

**DATE**

12/5/22

PRESENTING CLINICAL SIGNS**PATIENT**

Benny Kibbe

History: P presented on 11/28/22 for increased thirst and urination for the last few months. P having accidents in the house. P urinating in 2 different places in the house. P goes out regularly. P will awake up at night to drink water. No V or D. No changes in the house that O can think of. P does have some cognitive dysfunction and hearing loss. P has vision changes as well. Discussed several causes of PU/PD such as endocrine dz (cushings/diabetes) vs UTI. Rec bloodwork and U/A to determine next steps.

SPECIES

Canine

Current Medications: Gabapentin 100mg - 1 cap q12hrs, Denamarin advanced 120mg - 1/2 tab q24hrs (started 11/30)

BREED

Rat Terrier

Lab Results: ALT 238, AST 62, ALP 1,004, Lipase 372, CK 234

Date of Previous IntraPet Ultrasound: No previous.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

Imaging Performed By: Andi Parkinson, BS, RDMS.

SEX

Neutered Male

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**AGE**

1/12/08

Urinary System

Urinary bladder is adequately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

WEIGHT

18.5 Pounds

The area of the prostate is examined without evident pathology.

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. There is no evidence of pyelectasia, mineral or infarcts observed. The left kidney measures 4.72 cm. The right kidney measures 5.28 cm. Multiple cortical cysts were noted bilaterally in the kidneys.

INTERPRETED BY

Beth Johnson, DVM
DACVIM

Adrenal Glands

Adrenal glands are plump/swollen in size. Normal shape and contour are maintained without evidence of capsular invasion. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal. The left adrenal gland measures 2.05 cm long x 0.72 cm at cranial pole and 0.74 cm at caudal pole. The right adrenal gland measures 2.95 cm long x 1.4 cm at cranial pole and 0.61 cm at caudal pole. A hyperechoic nodule is noted in the cranial pole of the right adrenal gland. Nodule does not disrupt normal shape and/or architecture.

HOSPITAL NAME

Warm & Fuzzy VC

REFERRING VET

Dr. Weber

Spleen

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). No focal nodules or masses are observed. Splenic vasculature appears normal.

INVOICE

19011

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 mildly overdistended with a moderate amount of non-dependent, mildly aggregated/inspissated sludge. Hypo to anechoic cystic areas are noted between the gallbladder sludge and luminal wall. The wall is otherwise smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion.

Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

The visible small intestines are normal in wall thickness and layering. 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 and layering. Contents are consistent with normal formed feces and gas.

Pancreas

The observed pancreas appears appropriately isoechoic to surrounding omental fat. Visible capsule is smooth and normal in contour. Visible pancreatic parenchyma is homogenous and unremarkable. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen

There is no evidence of peritoneal effusion. There is no apparent lymphadenopathy.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Emerging mucocele – 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. The non-dependent nature of this sludge combined with the cystic areas are suggestive, however, of possible emerging cystic mucosal hyperplasia or early gallbladder mucocele.
- 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.
- Bilateral adrenomegaly with hypoechoic adrenal nodule in the cranial pole of the right adrenal gland – consistent with adrenal hyperplasia secondary to pituitary dependent hyperadrenocorticism vs stress or normal variant. Interpret in combination with clinical signs of hyperadrenocorticism. Differentials for the hypoechoic nodule in the cranial pole of the right adrenal gland 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.

Secondary Findings

- Age-related kidney changes with bilateral cortical cysts

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

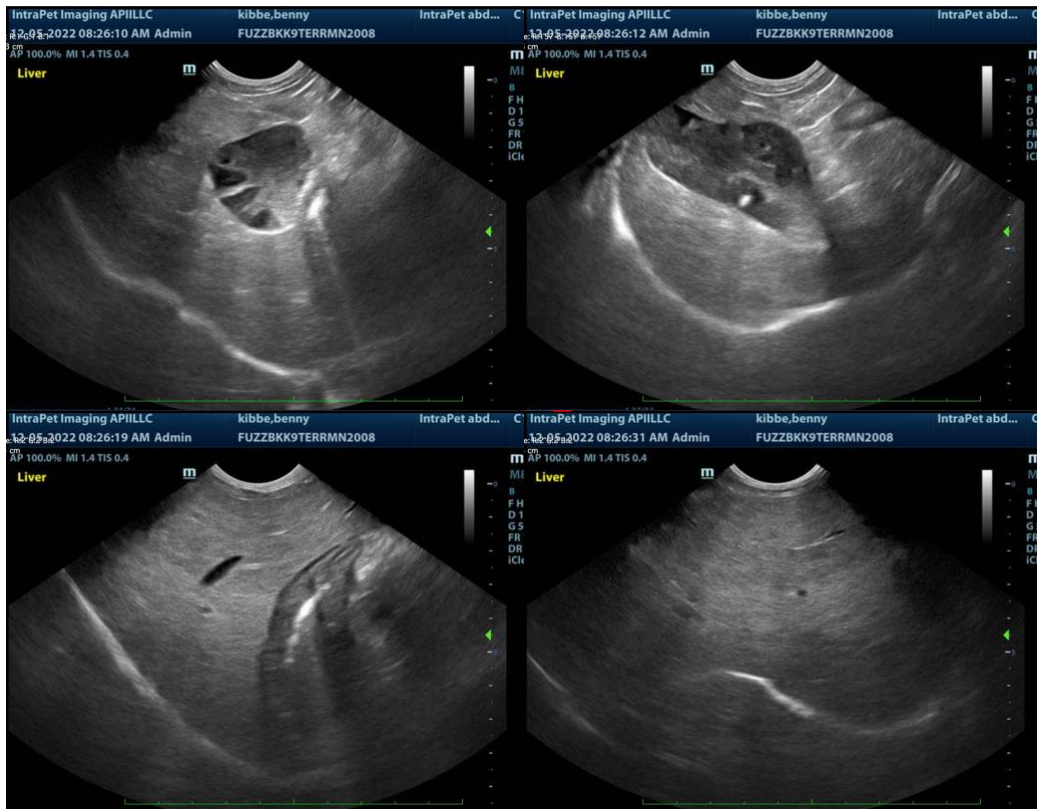
The described adrenal gland, liver and gallbladder changes are all suggestive of hyperadrenocorticism, most likely pituitary given the bilateral changes. Given the reported clinical signs of hyperadrenocorticism, including polyuria, polydipsia, etc., testing for hyperadrenocorticism with a LDDS test is warranted. If a LDDS test has already 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.

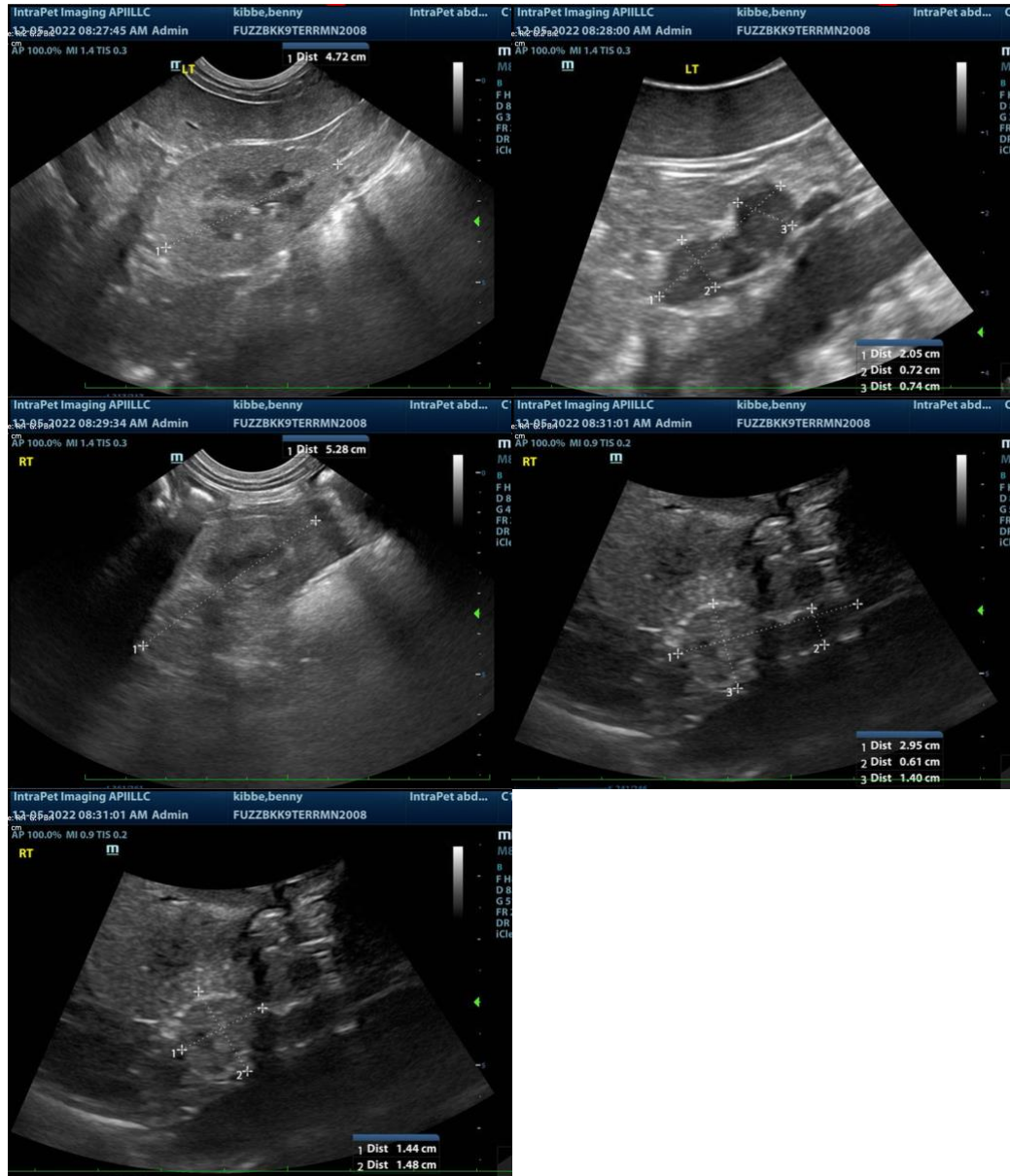
If not recently evaluated, blood pressure is recommended.

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

Given the emerging mucocele concerns, if clinical signs of decreased appetite, nausea, cranial abdominal pain are present/and or develop, more aggressive intervention, possibly even in the form of a cholecystectomy may be warranted. If clinical signs are not present, then empirical medical management with hepatic nutraceuticals, including Ursodiol could be considered.

Given this patient's reported vision loss, evaluation by an ophthalmologist for SARDS may also be warranted prior to further investigation of hyperadrenocorticism, as both clinical signs and even endocrine testing can be falsely mistaken for hyperadrenocorticism when SARDS is present.





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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