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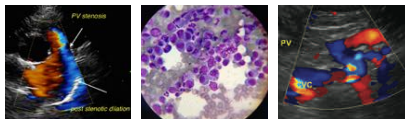

SonoPath
Clinical Sonography & Telecytology
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DATE
6/7/22

PATIENT
Guinness Peach

SPECIES
Canine

BREED
Dachshund

SEX
Neutered male

AGE
7/29/10

WEIGHT
23.1 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME
Parkville AH

REFERRING VET
Dr. Mangini

INVOICE
30906

PRESENTING CLINICAL SIGNS

Controlled heart failure with valvular disease and VPC's. Abnormal dexamethasone suppression test.
Current Medications: Pimobendan 2.5mg BID, Furosemide 20mg BID, Benazepril 5mg BID.
Lab Results: Abnormal LDD test, can't tell if pituitary or adrenal. As of 10/19/21 has dilute urine, USG 1.018.
Radiographs: See attached.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Declined.
Stat Report: Not requested.
Imaging Performed By: Andi Parkinson, BS, RDMS.

THORACIC RADIOGRAPH (LATERAL VIEW)

Cardiomegaly with left atrial and ventricular enlargement
Pulmonary vessels equal in size, i.e. cannot rule out pulmonary congestion
Very mild interstitial lung pattern
Moderate to marked hepatomegaly
Ingesta in stomach

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. The wall is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass. One of the ureteral papilla is visualized and is within normal limits. No abnormalities are noted with the filling of the bladder.

Kidneys

The **left** kidney measures 5.17 cm. The capsule is smooth. The cortex is hyperechoic and mildly thickened. A mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths. Pyelectasia (1.7 mm longitudinal view) is noted. An anechoic round structure (2 mm x 2 mm), suggestive of a fluid filled cyst is noted at the antimesenteric border. It is not considered clinically significant. The surrounding mesentery is very mildly hyperechoic.

The **right** kidney measures 5.67 cm. The capsule is smooth. The cortex is hyperechoic and mildly thickened. A mild loss of the normal definition of the cortico-medullary junction is present. Mineralizations of the diverticulae and pelvis are present, without evidence of nephroliths or pyelectasia. The surrounding mesentery is very mildly hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 1.25 cm at the cranial pole, 1.20 cm at the caudal pole and 3.06 cm in length. It measures between 1.71-1.76 cm in diameter in two other views. Both poles are significantly enlarged, both of which appear well-defined, i.e. a nodule cannot be excluded. A hyperechoic region in the center of the caudal pole may represent an area of fat, mineralization, ischemia, and/ or fibrosis. Multiple hypo to anechoic areas are noted at the cranial pole which may be suggestive of cystic lesions, as well as nodular hyperplasia. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.94 cm at the cranial pole, 1.03 cm at the caudal pole and 2.39 cm in length. Both poles are enlarged, with the caudal pole being more "plump", however, an obvious mass or nodule is not visualized. No abnormalities are noted with the gland's echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. Perivascular cuffing is observed which is consistent with myelolipomas. The latter is not considered clinically significant. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

Hepatomegaly is present, in addition to diffuse hyperechogenicity. The echotexture is smooth. The liver's borders are smooth, but mildly rounded. No abnormalities are observed with the hepatic vessels visualized. The gallbladder (GB) is moderately distended with a large amount of free floating, gravity-dependent, and inspissated echogenic material. The GB wall is within normal limits in thickness and echogenicity. The cystic duct is mildly dilated at the neck and filled with sludge. The surrounding parenchyma is hyperechoic. The cystic duct is not tortuous, i.e. there are no signs of an obstruction. An emerging mucocele cannot be excluded.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

Duodenum: Within normal limits in wall thickness and definition of the wall layers, however, mild fogging of the mucosa is present.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved. Abnormally dilated loops of bowel are not observed.

Ingesta and gas are present within the transverse colon.

The colonic wall is not thickened and mural detail is considered normal. Formed stools are present within the colon.

Pancreas

No overt abnormalities are observed with the architecture, contours, echogenicity or echotexture of the pancreas. There is no evidence of hyperechogenicity of the surrounding mesentery, i.e., signs of active pancreatitis are not present.

Other

Lymph nodes

No abnormalities are observed

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Adrenal glands:** Bilateral adrenomegaly. Pituitary dependent hyperadrenocorticism is suspected, however, adrenal hyperplasia secondary to chronic illness (stress) may be contributing to their enlargement. If the caudal pole of the left gland is in fact a nodule, a benign adenoma is possible. The hyperechoic, punctate region within the left gland is suggestive of fat, mineralization, fibrosis, or an infarct. Both cystic and age-related changes are also suspected in the cranial pole of the left gland. There are no obvious signs of neoplasia and the surrounding vasculature is unremarkable. It should be noted that optimal images of the adrenal glands were not obtained as Guiness was moving during the ultrasound and panting artefact affected the quality of the images. Sedation is suggested in the future if a re-evaluation is required.

- **Gallbladder**: The appearance of Guiness' gallbladder is not consistent with a classical mucocoele, however, one may be in its early development or it may be a mucocele that does not have a typical appearance. Cholecystitis with a secondary bacterial infection cannot be excluded. Dogs with hyperadrenocorticism are more predisposed to gallbladder sludge and the development of mucocoeles. Also, some dogs may show clinical signs of gastroesophageal reflux disease (GERD) as a result of the sludge. Therefore, obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor or ursodeoxycholic acid may be required depending on the patient's history.

- **Liver**: A vacuolar hepatopathy may explain the diffuse hyperechogenicity and hepatomegaly. Cholestasis is also possible. Differential diagnoses, such as hepatitis is considered unlikely. Cholangitis/cholangiohepatitis cannot be excluded given the appearance of the gallbladder, but should be correlated with clinical signs.

- **Kidneys**: Bilateral renal changes, suggestive of age-related degeneration, however, glomerulonephritis associated with hyperadrenocorticism may also be present. Pyelonephritis should not be excluded despite the absence of classical sonographic signs.

- **Gastrointestinal**: Major abnormalities are not observed. The mild fogging of the mucosa of the duodenum is somewhat subjective. Although this finding may not be clinically significant, it has been associated with GI inflammation, therefore, enteritis may be present. Evaluation of Guiness' history of vomiting, diarrhea, pica and GERD is suggested.

- **Spleen**: Myelolipomas are not clinically significant.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

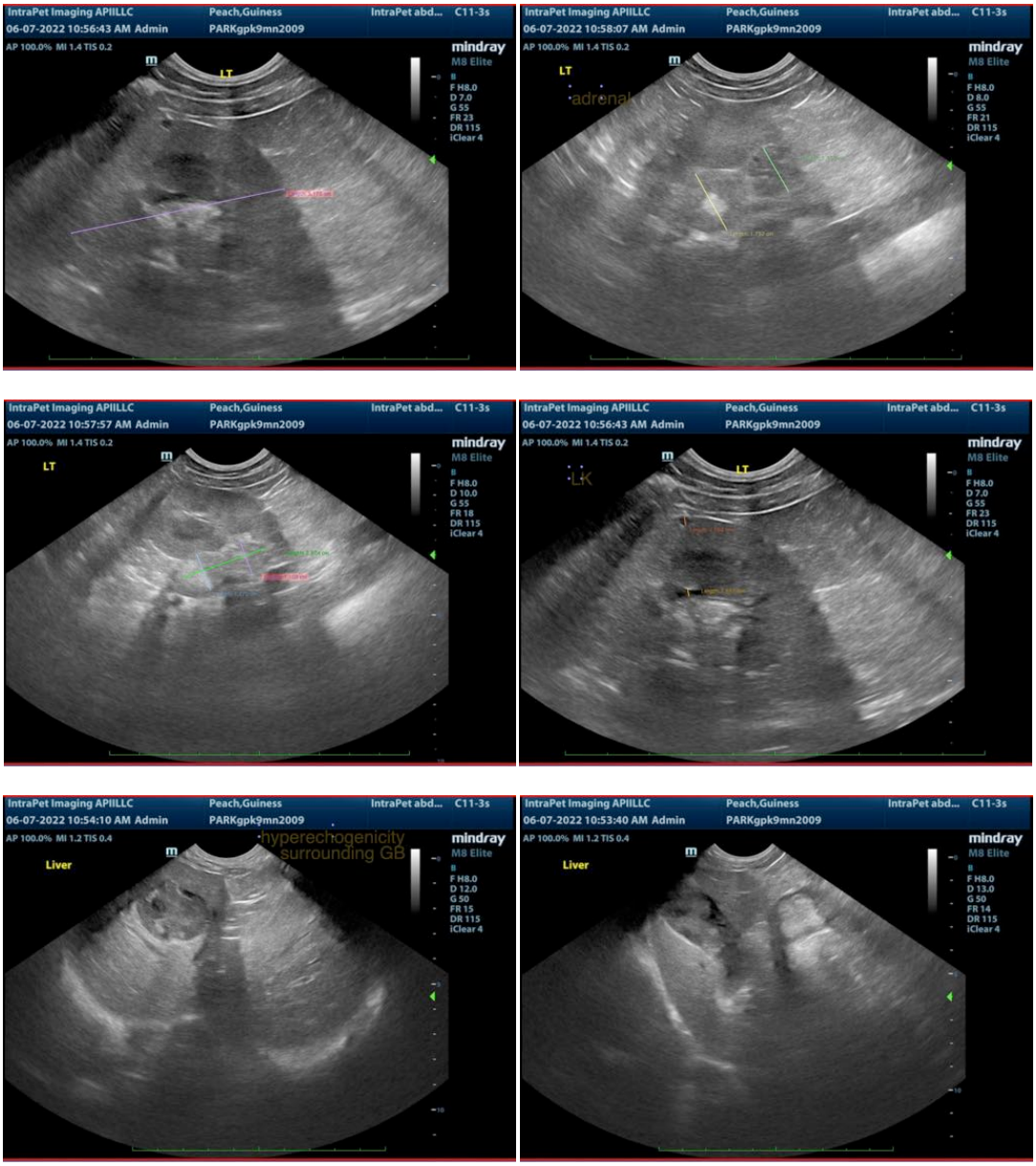
Suggestions/recommendations include
A urine culture and sensitivity
If negative, a urine protein: creatinine ratio; clopidogrel may be necessary depending on the results and response to trilostane.

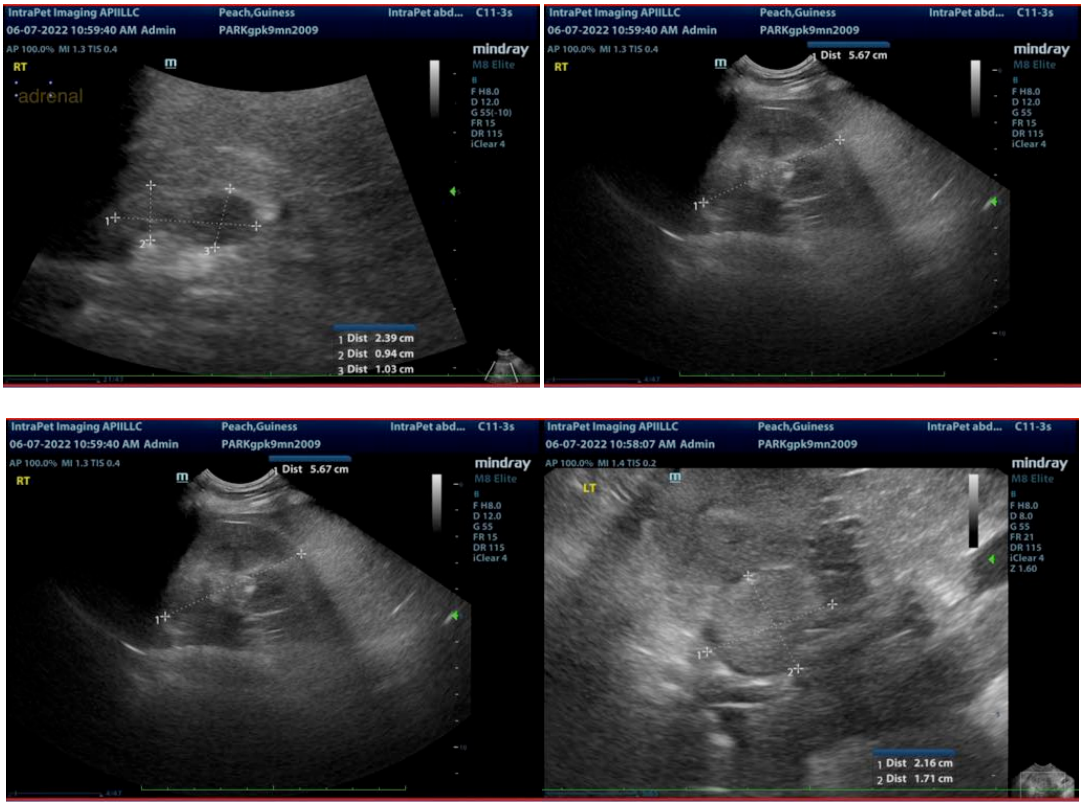
An arterial blood pressure; if hypertensive, or proteinuric, consultation with the cardiologist is recommended to discuss which medication should be used, i.e. telmisartan may be an option.
If Guiness is demonstrating clinical signs of HAC, is hypertensive or proteinuric, treatment with trilostane (Vetoryl) may be pursued. A low dose is suggested (0.5-0.7 mg/kg PO BID) if therapy is initiated.

Obtaining a history regarding signs of GERD from the client is suggested. Treatment with an anti-acid, proton pump inhibitor or ursodeoxycholic acid may be required. If ursodeoxycholic acid (Ursodiol) will be

administered, it should be introduced at a very low dose, and slowly up-titrate to decrease the risk of GI side effects. For example, 3 mg/kg PO once a day for 5-7 days, then 5 mg/kg PO once a day for 5-7 days, then 7.5 mg/kg PO once a day for 5-7 days, then 10 mg/kg PO once a day for 5-7 days. The dose should be divided BID and given with a meal to decrease the risk of nausea, cramps, vomiting and diarrhea. This medication should not be introduced at the same time as other drugs.

Sedation is suggested in the future if a re-evaluation is required. The sedation (gabapentin, for example), will decrease Guiness' stress and anxiety, which will be less taxing on her heart. Gabapentin is safe to use in dogs with congestive heart failure.





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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