



PATIENT

Noelle He

SPECIES

Canine

BREED

Bichon Cross

SEX

Spayed female

AGE

13 years

WEIGHT

5.5 kg

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

**IMAGING
PERFORMED BY**

Dr. Belan

HOSPITAL NAME

Sunridge AH

REFERRING VET

Dr. Magill

INVOICE

39987

DATE

10/7/22

PRESENTING CLINICAL SIGNS

History: Pendulous abdomen intermittent diarrhea PU PD. Suspect hepatic pathology and or Cushing's

Abnormal PE/Chem/CBC/UA Results: Chronic elevation of liver enzymes for over 12 months have gone higher recently. Kidney enzymes are now elevated

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and over distended at the time of the sonogram. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.

The **kidneys** presented a relatively uniform cortical hyperechogenicity when compared to the renal medulla, spleen and liver. No overt masses were noted. Corticomedullary definition was nebulous and the ratio favored the cortex slightly. The ureters were not visible and assumed to be normal. These changes are most consistent with chronic interstitial nephritis yet infiltrative disease could not be entirely ruled out without biopsy though neoplasia is not suspected. The right kidney measured 3.89 cm. The left kidney measured 4.74 cm with corticomedullary mineralization.

Adrenal Glands

The right adrenal gland was mildly enlarged and measured 0.96 cm at the caudal pole and 0.97 cm at the cranial pole. The adrenal was hypoechoic with some loss of detail. The left adrenal gland was at the upper limits of normal and measured 0.75 cm at the caudal pole and 0.72 cm at the cranial pole.

Spleen

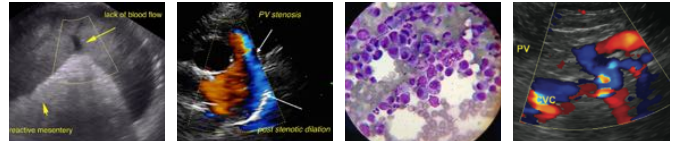
The **spleen** in this patient was mildly enlarged with uniform parenchyma and was folded upon itself caudally. Multi focal hyperechoic changes were noted. This is consistent with lipogranuloma. This is not overtly pathological.

Liver

The **liver** revealed diffuse, hyperechoic foci throughout the hepatic parenchyma with a minor amount of remodeling. This is consistent with lobar biliary mineralization. The gallbladder revealed a grouping of sand that measured 1.5 cm. Overt gallbladder calculi were also noted with over distension.

Gastrointestinal

There was some residual chyme and gas was noted in the **stomach**, yet not pathological. This is consistent with end post prandial presentation. Transit of chyme into the small intestine was normal. Curvilinear patterns were maintained throughout the GI tract. The pylorus was mildly thickened with



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echogenic remodeling of the pyloric and upper duodenal wall. No evidence of pathology. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

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Pancreas

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The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Some parenchymal remodeling, however, with mild deviation from curvilinear normalcy was observed. An occasional, non-disruptive nodule was noted in the pancreas. Pancreatic duct and capsular irregularities were present consistent with age related changes. If pain upon imaging (+ Murphy sign) was present or if the patient is focally painful in subxiphoid palpation then low-grade smoldering chronic pancreatitis should be suspected.

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ULTRASONOGRAPHIC FINDINGS

AGE

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Biliary calculi.

Hepatic parenchymal remodeling with multi-focal calculi, non-obstructive.

Gallbladder sand.

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Prominent right adrenal gland. Hyperplasia is likely, emerging Cushing's is possible.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

Ursodiol therapy with bile acid profile and liver oriented diet is recommended. I am concerned about long term viability of the kidneys as well as the liver in this patient. PDH/Cushing's may be the underlying issue as well. Work-up for Cushing's is indicated. 6-8 weeks of Ursodiol therapy is warranted. Geriatric/liver and renal oriented diet is indicated. Blood pressure measurements are also warranted.

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Internal medicine consult can be utilized through SonoPath.com. You can select the internal medicine drop down at <http://spa.sonopath.com/>.

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One of the world's top internists & SonoPath associate Dr. Remo Lobetti BVSc, MMedVet, PhD, DECVIM can evaluate your case through SonoPath. <https://sonopath.com/resources/sonopath-services/internal-medicine-teleconsultation-services>

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Efficient & Accurate Cushing's Work up-Lindquist

Notes regarding Cushing's Clinical Presentations:

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Nearly all Cushing's dogs have SAP elevations and true PU/PD (USG < 1.025) and most are polyphagic.

Cushing's dogs are > 6 years and usually > 9 years old, usually have poor skin coats, body scores > 3/5, and are usually sedentary animals.

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Its important to remember that Cushing's dogs usually look and play the part and other diseases cause false + stress related cortisol spikes. On rare occasion a Cushing's dog will not follow the rules but this is truly an exception.



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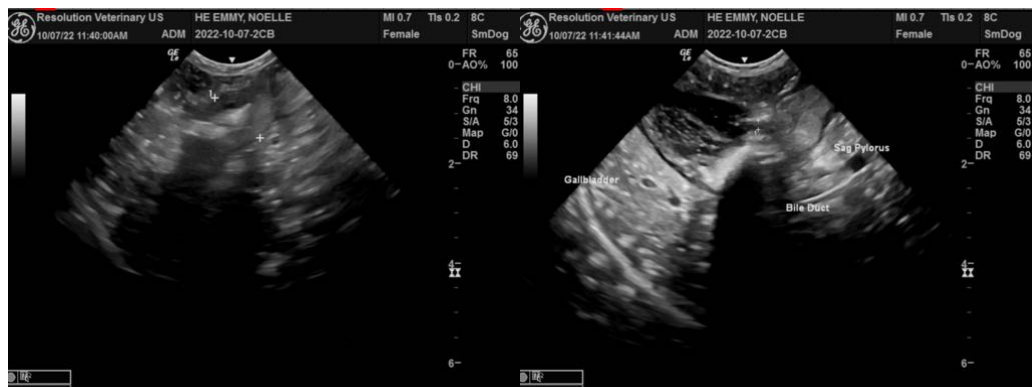
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Potential Cushing's patient workups can be costly and frustrating if not definitive and, in my experience, the non-definitive patient usually has something else going on that may be contributing to some of the clinical signs a Cushing's dog will have, especially SAP elevations or PU/PD. Based on this prelude of information I came up with the following algorithm in the spirit of diagnostic efficiency. The following suggested protocol is based on current available literature on Cushing's disease and extensive clinical-sonographic experience evaluation + Cushing's and False + LDDST & ACTH stim. cases in order to maximize the efficiency of a Cushing's workup in practice.





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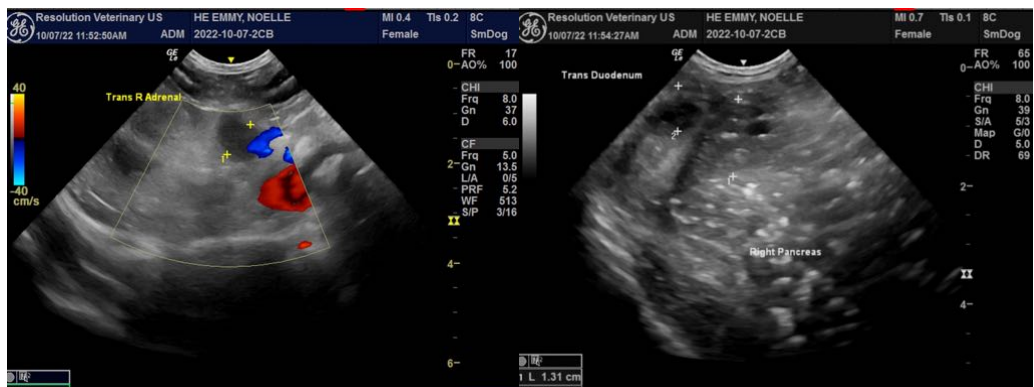
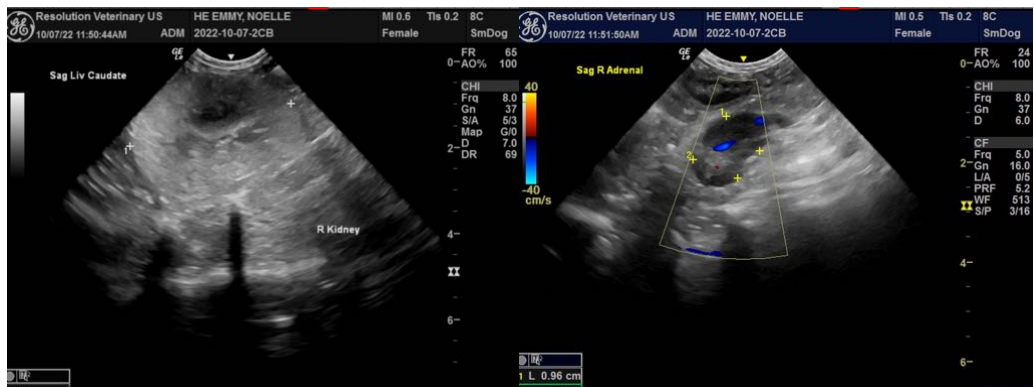
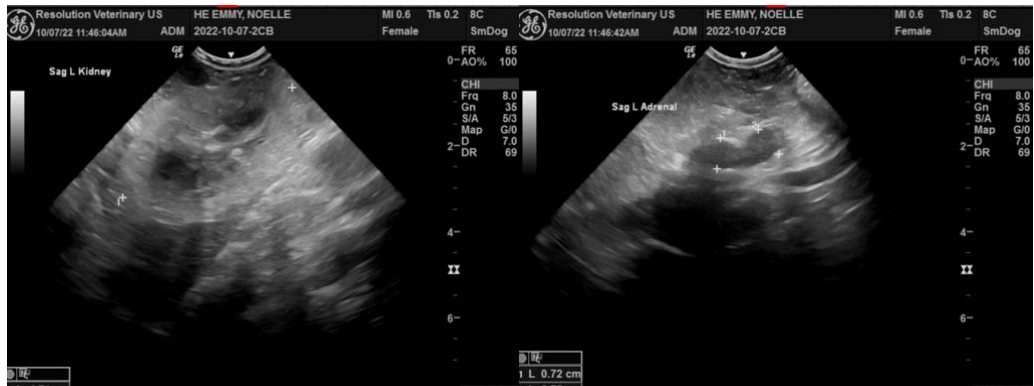
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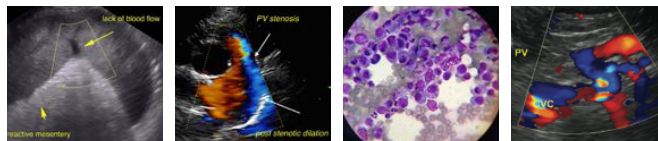
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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.

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info@SonoPath.com

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