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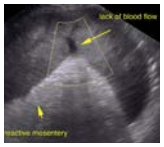
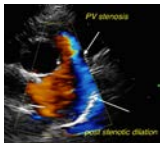
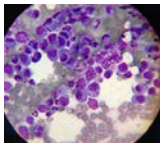
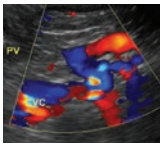

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1-800-838-4268 info@sonopath.com

PATIENT

Rocky Terrio

SPECIES

Canine

BREED

Boston Terrier

SEX

Neutered Male

AGE

8 Years

WEIGHT

23.2 Pounds

INTERPRETED BY

Kathleen Sennello DVM, MS, Diplomate ACVIM (Small Animal Internal Medicine)

IMAGING PERFORMED BY

Dr. Megan Cassels-Conway

HOSPITAL NAME

Central Broward AH

REFERRING VET

Dr. Janeen Lezcano

INVOICE

40913

DATE

8/31/22

PRESENTING CLINICAL SIGNS

P presented for staring into walls, lethargy and decreased appetite. Blood work was normal except mild proteinuria and marked low T4 and fT4. P was dx w hypothyroidism and supplementation was started. Two weeks after initiation of tx o reported severe PU/PD which has worsened in spite of discontinuing soloxine. Multiple dx were performed but all has been negative or normal. Trial treatments w Baytril and Doxy have also failed to show improvement. O did state while p was on soloxine, he was eating and acting more normal, playing and no longer staring into space.

Abnormal PE/Chem/CBC/UA Results: 3/2022: CBC: WNL, miniChem: creat: 1.1, UA: SG: 1.027, 3+ prot 3/2022: accuplex: NEG, done for proteinuria 7/2022: CBC: WNL, Chem: BUN: 18, creat: 1.0, choles: 504H, triglyc: 642, non fasted, UA: SG: 1.014, 3+ prot, quiet sediment, T4: <0.5, fT4: 7.2L. 8/9/2022: UA: SG: 1.011, 2+ prot, quiet sediment, DEC soloxine by 1/2 8/19: CBC: NSF, miniChem: creat: 0.8, UCS: NEG, started Baytril trial, no improvement noted, dec soloxine by add'l 1/2 8/22: pT4: 2.0L 8/26: resting cortisol: 2.5, Lepto titers: NEG, current on Lepto vaccines 8/31: chest rads: NSF, bp: 140mmHg

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

The prostate is normal in size and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

The left kidney has a normal shape and size (4.59 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (5.22 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.65 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

The right adrenal gland is normal in size measuring 0.46 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

Spleen

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. No focal parenchymal abnormalities are visualized.

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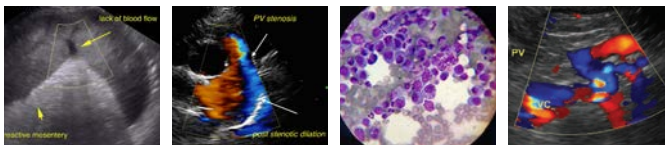

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Liver

The liver is subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is mildly heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are mild and primarily anechoic. The cystic and common bile ducts are normal/not visible.

Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Duodenum wall measures 0.47 cm. Jejunum wall measures 0.36 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

Pancreas

The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

Free Abdomen

Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

ULTRASONOGRAPHIC FINDINGS

- Mildly heterogeneous liver – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There were minimal focal lesions visualized to explain the symptoms described in the history. The liver changes are subtle and non-specific. You could consider a liver function test to further evaluate. These types of symptoms are somewhat nebulous and challenging to narrow down. I think that your thought to pursue a consultation with a neurologist is a good idea based on the behavioral changes reported. Below I will include my recommended evaluation for PU/PD, keeping in mind that this patient's urine specific gravity is relatively high for a truly PU/PD pet. Initially I would consider quantitating water intake. While this pet may not be truly PU/PD, it does sound like there has been a significant change, and that is likely significant.

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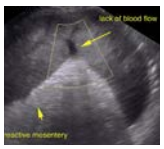
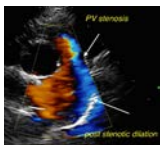
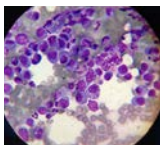
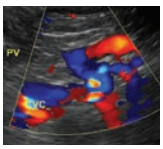

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An obvious lesion responsible for the reported increase in thirst and urination was not visualized. Some issues such as early renal disease, Cushing's disease, behavioral, neurologic, dietary, electrolyte disturbances etc.. are not able to be diagnosed with ultrasound alone. These can be challenging cases. The top 10 differentials can be ruled in/out with routine bloodwork, urinalysis and culture, several more can be evaluated with a good history and imaging. Unfortunately, as you work your way down the list the differentials become harder to definitively diagnose. This is the differential list I start with.

Diabetes Mellitus

Chronic Renal Disease/Renal Failure (can present pre-azotemic, especially in dogs, but expect the BUN & creatinine not to be at the low end of the reference range)
Hypercalcemia

Urinary tract infection

Iatrogenic Disease due to medications (diuretics, phenobarbital, KBr; diets either high in salt [such as S/D] or very low in protein (such as U/D))

Hyperthyroidism
Hypokalemia

Liver Disease (hepatic encephalopathy may be a mixed primary PU and PD)
Pyelonephritis

Polycythemia

Renal Tubular Diseases (glycosuria or Fanconi & Fanconi-like syndromes or RTA)

Hyperadrenocorticism (may be a mixed primary PU and PD)
Hypoadrenocorticism (either Addison's or hypocortisolism)
Paraneoplastic Syndromes (particularly splenic hemangiosarcoma?)
Pericardial Effusion
Pyometra (including stump pyometra in spayed dogs)
Chronic Partial Urinary Obstruction or Post-Obstructive Diuresis
Pheochromocytoma
Psychogenic Polydipsia (as in a true behavior disorder with a compulsive element)
Primary Non-Medical Polydipsia (aka "I drink a lot because I like it or I engage in activities that promote it, but that doesn't mean I'm sick")
Primary Nephrogenic Diabetes Insipidus (Congenital Nephrogenic Diabetes Insipidus, other diseases that cause primary PU other than Congenital Diabetes Insipidus would be considered Acquired Nephrogenic Diabetes Insipidus)
cion
Atypical Cushing's and SARDS
Central Diabetes Insipidus

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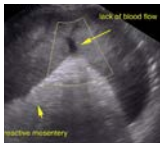
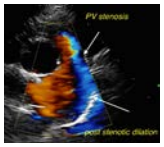
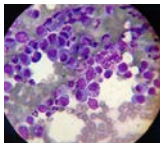
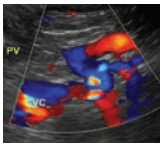

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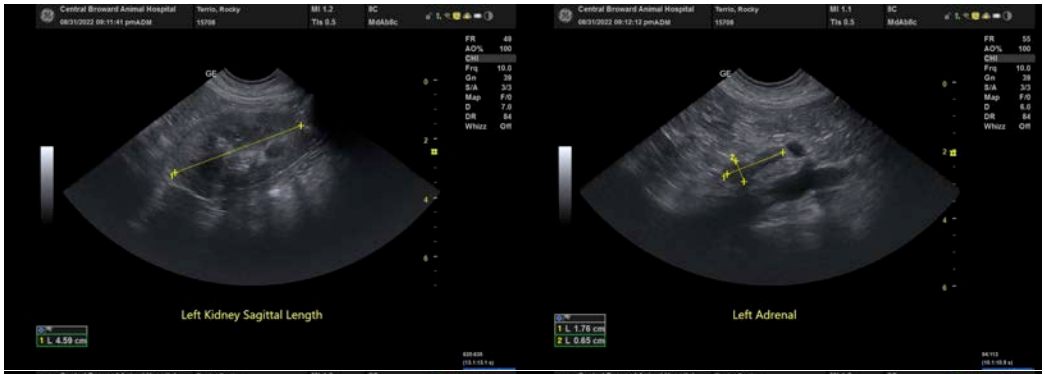

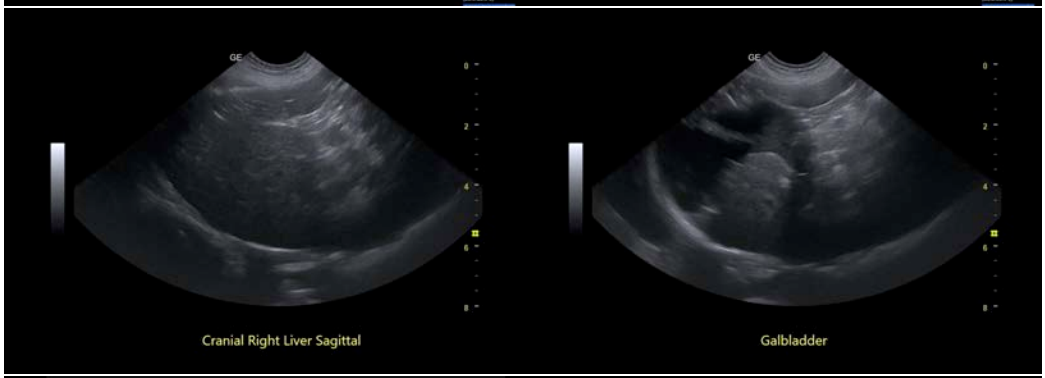

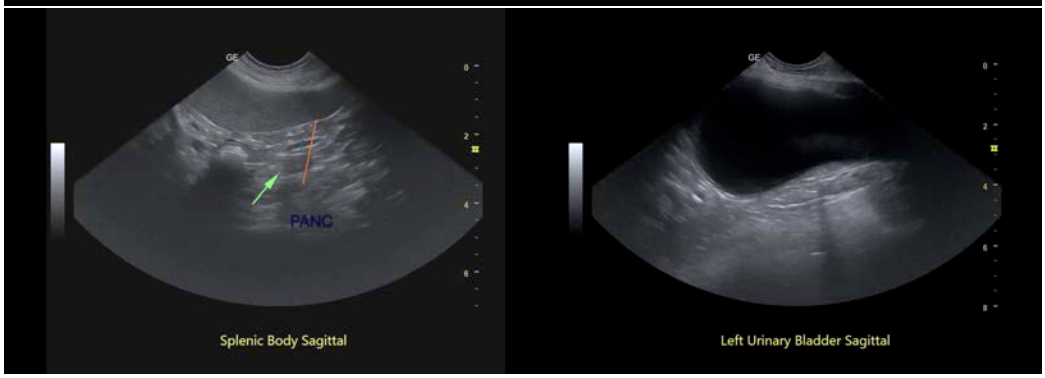

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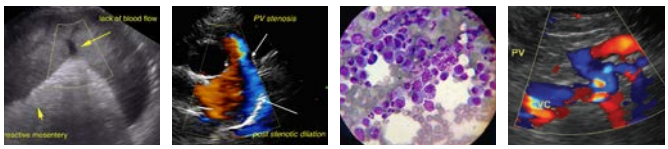

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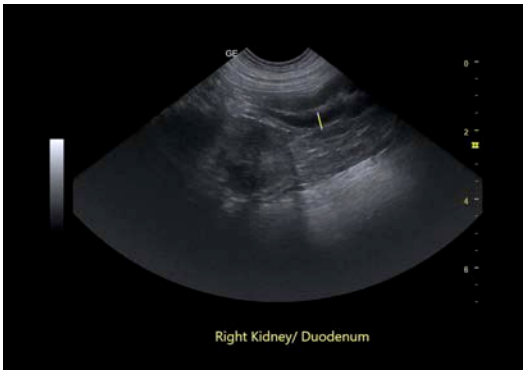

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Kathleen Sennello DVM,MS, Diplomate ACVIM (Small animal Internal Medicine)

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