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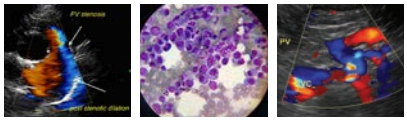

SonoPath
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DATE

10/20/22

PATIENT

Penelope Keeter

SPECIES

Canine

BREED

Boston Terrier

SEX

Spayed Female

AGE

1/23/13

WEIGHT

20.8 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Andi Parkinson RDMS

HOSPITAL NAME

North Laurel AH

REFERRING VET

Dr. Steere

INVOICE

42236

PRESENTING CLINICAL SIGNS

Owner reports profound increase in thirst. Was tested for Cushings (LDDS) in April and results were not supportive of Cushings. Progressive increase in liver values.

Current Medications: None listed.
Lab Results: 10/11/22: CBC - Retic 218k (H), WBC 18.3k (H), Neut 15884 (H), Eos 18 (L), PLT 684 (H). Chem - Creat 0.4 (L), Phos 6.5 (H), Na 159 (H), Anion gap 28 (H), ALT 460 (H), AST 58 (H), ALP 4124 (H), GGT 129 (H), Chol 408 (H), Amyl 305 (L), CK 235 (H), UPC 0.6 (H), T4 0.8 (L). Urinalysis - USG 1.035, pH 8.0, quiet sediment
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

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 left kidney has a normal shape and size (4.98 cm) with non-obstructive nephroliths. Overall echogenicity is slightly hyperechoic with mildly reduced 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, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (5.06 cm). Overall echogenicity is slightly hyperechoic with mildly reduced 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 to borderline large, measuring 0.77 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/borderline large, measuring 0.71 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 and the echotexture is homogenous. The splenic capsule is smooth with no visible irregularities. Rare discrete focal hyperechoic, perivascular parenchymal abnormalities are present. The appearance of these lesions is most consistent with benign splenic myelolipomas. The blood flow through the hilus and splenic parenchyma appears normal.

Liver

The liver is large in size, and normal in echogenicity 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 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. 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 prominent and mottled compared to the surrounding isoechoic 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 reduced corticomedullary distinction in both kidneys with left-sided non-obstructive nephroliths – The bilateral renal findings are consistent with age-related change.
- Borderline “plump” adrenal glands – The bilateral adrenomegaly could be consistent with bilateral hyperplasia (e.g., secondary to pituitary-dependent hyperadrenocorticism), bilateral infiltrative neoplasia, inflammatory adrenal disease, other. Correlation with clinical findings is recommended.
- Prominent, mottled pancreas – The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.
- Large, 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.
- 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.

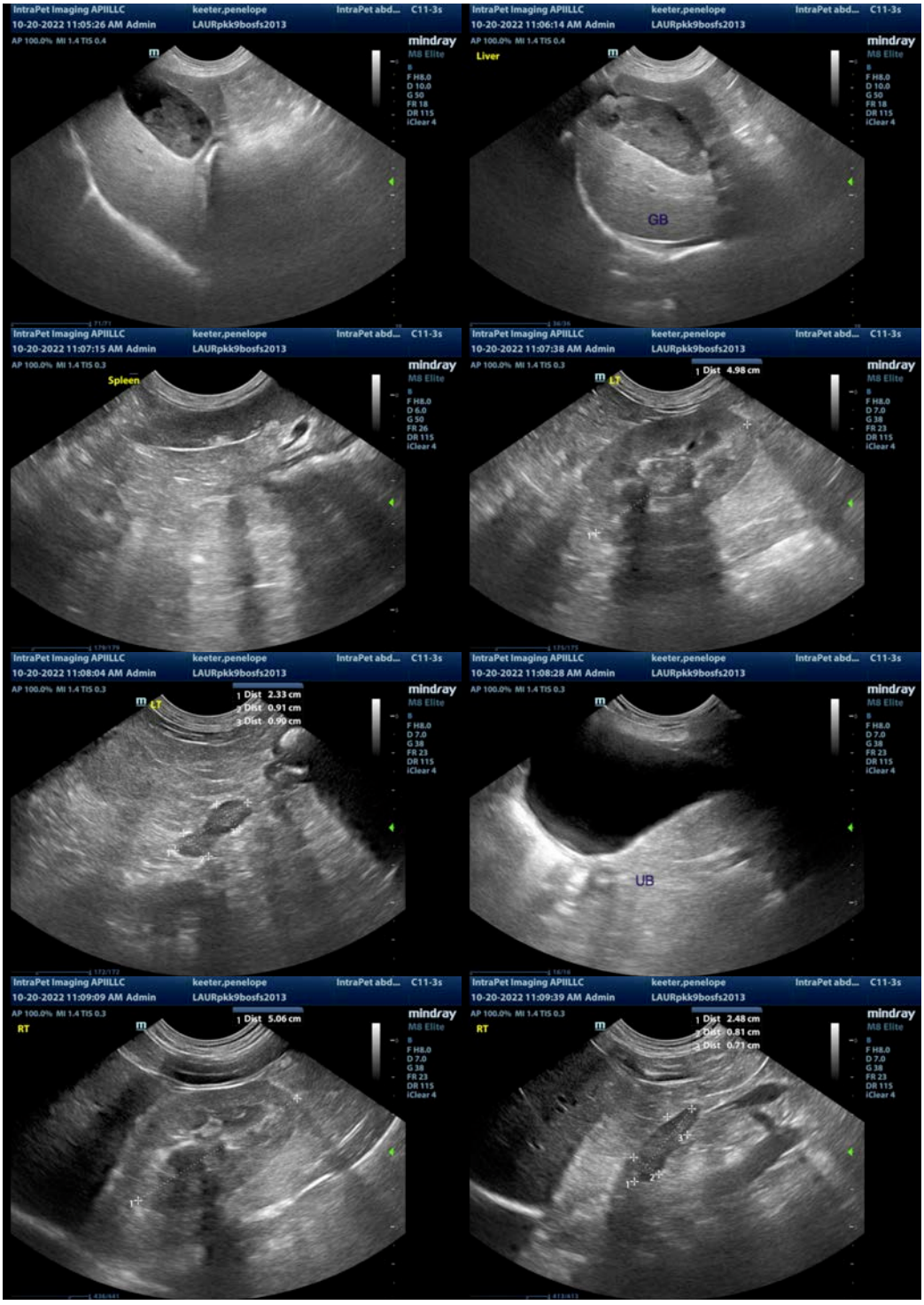
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The adrenal glands in this patient are not overtly enlarged, but for a relatively small dog I feel that they are borderline large. I agree that the symptoms combined with the liver enzyme elevations, etc. could be consistent with Cushing's disease. If the low-dose Dexamethasone test was negative, you could consider an ACTH stimulation test to the University of Tennessee for an adrenal panel, which will test cortisol, 17 hydroxyprogesterone, and other hormones to look for atypical Cushing's.

Additionally, be diligent about other possible differentials such as urinary tract infection (recommend urinalysis and culture), underlying liver disease (recommend pre- and post-prandial bile acids), Leptospirosis, and possible early renal disease affecting urine concentrating ability (of course there are many others but these seem most likely).

I will include a list of differentials for PU/PD, as this may be helpful.

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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3 Dist 0.99 cm
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RT
1 Dist 2.48 cm
2 Dist 0.81 cm
3 Dist 0.71 cm

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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