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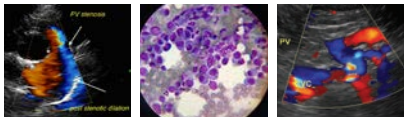
IntraPet.com



SonoPath

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DATE

1/13/22

PATIENT

Khloi Cullison

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed Female

AGE

2/16/12

WEIGHT

19 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Rachel Brilhart RDMS

HOSPITAL NAME

Celebrie Vet Hospital

REFERRING VET

Dr. Garrett

INVOICE

34219

PRESENTING CLINICAL SIGNS

History: Systemic hypertension--unknown cause.

Current Medications: Enalapril 5 mg q 12 hours (started 8/25/21)
Apoquel 5.4 mg-1/2 tablet q24 hours (off and on since 2/21).
Lab Results: most recent bloodwork from 8/25/21 showed no abnormalities. Attached separately.
Radiographs:
Date of Previous IntraPet Ultrasound: No previous IntraPet scans.
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 (4.6 cm) with a non-obstructive nephrolith measuring 0.24 cm. Overall echogenicity is slightly hyperechoic with poor 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, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (5.14 cm). Overall echogenicity is slightly hyperechoic with poor 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 somewhat large in size measuring 0.95 cm at the cranial pole, 0.65 cm at the caudal pole, and 2.24 cm in length. It is observed in its normal position cranial to the left renal artery. It is somewhat irregular in appearance in that the cranial pole is slightly more hyperechoic than the caudal pole, creating the effect of a nodule in the cranial pole. This area measures 1.16 cm x 0.63 cm but does not greatly affect the shape of the adrenal gland (although the cranial pole is larger than the caudal pole). There is no obvious evidence of vascular invasion, and the gland is mostly hypoechoic.

The right adrenal gland is large in size measuring 1.8 cm at the cranial pole, 1.17 cm at the caudal pole, and 4.4 cm in length. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is irregular in appearance in that it is hyperechoic and consists primarily of what appears to be three hyperechoic nodules. One is comprised of the cranial pole, one is in the medial aspect of the adrenal gland measuring 1.34 cm, and another at the caudal pole. There is no obvious evidence of vascular invasion or inflammation in the area.

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 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 does not appear overtly thickened, but in some areas there is adherent debris and some early mucosal stranding, indicating mild organization of the debris and probable early mucocele development.

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 hypoechoic as 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.

PRIMARY FINDINGS

- Enlarged, hyperechoic cranial pole of the left adrenal gland – This lesion could represent an incidental finding, or could be consistent with neoplasia (adenoma, carcinoma, pheochromocytoma, etc.), hyperplasia, inflammation, other. The caudal pole of this adrenal gland appears relatively normal.

- Large, hyperechoic nodular right adrenal – This gland appears abnormal in that it is hyperechoic with what appears to be three hyperechoic, large nodules. There is no hypoechoic “normal appearing” adrenal, and it appears very different from the left adrenal. These changes could be consistent with neoplasia (adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

- 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.

- Moderately distended gallbladder with early organization of gallbladder debris – consistent with early mucocele development. Recommend starting Ursodiol and monitoring the gallbladder with ultrasound.

SECONDARY FINDINGS

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

- Hypoechoic, prominent pancreas – The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

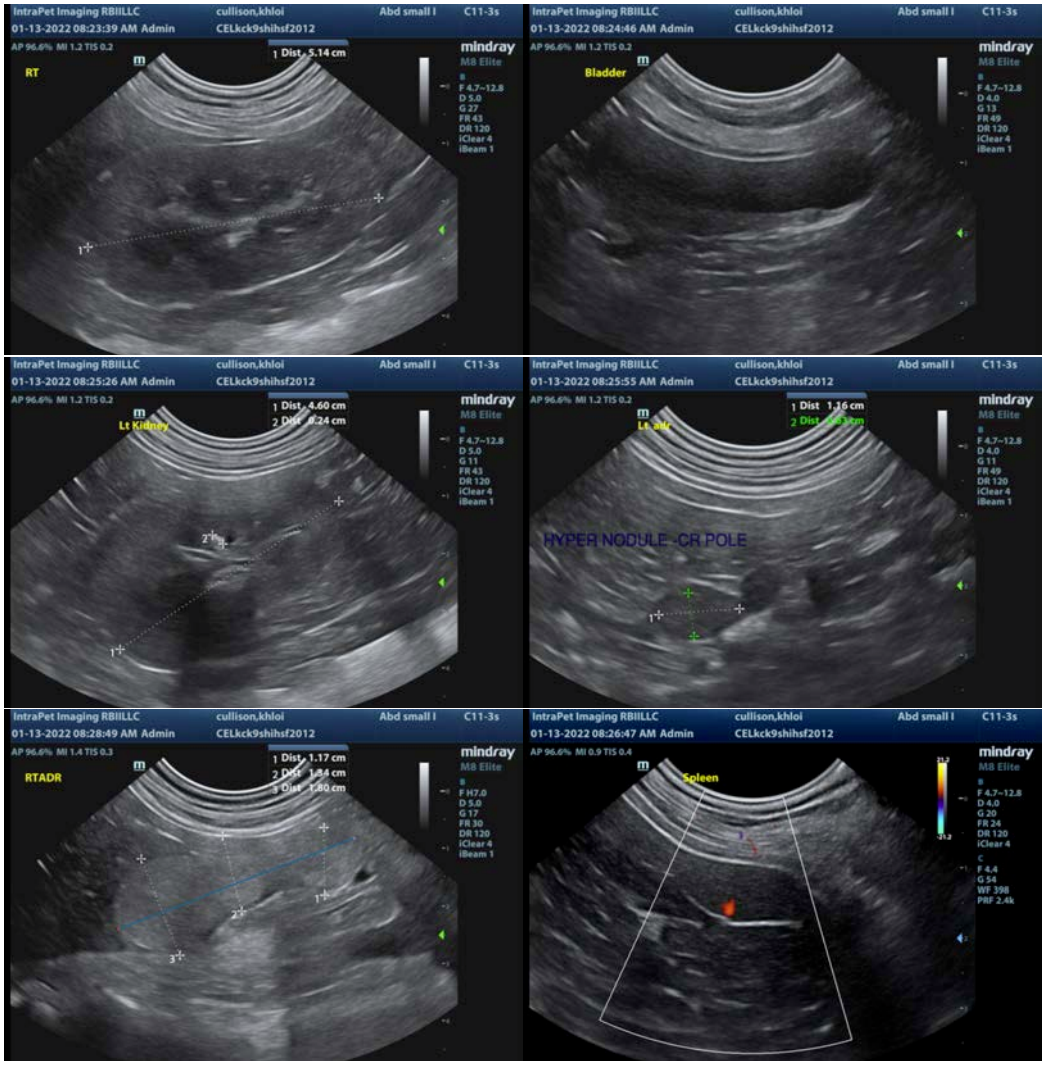
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The adrenal gland findings are atypical in that there are two glands that are abnormal but appear very different from each other. The left gland appears more normal with an enlarged hyperechoic cranial pole. The right adrenal gland appears much larger and uniformly hyperechoic with multiple irregular nodules. Possible differentials for this would be an atypical appearance for bilateral hyperplasia (i.e., pituitary dependent hyperadrenocorticism), or bilateral adrenal masses either related to each other (metastatic disease), or two individual processes going on.

Appearance of these glands is most supportive of two independent processes, as they appear very different. These adrenal glands can represent benign or malignant disease, and can be actively secreting hormone or not secreting hormone. Adrenal function testing will be difficult to interpret, but I think screening for cortisol excess and catecholamine excess would be warranted given the hypertension present.

- Recommend urine catecholamine testing through Marshfield Laboratories.
- Consider an adrenal panel with ACTH stimulation test to University of Tennessee to evaluate for cortisol and other hormone excess levels.
- Recommend 3-view thoracic radiographs.
- Consider a contrast CT scan to better evaluate characteristics of the adrenal glands and to look for any evidence of vascular invasion.

Based on these test results, I would try to decide if medical therapy is an option, or if surgery is indicated. And, if surgery is chosen, whether both adrenals are to be removed (which can be a challenge medically), or if one of the adrenals can be removed. Alternately, if a very conservative approach is required, then continued medical management of the hypertension with monitoring of the adrenals is reasonable. If possible, I would consider a urine protein/creatinine ratio to try to figure out if there is clinical proteinuria.



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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