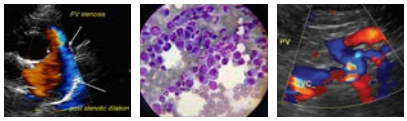
IMAGING PERFORMED BY

IntraPet.com



SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

DATE

3/22/23

PATIENT

Jojo Kane

SPECIES

Canine

BREED

Pug X

SEX

Neutered Male

AGE

12/21/09

WEIGHT

41.6 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

HOSPITAL NAME

Stevenson Village

REFERRING VET

Dr. Vinson

INVOICE

46100

PRESENTING CLINICAL SIGNS

PU/PD since December, seemed to be acute onset. Had an ultrasound at a holistic practice. Reported liver was mottled with hypoechoic nodules, the largest measured 1.3 cm. Spleen was mottled with a discrete mass 2.5 cm in size that is also mottled. Aging changes in kidneys. Right adrenal gland slightly enlarged, caudal pole 0.8 cm. Owner wanted to repeat ultrasound. Unable to obtain copy of previous report.

Current Medications: Herbal supplements.
Lab Results: ALP 561, ALT 194, USG 1.005. Had repeat labwork at holistic vet. ALP 385, ALT 77, PrecisionPSL 241, PLT 465K
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Stephanie Warga RDCS, RVT.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is only mildly distended (empty). Visible contents are anechoic. Urinary bladder wall is unable to be fully assessed for pathology without further distension. No visible masses or cystoliths are observed. The trigone and visible pelvic urethra are normal thickness with a smooth mucosal surface. If there are urinary signs and/or concern for urinary bladder pathology, reassessment after complete filling is recommended.

Prostate is normal in size, echotexture and echogenicity for a neutered male.

The right kidney is normal in size (5.91 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed. A hyperechoic band parallel to the corticomedullary border is present.

The left kidney is normal in size (5.47 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed. A hyperechoic band parallel to the corticomedullary border is present.

Adrenal Glands

The right adrenal gland is normal in size (2.18 cm long x 0.99 cm at the cranial pole and 0.63 cm at the caudal pole), shape and contour. A hyperechoic nodule is noted in the cranial pole. Nodule does not disrupt normal shape and/or architecture. Visible surrounding vasculature appears normal.

The left adrenal gland is normal in size (2.17 cm long x 0.61 cm at the cranial pole and 0.75 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

Spleen

The spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). A 2.2 cm x 2.9 cm heterogeneous, primarily hypoechoic, vascular nodule/mass is noted near the tail of the spleen, resulting in a slight capsular bulge, as well as a 2nd approximately 1.0 cm in diameter hypoechoic non-capsule disrupting nodule in the mid spleen. Splenic vasculature appears normal.

Liver
Liver is subjectively enlarged with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is moderately distended with anechoic bile as well as mild suspended and gravity dependent echogenic debris. The wall is smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion or inflammation.

Gastrointestinal
The visible stomach wall is normal in thickness and layering. The lumen of the stomach is mildly distended with very echogenic reverberation artifact from intraluminal gas. There is no evidence of obstruction, foreign material or infiltrative disease; however, complete visualization of far wall is partially inhibited by gas. Pyloric outflow tract appears patent.

The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

Pancreas
The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen
There is no evidence of free peritoneal effusion noted in these images.

There is no apparent lymphadenopathy noted in these images.

There is no evidence of heart base or pericardial pathology noted in these images at this time. If cardiac function evaluation is desired a full echocardiogram is recommended.

ULTRASONOGRAPHIC FINDINGS

- Splenic nodules – Differentials include either benign cysts, hematomas, nodular hyperplasia, extramedullary hematopoiesis, etc. versus infiltrative neoplasia (i.e., round cell neoplasia, sarcoma, metastatic disease, etc.) which can mimic benign lesions and cannot be ruled out without tissue sampling.

- **Hyperechoic adrenal nodule (cranial pole right adrenal gland) –** Differentials include primary adrenal cortical adenoma or adenocarcinoma, pheochromocytoma, myelolipoma, adrenal hyperplasia secondary to pituitary disease or metastatic disease. Ultrasound alone cannot differentiate between functional and non-functional nodules and/or between benign and malignant disease. Small nodules without other evidence of abdominal disease (to suggest metastatic disease) and/or clinical signs (to suggest adrenal disease) are most often incidental and should be monitored.

- **Heterogenous Liver –** These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.

- **Mild gallbladder debris -** Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness. Cholecystic debris is not necessarily related to hepatobiliary disease. Echogenic bile is most commonly an incidental finding in dogs and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.

- **Subtle bilateral medullary rim sign –** This finding is of unknown clinical significance and can be a normal variant, often idiopathic. Medullary rim sign can be present with renal disease including FIP, lymphoma, hypercalcemic nephropathy, Leptospirosis, tubular disease, other and should be interpreted in combination with other more specific indications of kidney disease such as isosthenuria, proteinuria, azotemia, etc. This is a common incidental finding in patients with diabetes mellitus.

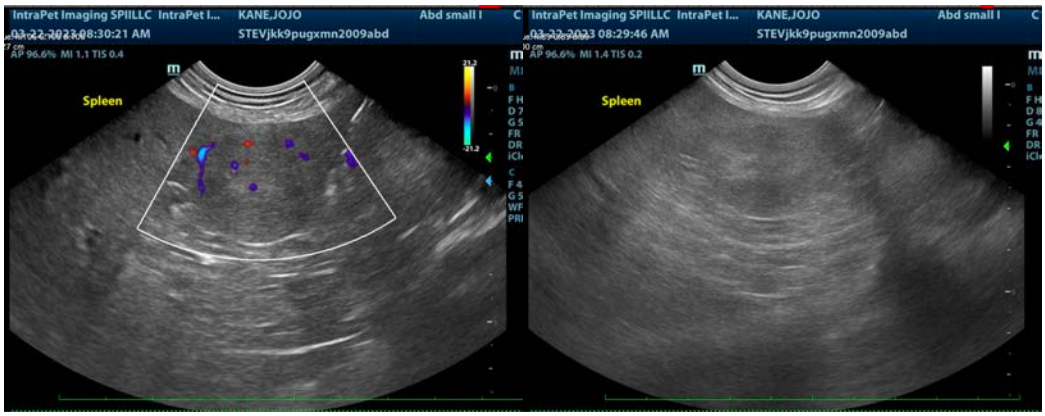
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

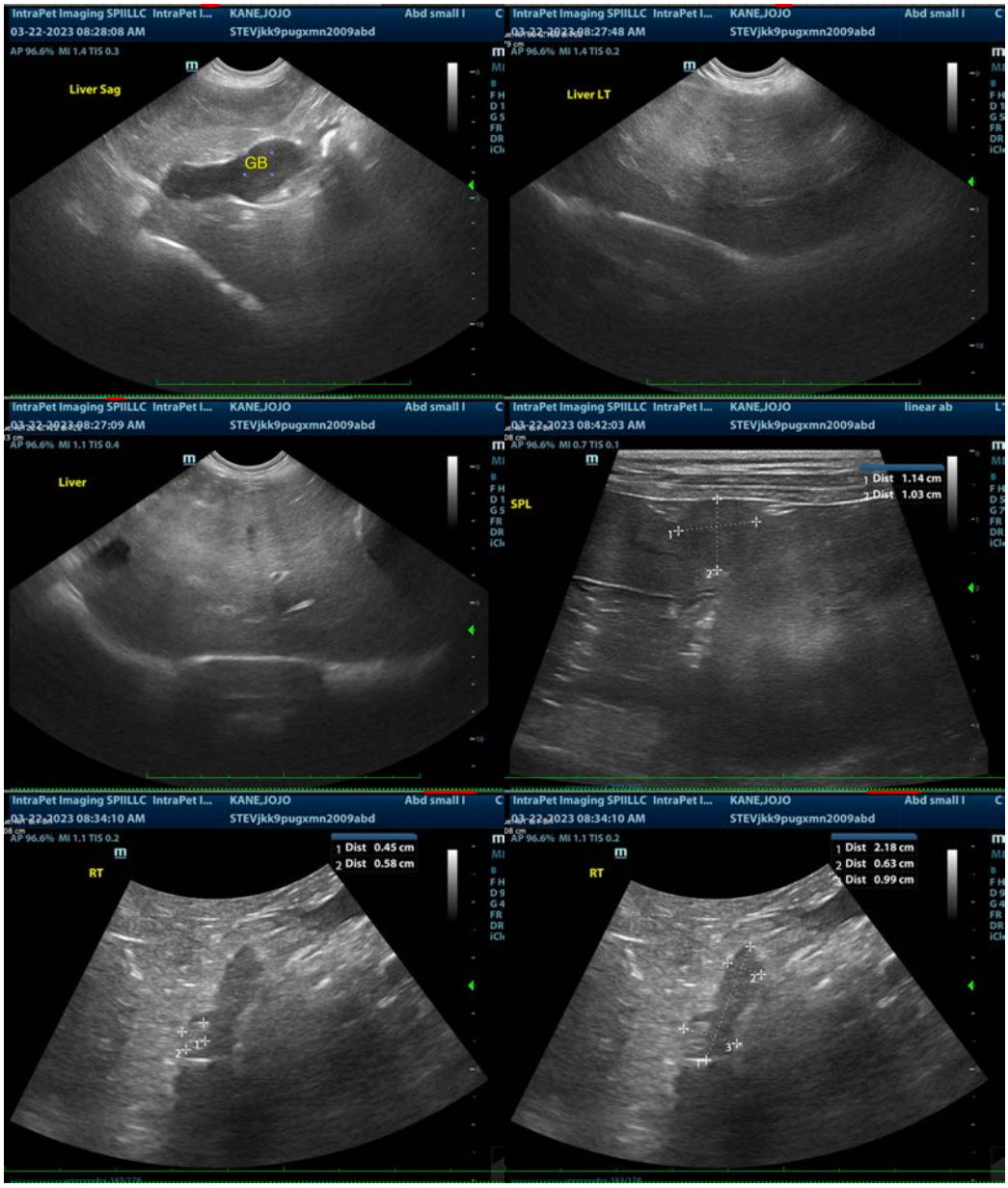
Further investigation of the splenic nodules is recommended, beginning with three view thoracic radiographs for further assessment of cardio-pulmonary status as well as to further evaluate for any evidence of metastatic disease, if not recently evaluated, followed by fine needle aspirate of the splenic nodules if patient's coagulation status is appropriate.

Given this patient's reported PU/PD and liver enzyme changes, the described adrenal gland, liver and gallbladder changes are all suggestive of hyperadrenocorticism. Given the reported clinical signs also suggestive of hyperadrenocorticism, further testing is recommended:

A LDDS test is warranted. If a LDDS test has been evaluated with a normal result, investigation of possible atypical hyperadrenocorticism with a full ACTH stimulation adrenal panel to the University of Tennessee could be considered. If not recently evaluated, blood pressure is recommended.

Additionally, if not recently evaluated, a urinalysis and, if indicated based on urinalysis results, urine culture is also recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ratio is recommended.

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Liver Sag
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Liver
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2 Dist 1.03 cm
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2 Dist 0.58 cm
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03-22-2023 08:34:10 AM STEVjkk9pugxmn2009abd
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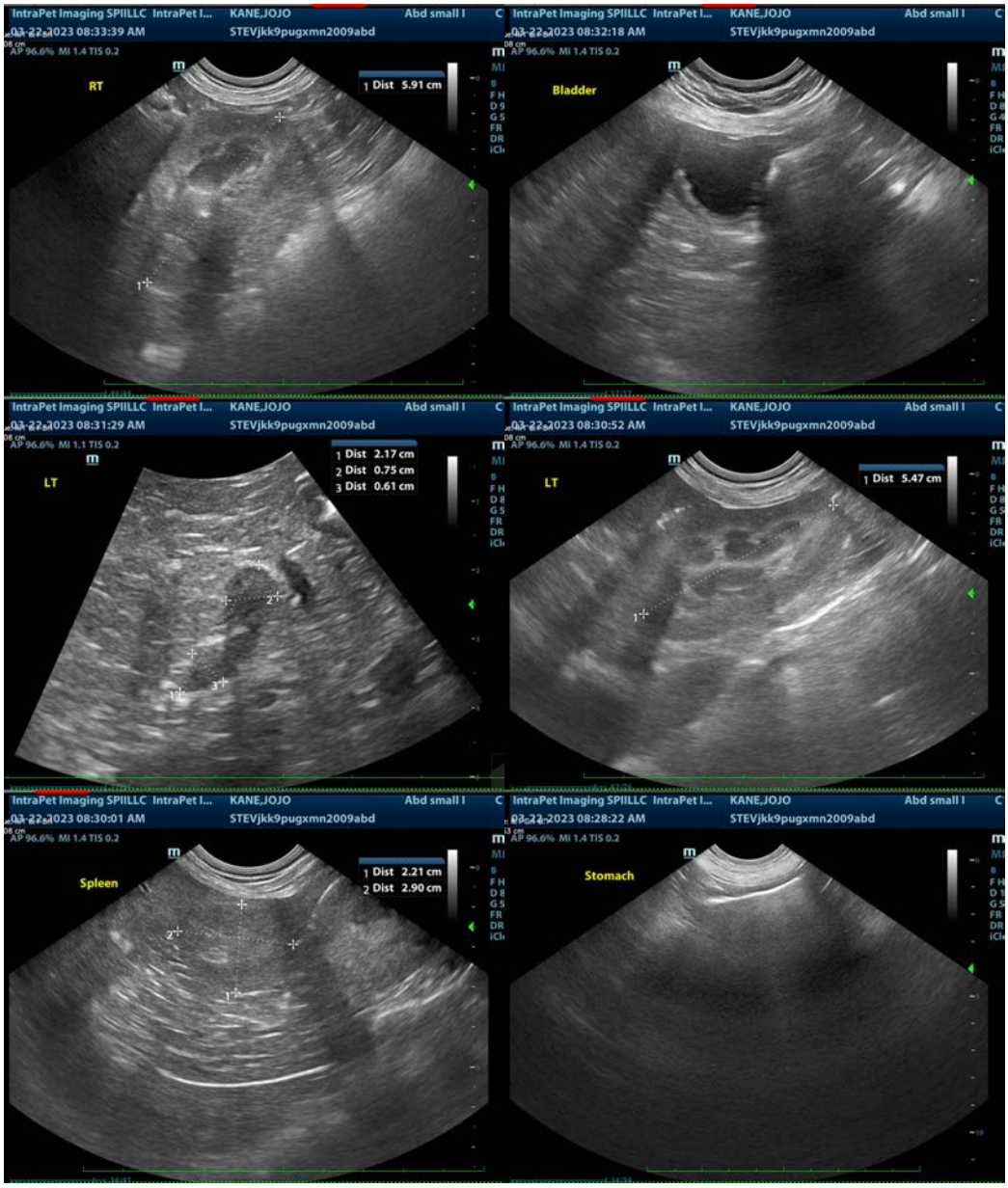
RT
1 Dist 2.18 cm
2 Dist 0.63 cm
3 Dist 0.99 cm



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.

Beth Johnson, DVM, DACVIM
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