IMAGING PERFORMED BY

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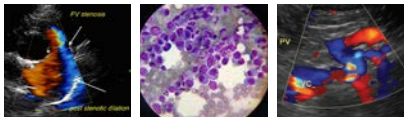

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE

7/12/22

PATIENT

Murphy Palumbo

SPECIES

Canine

BREED

Shih Tzu

SEX

Neutered Male

AGE

6/27/05

WEIGHT

19.5 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY

Rachel Brilhart RDMS

HOSPITAL NAME

Animal Emergency Hospital

REFERRING VET

Dr. Kalwa

INVOICE

39425

PRESENTING CLINICAL SIGNS

PC: collapse, vomiting, diarrhea Current medications: Keppra- discontinued gabapentin _____ AEH history: 6/27/2020: Seizure, disoriented Neurologic, treated for possible vestibular disease 5/5/22: Seizure when boarding (2nd time) Diagnosed heart murmur, dry eye CBC/CHEM/LYTES- Ca 13.5, ALKP 828, PCV wnl 4dx negative IVC- sent home with gabapentin 5/12/22: Third time seizure Calcium 12.3 --> 13 Started on keppra _____ ATO in room: - since may on keppra no seizures – discontinued gabapentin- too ataxic, lethargic - rDVM end of may- bw sucralfate + prilosec- concern for bleeding ulcer 14 days; breath improved. Rechecked bw improved, ionized calcium performed- O states this was normal - Has been more himself last few weeks - O has been feeding chicken and rice, pill pockets - acute decline this am- lost bowels, fire hose like, pink tinged, vomiting, retching, collapsed, eyes wide open
History: - seizures- 2020 - Heart murmur - Back legs- ataxia- mild - Not able to see well - Hx drinking well always

Current Medications: Proviable.
Lab Results: See attached.
Date of Previous IntraPet Ultrasound: No previous.
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 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.

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

The right kidney is normal in size (4.98 cm) 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 echogenicity and mild loss of corticomedullary distinction. There is no evidence of pyelectasia or infarcts observed. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted.

The left kidney is normal in size (5.48 cm) 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 echogenicity and mild loss of corticomedullary distinction. There is no evidence of pyelectasia or infarcts observed. Non-obstructive linear multifocal hyperechoic diverticular foci with acoustic shadowing are noted.

Adrenal Glands

The right adrenal gland is normal in size (2.2 cm long x 0.74 cm at the cranial pole and 0.72 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

The left adrenal gland is enlarged (2.5 cm long x 1.0 cm at the cranial pole and 1.0 cm at the caudal pole with a 2.0 cm round homogeneous isoechoic nodule/mass escaping the normal capsule from the caudal pole). Mild heterogeneous parenchymal changes noted otherwise. No obvious vascular invasion is noted.

Spleen

The spleen has been reportedly previously removed.

Liver
The 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.

The gallbladder is moderately distended with anechoic bile as well as 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 stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. It is moderately to markedly distended with echogenic fluid and ingesta. No obstruction or foreign material seen. 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 observed pancreas appears appropriately isoechoic to surrounding omental fat. The capsule is mildly irregular in shape. Parenchyma is mildly heterogenous and coarse. 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.

PRIMARY FINDINGS

- Left adrenal mass – concerning for pheochromocytoma or adrenal adenocarcinoma, given the capsular escape. A benign adrenal adenoma or even much less likely hyperplasia cannot be ruled out, but are considered less likely.

- 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.

- 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.

SECONDARY FINDINGS

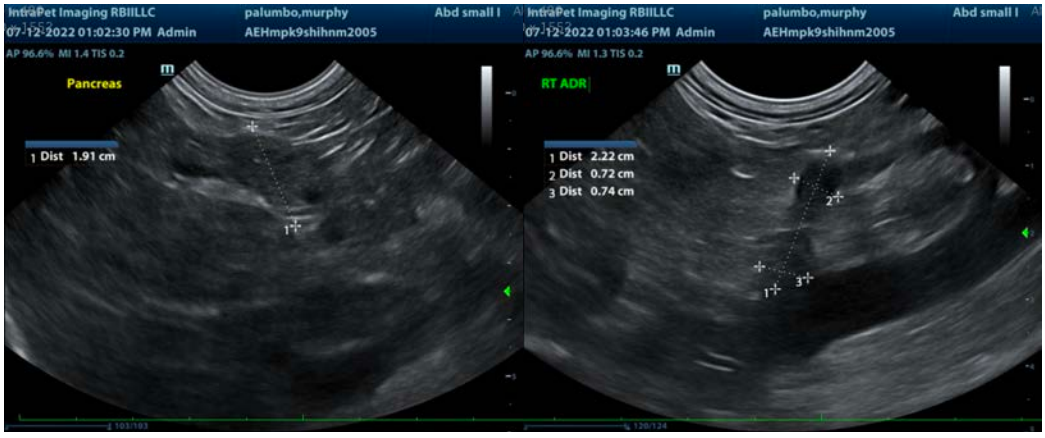
- Age related kidney changes

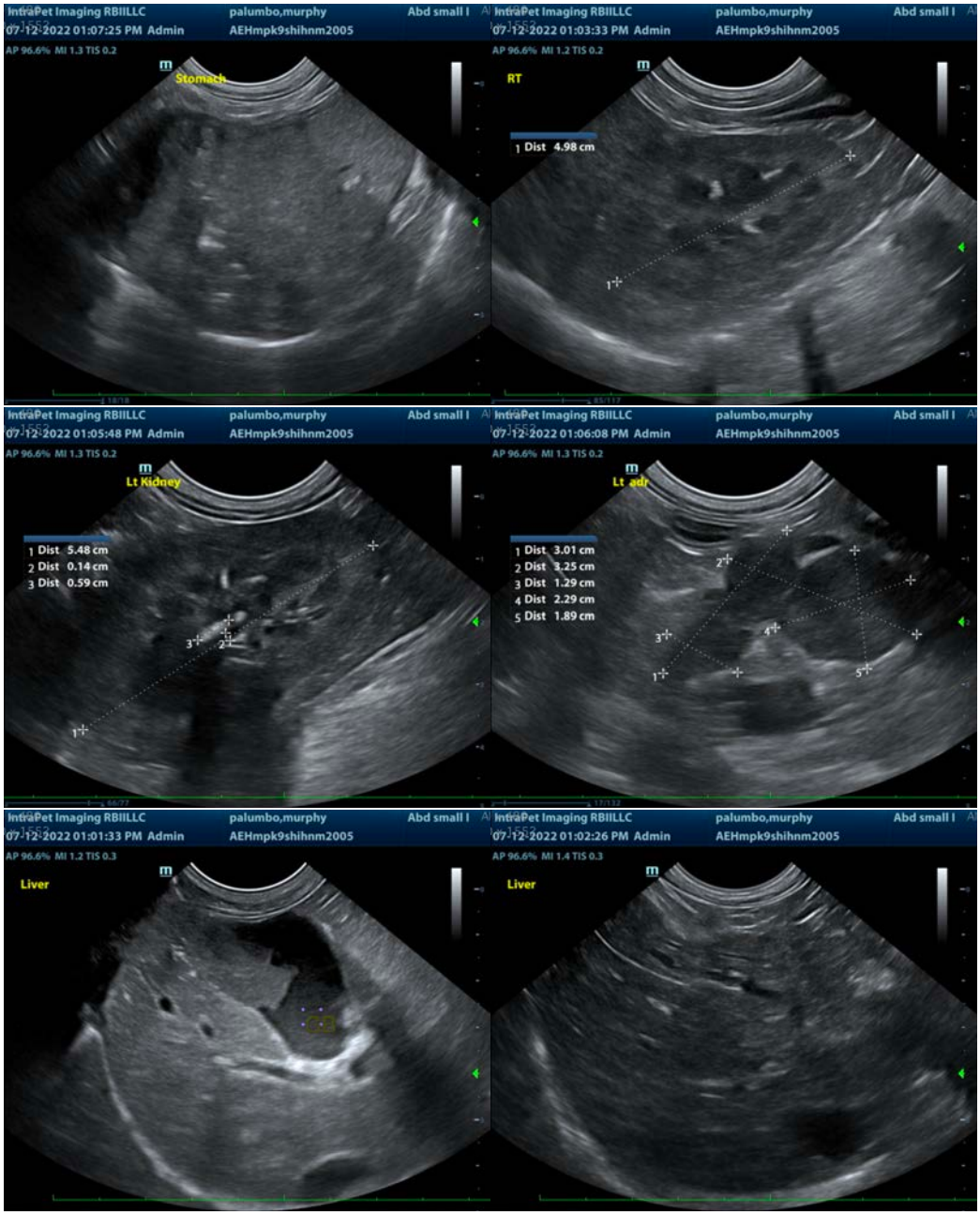
- Age related pancreatic remodeling

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the reported neurologic signs combined with this patient's adrenal findings, recommendations include:

- Blood pressure if not recently evaluated.
- PTH/PTHrP could be considered for further investigation of possible hypercalcemia of malignancy versus primary hyperparathyroidism, given the reported historical hypercalcemia.
- Ultimately, a left adrenalectomy would be recommended to remove what is suspected to be infiltrative neoplasia. However, further evaluation of this patient's reported neurological signs with potential advanced imaging/consultation with a neurologist, etc. is recommended prior to pursuing anesthesia/surgery.
- There is not an obvious cause for this patient's gastrointestinal signs. Supportive medical management of gastroenteritis with antiemetics, gastroprotectants, appetite stimulants (if needed), fluid support, and/or other nutritional support (as needed), broad-spectrum antibiotics, etc. is recommended with monitoring of clinical signs for improvement. If gastrointestinal signs persist and/or progress, recheck abdominal imaging is recommended to further investigate the stomach, given today's dilation in case of a partial obstruction not visible in these images.
- Three view thoracic radiographs are recommended for further assessment of cardio-pulmonary status as well as to further evaluate for any evidence of metastatic disease, if not recently evaluated.
- Echocardiogram is recommended as well, given the patient's reported collapse.

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Stomach
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RT
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3 Dist 0.59 cm
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Lt adr
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2 Dist 3.25 cm
3 Dist 1.29 cm
4 Dist 2.29 cm
5 Dist 1.89 cm
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Liver
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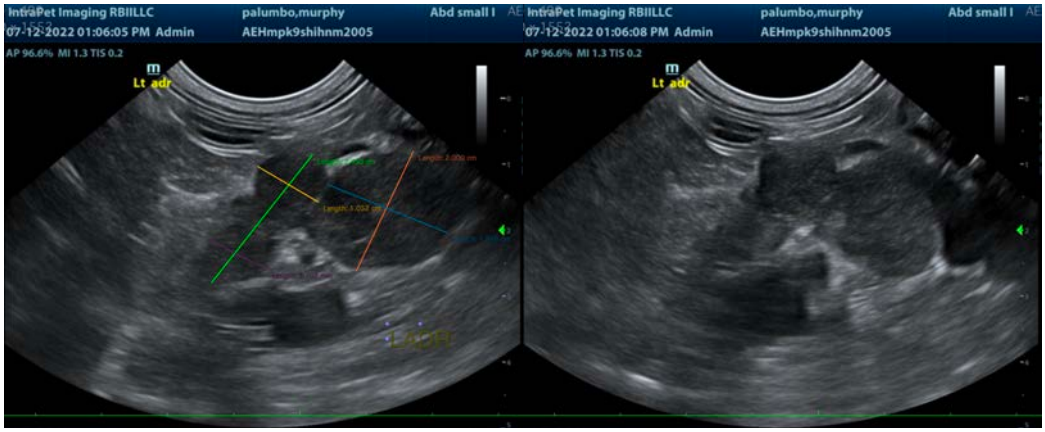
Liver



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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