck liver values in 1month. Bloodwork rechecked 3/2022 - liver values increased even more; owner now reports PU/Pd again. LDDST performed: still WNL AUS performed today for further evaluation of elevated liver values
Abnormal PE/Chem/CBC/UA Results: NSF on PE Bloodwork done 1/2022: Chem: ALT (144), AP (402), Chol (405), Trig (515), PSL (224) CBC: PLT (414) Recheck BW results 3/2022: CHEM: increased ALT (159), increased ALP (458) CBC: WNL TT4: WNL @ 1.9

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well filled. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

The left kidney is within normal limits in size (6.22 cm) for the patient's weight and the capsule is smooth. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Small, punctate, mineralizations of the diverticulae are present without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic. Blood flow is within normal limits.

The right kidney is within normal limits in size (6.29 cm) for the patient's weight and the capsule is smooth. The cortex is mildly to moderately hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Small, punctate, mineralizations of the diverticulae are present without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic. Blood flow is within normal limits.

Adrenal Glands

The right adrenal gland measures 0.86 cm the cranial pole, 0.79 cm at the caudal pole and 2.77 cm in length. No abnormalities are noted with the gland's shape, overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Presence of a mass of the left adrenal gland with loss of its normal shape and architecture.

The cranial pole measures 2.01 cm, the caudal pole 1.11 cm, and it is 4.44 cm in length. Anechoic to hypoechoic ill-defined punctate foci are noted, in addition to a few, very small hyperechoic foci that do not cast a shadow.

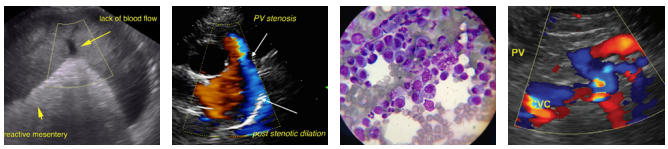
Anechoic ill-defined hypoechoic nodules that disrupt the capsule are observed in an oblique view. They measure

1. 0.68 cm in diameter x 1.3 cm in length

2. 0.85 cm in diameter x 1.08 cm in length

3. 0.74 cm in diameter x 0.95 cm in length

Multiple echogenic structures of variable size are noted within the caudal vena cava. The largest one, which has mildly irregular borders in certain views, measures at least 2.8 cm. It does not obstruct blood flow. Other smaller echogenic structures are noted adjacent to the phrenico-abdominal vein. The



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contours and echogenicity of the former vary. The phrenico-abdominal vein appears dilated and invaded by soft tissue. It measures 7.29 mm in diameter. Metastases from the left adrenal mass are suspected, however, a few of the structures may include thrombi. As previously mentioned, blood flow in the caudal vena cava does not appear obstructed.

Spleen

The spleen is within normal limits in size, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. Mild perivascular cuffing consistent with myelolipomas is observed, which is clinically insignificant.

Liver

Mild hepatomegaly is suspected. Liver lobes are mildly rounded, but smooth. It is diffusely hyperechoic and mildly heterogeneous with hypoechoic nodules of variable size, suggestive of nodular hyperplasia. One of the larger hypoechoic nodules measures 0.10 cm in diameter x 1.2 cm in length. A few hyperechoic nodules are also visualized. Target lesions are not noted.

A trivial amount of echogenic material is present in the gallbladder; however, it appears inspissated and nodular, some of which is adhered to the wall. There are no obvious signs of choleliths or neoplasia.

Gastrointestinal

The gastric wall and pylorus are within normal limits in thickness. There is no loss of definition of the normal architecture of the wall layers. No obvious abnormalities are observed with its peristalsis.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved. A few loops of bowel are mildly dilated with fluid and gas. One of the loops of jejunum that is mildly distended with gas and fluid measures at the high end of the normal reference range at 5.1 mm.

The colonic wall is not thickened and mural detail is considered normal. There are no obvious signs of a mass, foreign body, infiltrative disease or an obstruction.

Pancreas

The left limb of the pancreas is not visualized.

The right limb of the pancreas has a coarse echotexture and is heterogeneous. These changes are most likely due to nodular hyperplasia and areas of fibrosis. The changes are considered age related and possibly secondary to previous episodes of pancreatitis, respectively. There are no signs of active pancreatitis.

Other

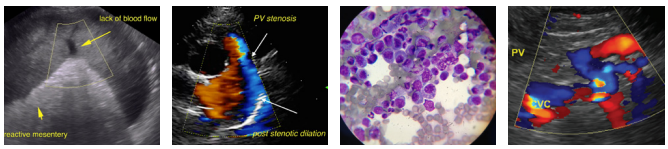
Lymph nodes: No abnormalities are observed.

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- Left adrenal mass with metastases to the caudal vena cava and the phrenicoabdominal vein. Differential diagnoses include an adenocarcinoma or pheochromocytoma.

- The hepatomegaly and diffuse hyperechogenicity of the liver are suggestive of a vacuolar hepatopathy, stress (chronic illness), for example, an adrenal mass. Other differential diagnoses such as hepatitis are considered less likely. The hypoechoic nodules observed are



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most likely due to nodular regeneration, which is a benign, age-related change. There are no obvious signs of hepatic neoplasia.

- Very mild degenerative changes of both kidneys, which are suggestive of age related degeneration.
- History of hypertriglyceridemia and hypercholesterolemia

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A urinalysis and urine culture and sensitivity are recommended. If negative, a protein: creatinine ratio is suggested.

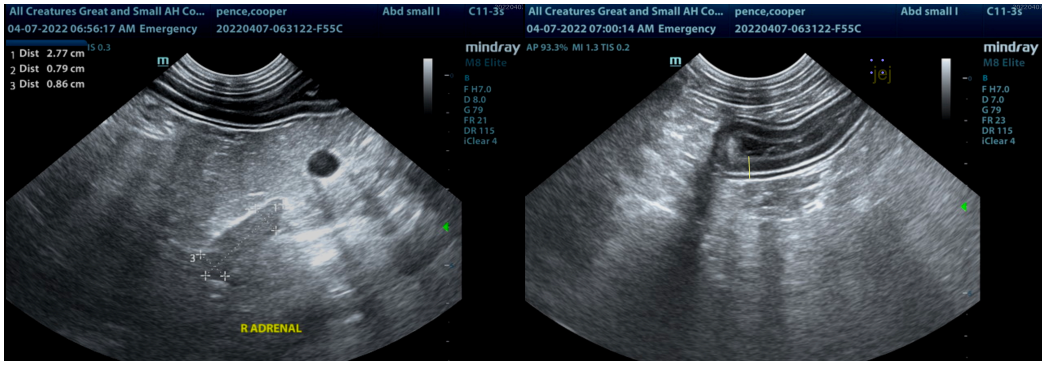
An arterial blood pressure is recommended to rule out hypertension.

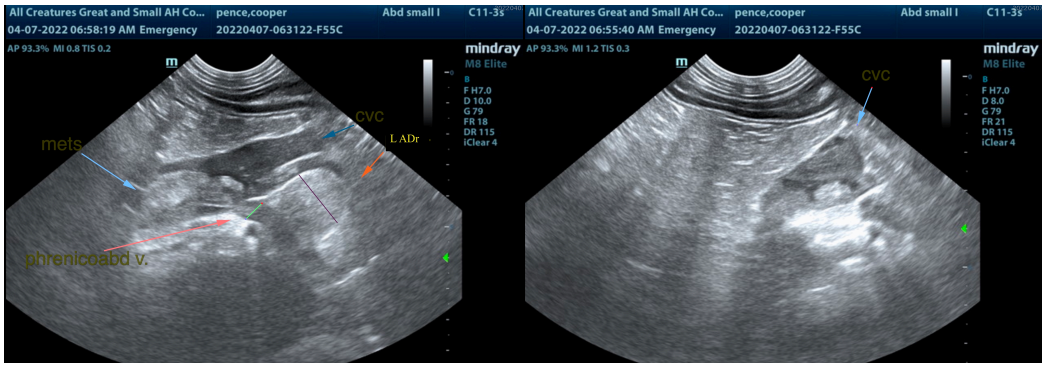
Clopidogrel may be necessary to decrease the risk of thromboembolic disease.

Medical management of adrenal tumors is possible with trilostane or mitotane (Lysodren).

If Cooper was fasted and the triglycerides are elevated at 515, a lower fat diet is suggested in addition to a fiber supplement, such as psyllium.

Denamarin may be discontinued, if desired.





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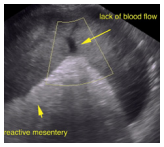

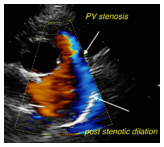

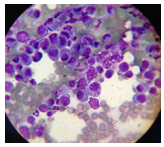
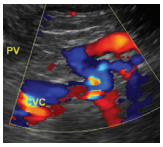

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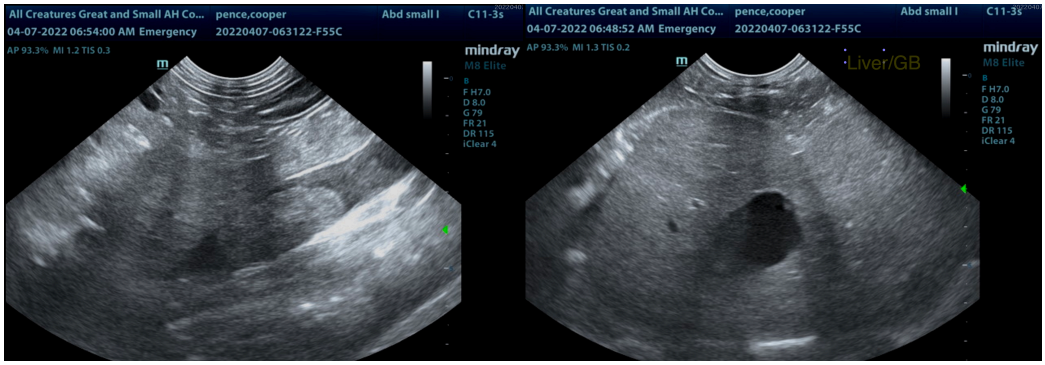

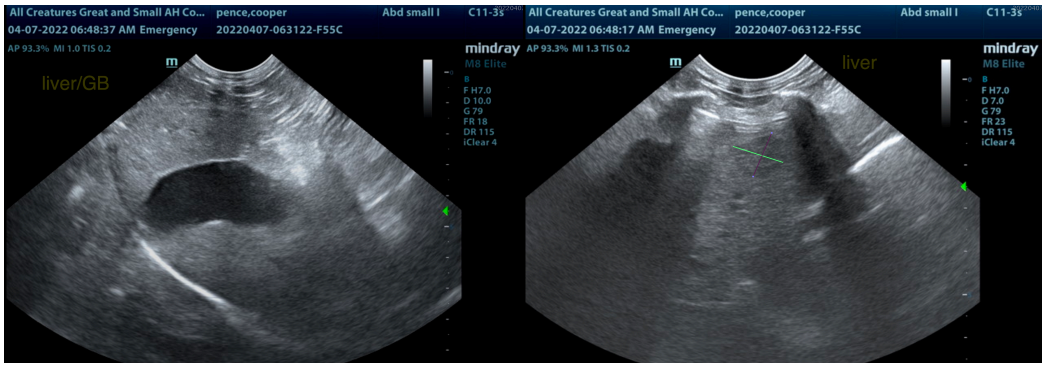

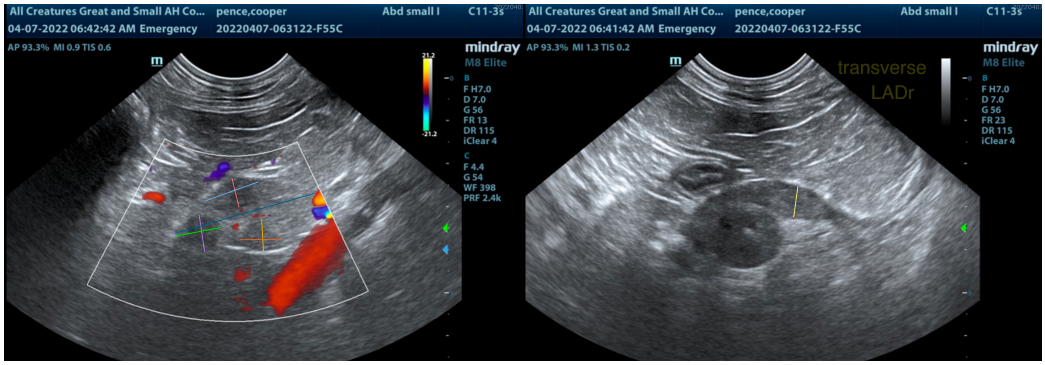

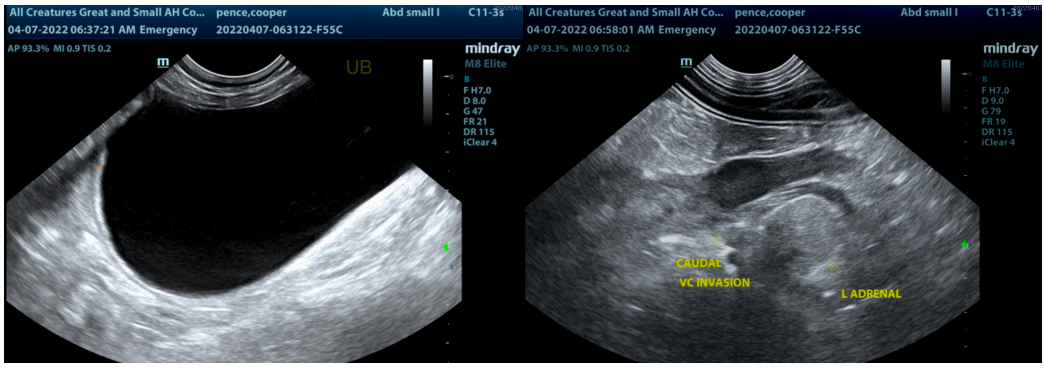

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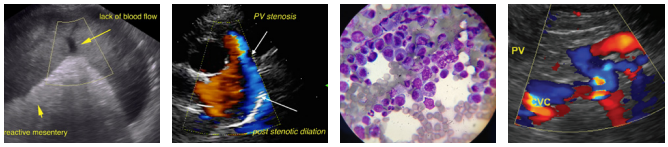

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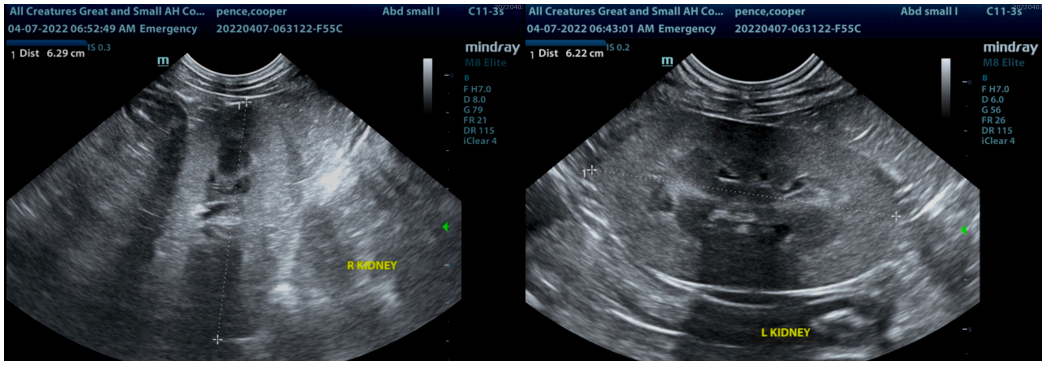

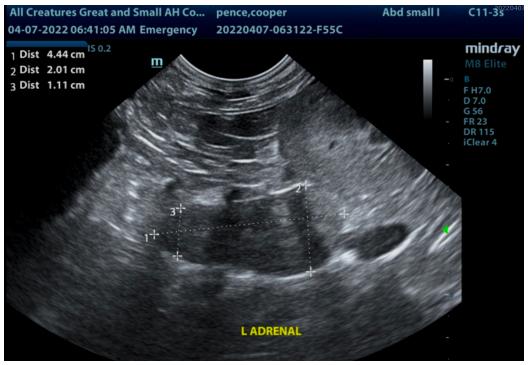

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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Lisa.Carioto@sonopath.com