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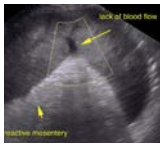
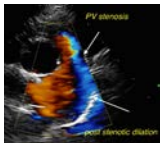
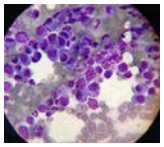
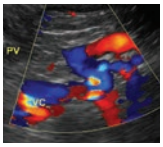

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1-800-838-4268 info@sonopath.com

PATIENT

Bailey Nash

SPECIES

Canine

BREED

Lab Retriever X

SEX

Neutered Male

AGE

11 Years

WEIGHT

70 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

42380

DATE

10/26/22

PRESENTING CLINICAL SIGNS

P presented w hx of marked PU/PD for last 2 months, in last few weeks p has also developed marked PP. In addition p has developed chronic diarrhea. P has been dewormed w Fenbendazole, outside lab fecal O/P showed NPS. P was started on Soloxine 6 weeks ago based on low T4 level alone. P also has hx of chronic atopy, which has previously responded to apoquel but due to age and possible underlying neoplasia cytopoint is now being used. P is currently on Cefpodozime for a superficial pyoderma flare up.

Abnormal PE/Chem/CBC/UA Results: 9/15/2022: CBC: WNL, Chem: creat: 1.2, T4: 3.2, UA: SG: 1.009, quiet sediment 8/31/2022: CBC: lymphopenia, Chem: creat: 1.2, ALT: 147, UA: SG: 1.006, mild hematuria, T4: 0.8 (1-4), started on soloxine 0.6mg bid 8/18/2022: CBC: lymphopenia, Chem: ALT: 345, ALP: 523, pred had been on oral pred and had received a dex injection on 8/5/2022. Currently repeat CBC/brief Chem/UA, UCS, Lepto titers and maldigestion profile are pending.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall is diffusely mildly thickened (0.31 cm), and the mucosa is mildly irregular. The trigone, ureteral papillae, and visible urethra (to a depth of 2cm) appear normal with no evidence of severe mucosal irregularities, masses or cystic calculi. Findings are most consistent with bacterial cystitis or lack of urine distension. Recommend urinalysis and culture.

The prostate is normal in size (1.16 cm) 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 (6.33 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 (6.18 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 0.69 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 0.40 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. There are numerous, somewhat irregular, hyperechoic nodules throughout the spleen, varying in size form 0.25-2.0 cm. One of the most prominent nodules measures 2.02 cm x 1.58 cm.

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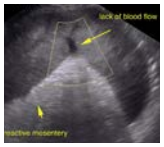
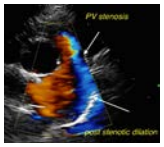
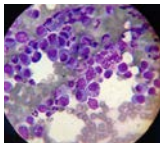
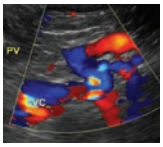

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Liver

The liver is subjectively normal in size, and is hypoechoic with smooth peripheral margins. The parenchyma is 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 gall bladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. There is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

Gastrointestinal

The stomach is moderately dilated with fluid and irregular shadowing material most consistent with normal ingesta and gas. 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 layering 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. The duodenum measured as normal (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.) 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

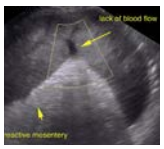
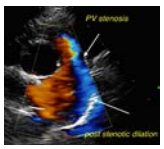
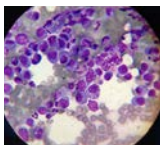
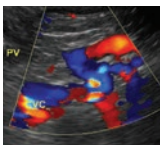
Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

ULTRASONOGRAPHIC FINDINGS

- Mildly irregular bladder mucosa – The bladder mucosal changes could be consistent with cystitis or artifactual due to lack of adequate luminal distension. Bladder neoplasia cannot be ruled out but is considered unlikely in this patient.

- Hyperechoic nodules visualized within the splenic parenchyma – The appearance of these nodules trends towards a benign lesion, but consider a fine needle aspirate to rule out underlying neoplasia.

- Hypoechoic, 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.

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- Moderate gallbladder debris – The significance of the aggregated gallbladder debris is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting but seems unlikely to be causing a current issue. Recommend continued monitoring.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The liver appears somewhat hypoechoic and heterogeneous. This is a non-specific finding. No focal lesions were visualized in the liver, and although the gallbladder does have a moderate amount of debris, it appears relatively healthy with no evidence of surrounding inflammation or wall thickening. Findings are most suggestive of a primary hepatopathy. Correlate with current liver values. Consider a liver function test and Leptospirosis testing (I believe this has already been done). Additionally, consider a fine needle aspirate of the liver provided coagulation parameters are normal.

The bladder wall mucosa is slightly irregular on today's exam. This could be consistent with cystitis or lack of distention of the urinary bladder. Recommend a urinalysis and culture.

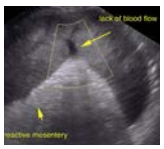
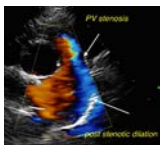
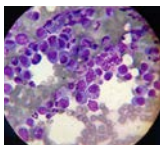
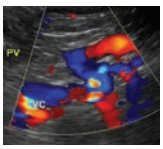
There are numerous, somewhat irregular, hyperechoic nodules in the spleen. The appearance of these nodules trends towards benign lesions, but consider a fine needle aspirate to rule out underlying neoplasia.

No GI lesions are visualized to associate with the diarrhea reported. Consider such differentials as food allergy/dietary intolerance, dysbiosis, and less likely IBD or GI neoplasia.

- Recommend a novel protein/hydrolyzed protein prescription diet.
- Consider a GI panel to Texas A&M for evaluation of B12 levels, folate, PLI/TLI etc.. to further evaluate for pancreatic/small intestinal disease. (I think this is already pending)
- Recommend chronic probiotics.
- If symptoms are persisting, you may need to consider obtaining GI biopsies.

An obvious underlying cause for the PU/PD is not observed. This could be related to liver disease, and some issues such as early renal disease, Cushing's disease, behavioral PU/PD, neurologic disease, electrolyte disturbances, etc. are not able to be diagnosed with ultrasound alone. The top 10 differentials can be ruled in/our 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 of differentials, the differentials become harder to definitively diagnose. This the list I start with:

1. Diabetes Mellitus
2. 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
3. Urinary tract infection
4. 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))
5. Hyperthyroidism
6. Hypokalemia
7. Liver Disease (hepatic encephalopathy may be a mixed primary PU and PD)
8. Pyelonephritis
9. Polycythemia
10. Renal Tubular Diseases (glycosuria or Fanconi & Fanconi-like syndromes or RTA)
11. Hyperadrenocorticism (may be a mixed primary PU and PD)
12. Hypoadrenocorticism (either Addison's or hypocortisolism)
13. Paraneoplastic Syndromes (particularly splenic hemangiosarcoma?)
14. Pericardial Effusion
15. Pyometra (including stump pyometra in spayed dogs)

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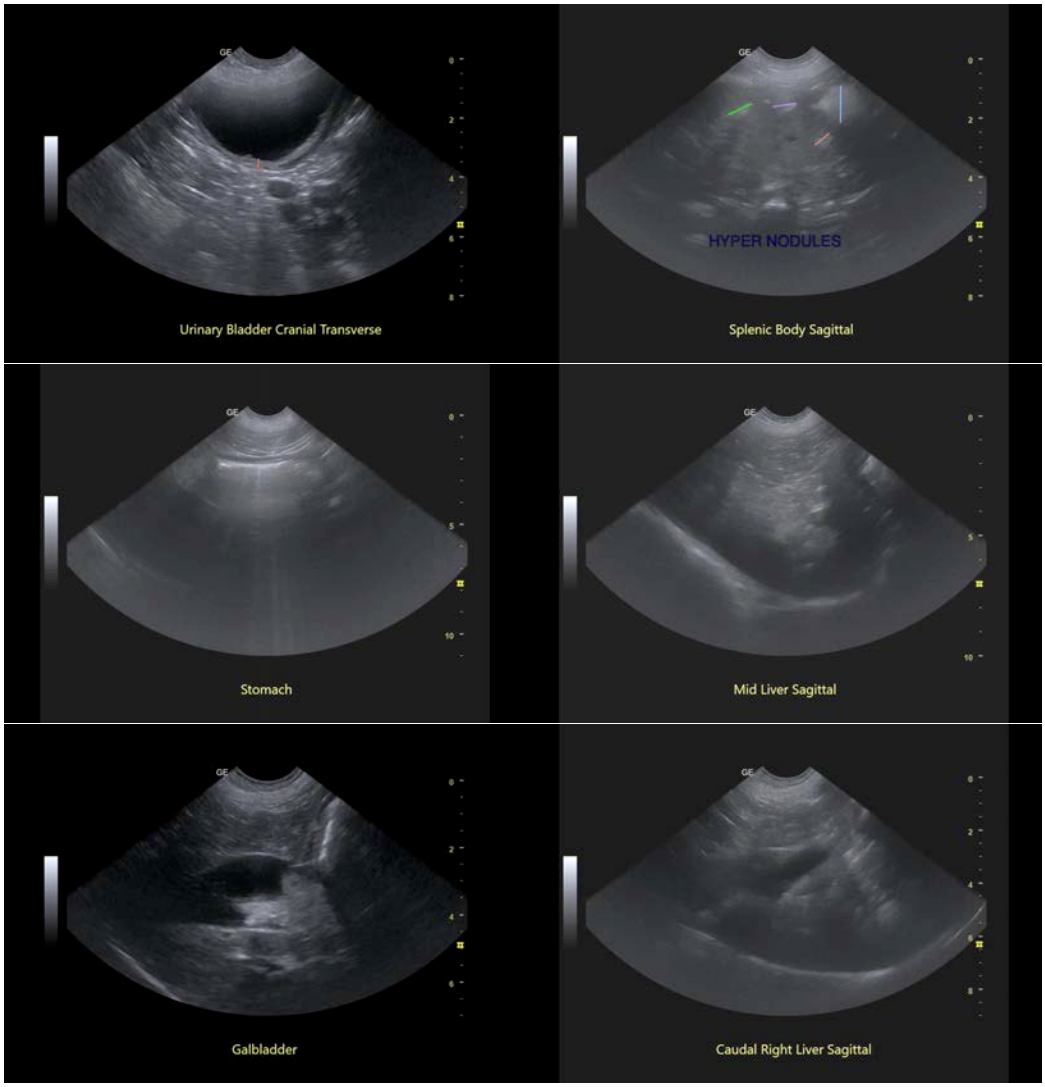
16. Chronic Partial Urinary Obstruction or Post-Obstructive Diuresis
17. Pheochromocytoma
18. Psychogenic Polydipsia (as in a true behavior disorder with a compulsive element)
19. Primary Non-Medical Polydipsia (aka "I drink a lot because I like it or I engage in activities that promote it, but that doesn't mean I'm sick")
20. 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)
21. Atypical Cushing's and SARDS
22. Central Diabetes Insipidus



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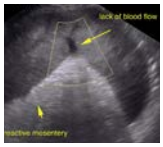
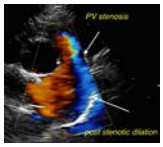
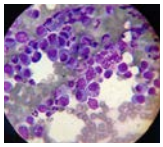
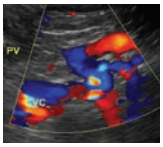

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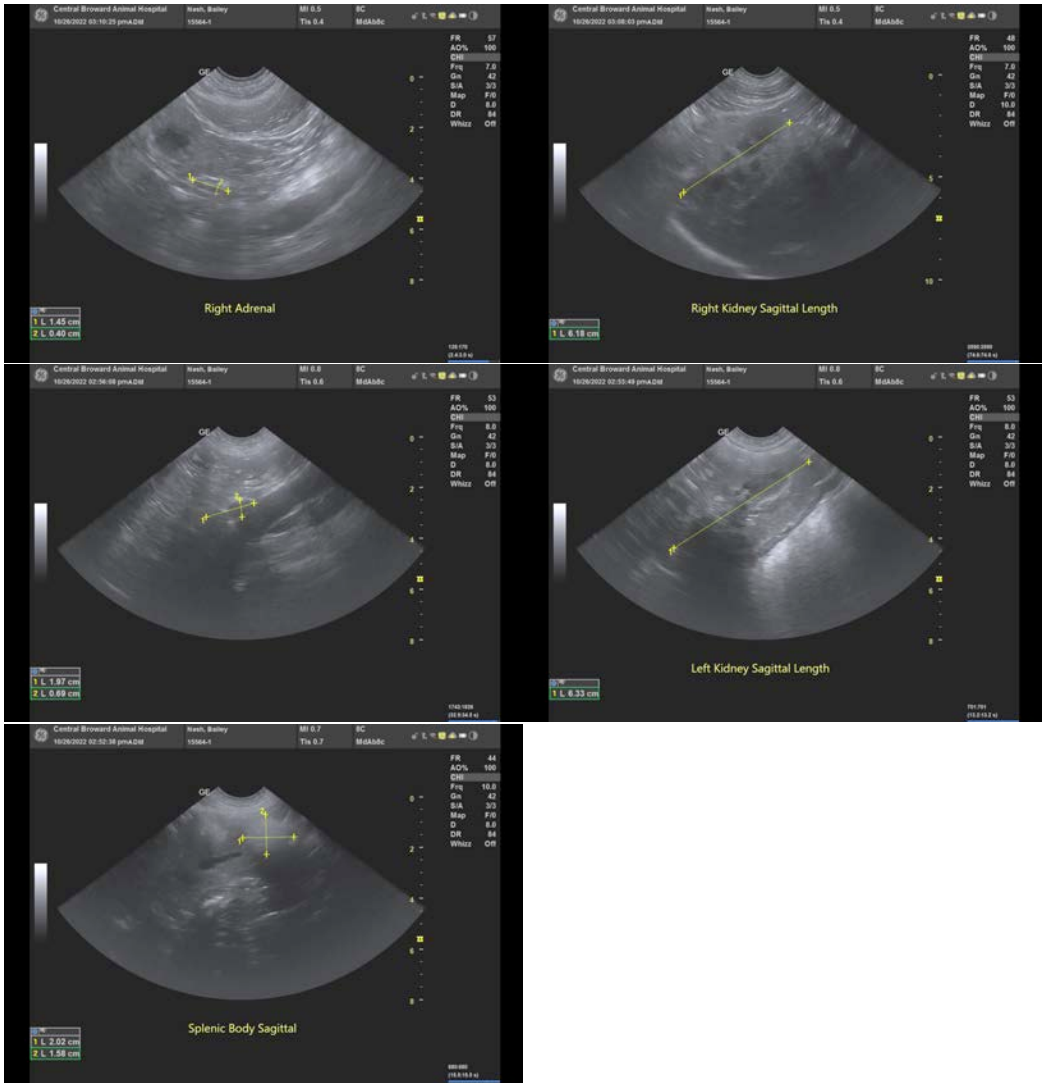

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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