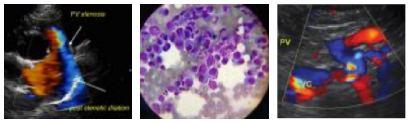
IMAGING PERFORMED BY

IntraPet.com



SonoPath
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DATE

4.28.2023

PATIENT

Angel Hagan

SPECIES

Canine

BREED

Silky Terrier

SEX

Spayed Female

AGE

12/19/2009

WEIGHT

10.38 lbs

INTERPRETED BY

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

HOSPITAL NAME

Animal Care Center

REFERRING VET

Dr. Beavers

INVOICE

12888

PRESENTING CLINICAL SIGNS

Breathing heavier, bloated/hard abdomen. Grade 2/6 murmur.

Current Medications: None.
Lab Results: Elevated liver enzymes, slight increase in BUN.
Radiographs: Consolidation in cranial thoracic lung field, mild broncho interstitial lung pattern. Enlarged liver, spondylosis lumbar vertebrae. Globoid heart, ground glass appearance in the cranial abdomen adjacent or associated with liver region.
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

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) with mildly thickened wall (0.31 cm), mucosal irregularities, masses or cystic calculi.

The left kidney has a normal shape and size (4.26 cm). Overall echogenicity is normal with decreased corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. Mild pyelectasia is present (0.33 cm). There is no evidence of nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (4.40 cm). Overall echogenicity is normal with decreased corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of 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 large and irregular, measuring 0.64 cm at the caudal pole / 0.80 at the cranial pole / 2.00 cm in length). It is observed in its normal position cranial to the left renal artery. It abnormal in appearance in that there is a hyperechoic nodule in the cranial pole (0.86 x 0.80 cm).

The right adrenal gland is normal in size measuring 0.73 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.

Liver

The liver is subjectively large, and echogenicity with smooth peripheral margins. The parenchyma is hypoechoic echotexture. The visible portions of the vasculature and biliary tract appear normal. There is a hyperechoic nodule visualized in the right side of the liver (1.01 x 0.76 cm).

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 (0.36 cm in wall thickness) and the jejunum measured as normal (0.30 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 prominent and hyperechoic to surrounding mesentery. There is a small, hypoechoic structure visualized in the right limb of the pancreas (0.62 cm in diameter), most consistent with a pancreatic nodule or local lymph node. 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

Primary Findings

- Mildly thickened/irregular urinary bladder wall - 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 nodule in the cranial pole of the left adrenal gland - adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochdromocytoma), hyperplasia, inflammation, other.

- Decreased corticomedullary distinction in both kidneys with left-sided pyelectasia - The bilateral renal findings are consistent with age-related change.

- Prominent mottled pancreas with hypoechoic nodule versus local lymph node - The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation. The hypoechoic nodule could represent lymphoid hyperplasia, a benign or neoplastic tumor (adenoma, carcinoma) or a superimposed lymph node.

- Large hyperechoic liver with a hyperechoic nodule on the right side - The diffuse hepatic changes are non-specific and can be seen with vacuolar hepatopathy, reactive change, nodular hyperplasia or, less likely, inflammatory/immune-mediated disease, infiltrative neoplasia, or other hepatopathy. The appearance of the hyperechoic nodule trends toward a more benign process.

- Moderate gall bladder - 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

I am somewhat surprised by the relatively mild elevations in liver enzymes, as reported, as the liver is very large and hyperechoic. This would be most commonly associated with vacuolar hepatopathy, although infiltrative disease (particularly round cell neoplasia) or a lipidotic liver would also be possible. Consider a liver function test and a fine-needle aspirate of the liver (providing coagulation parameters are normal). There is a hyperechoic nodule visualized in the cranial pole of the left adrenal. This could represent a benign or a neoplastic process and could be secreting hormone or be nonactive. These are my recommendations for further evaluation of an adrenal nodule:

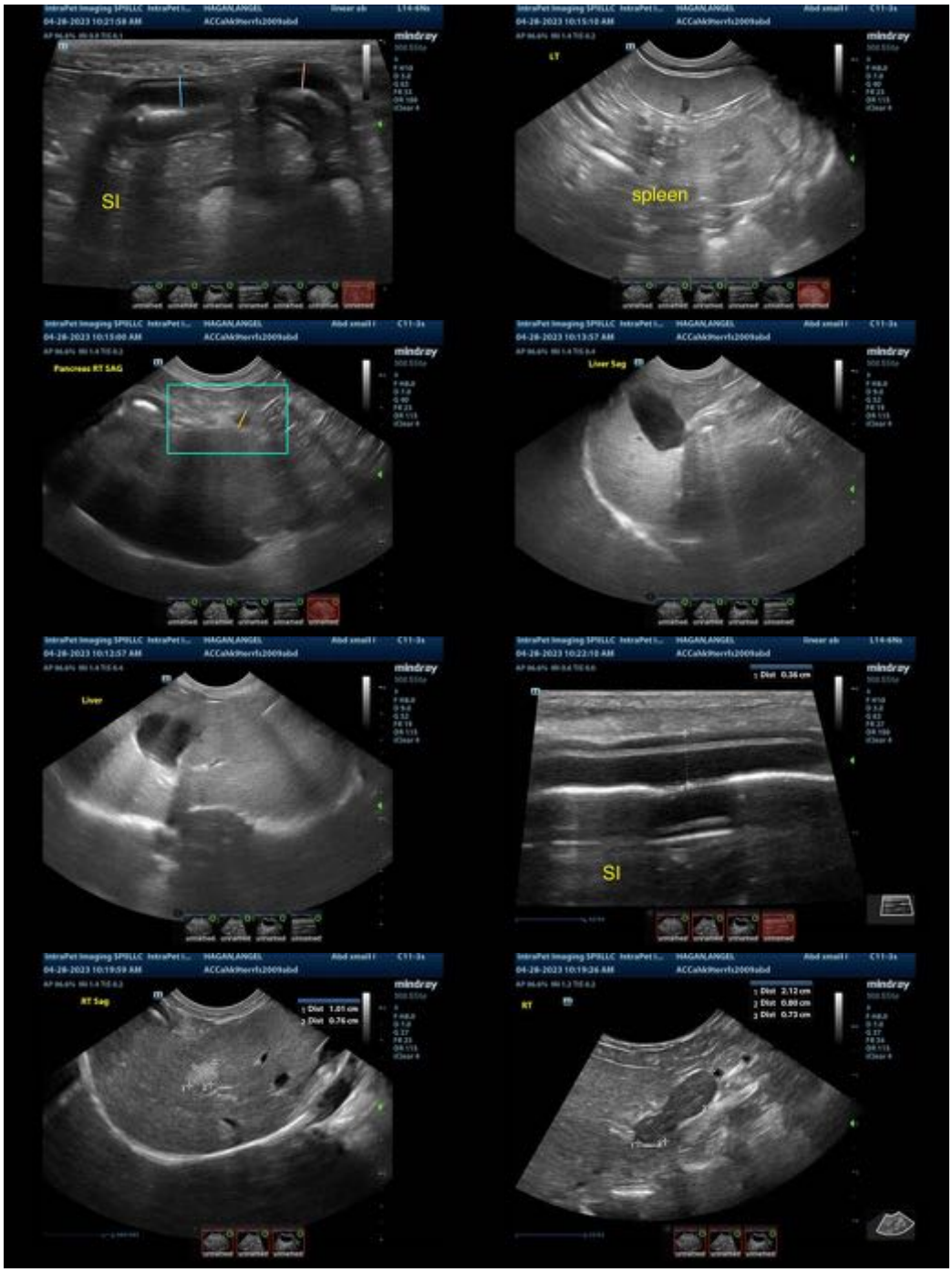
- If signs of Cushing's are present, consider adrenal function testing. I prefer an ACTH stimulation test combined with an adrenal panel to the University of Tennessee's endocrine lab to look for atypical adrenal hormones as well as cortisol. (other testing can suffice)
- If adrenal dependent Cushing's is suspected and supported by adrenal function testing consider medical therapy with lysodren or trilostane and/or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)-This can be a challenging surgery with significant risk for complication
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma
- Due to the invasive nature of these masses a CT scan is recommended to evaluate for metastasis and vascular invasion.
- If no symptoms of Cushing's are present, consider either referral for surgery or if surgery is not an option consultation with a veterinary oncologist regarding chemotherapeutic options and continued monitoring with ultrasound (in 6-8 weeks) can be considered.
- Some aggressive adrenal tumors can grow quickly and there is risk for acute hemorrhage from vascular invasion.

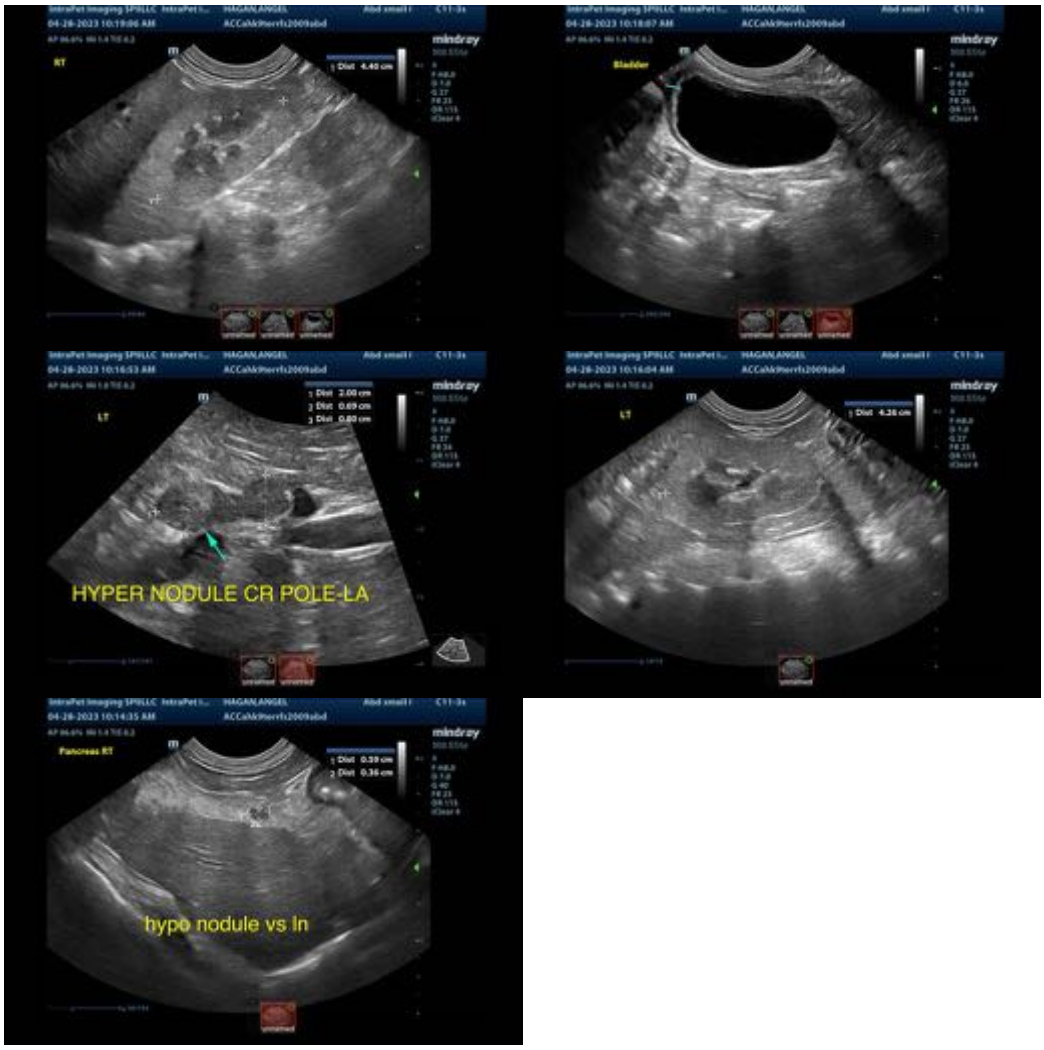
Subjectively this mass is relatively smooth in appearance and trends toward an adenoma (but this can sometimes change quickly). If no signs of cushings are present (or owner doesn't want to pursue) this could be monitored with ultrasound provided a blood pressure is OK.

There is a small hypoechoic nodule visualized in the region of the right limb of the pancreas. This could represent a pancreatic nodule or a lymph node in the region. If possible, consider a fine-needle aspirate. If no window can be obtained, recommend continued monitoring. Or if a CT is pursued for the adrenal masss this can be evaluated at the same time.

The urinary bladder wall is slightly irregular. If not already done, consider a urine culture to rule out bacterial cystitis.

Given the history of respiratory issues, I would also consider a cardiac ultrasound, looking for evidence of pulmonary hypertension, primary cardiac disease, etc.


SI
spleen
Pancreas RT SAG
Liver Sag
Liver
SI
RT Sag
RT



The information and recommendations provided are based on the images presented by the referring veterinarian. 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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