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DATE PRESENTING CLINICAL SIGNS

12/29/21 History: Pet was evaluated on 12/6 for a new mass. On PE pet was found to be overweight with a grade 3/3 periodontal disease. Normal cardiac and pulmonary auscultation. A SQ mass was noted over the lateral aspect of the right hindlimb. Pre-operative bloodwork revealed many abnormalities (please see below). After further diagnostics it was decided to post pone surgery in favor of abdominal US to better evaluate pet's elevated liver enzymes and other abnormalities.

PATIENT

Gracie Curry

SPECIES

Canine

BREED

Jack Russell Terrier

SEX

Spayed Female

AGE

9/11/08

WEIGHT

25 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Stephanie Pearce RDCS, RVT

HOSPITAL NAME

Westminster VH

REFERRING VET

Dr. Hall

INVOICE

33818

Current Medications: Dasuquin daily, Routine Heargard/Nexgard, Denamarin Advanced: 1/2 tab PO SID started 12/13/21.

Lab Results: 2/6/21

CBC: MCHC: 32g/dL (32.6-39.2); Retic Hemoglobin: 23.5pg (24.5-31.8); Plts: 627K/uL (143-448) platelets appear increased on blood film. Chem: Ca: 12.3mg/dL (8.4-11.8); Chloride: 107mmol/L (108-119); ALT: 139U/L (18-121); ALP: 641U/L (5-160); Cholesterol: 399mg/dL (131-345); UA: SG: 1.034; pH: 8.0; Protein: 4+. 12/13/21: Ionized Calcium: 1.43mmol/L (1.25-1.50); UPC: 3.4 (>0.5 proteinuric); UC:CR: 34 (> or = 34 hyperadrenocorticism is possible). Attached separately.

Date of Previous IntraPet Ultrasound: No previous IntraPet scans.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

Imaging Performed By: Stephanie Pearce 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) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

The left kidney has a normal shape and size (5.15 cm). Overall echogenicity is normal with adequate 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.

The right kidney has a normal shape and size (5.3 cm). Overall echogenicity is normal with adequate 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 normal in size measuring 0.57 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

The right adrenal gland is normal in size measuring 0.62 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 large in size and irregular. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. The liver is large and irregular with scalloped, rounded edges due to the presence of numerous ill-defined, hypoechoic nodules creating almost a marbling effect to the parenchyma. Some larger ill-defined nodules are visualized, and a mass effect is present measuring 6.03 cm x 4.37 cm. Additional larger nodules measure 3.35 cm x 2.01 cm and 2.23 cm x 1.93 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. Jejunum wall measured 0.39 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 mottled 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

- Large, heterogeneous, irregular, nodular 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. While the ill-defined subtle/diffuse nature of these nodules favors a benign process, the liver is very irregular and nodular. Therefore, underlying neoplasia cannot be excluded as a possibility.

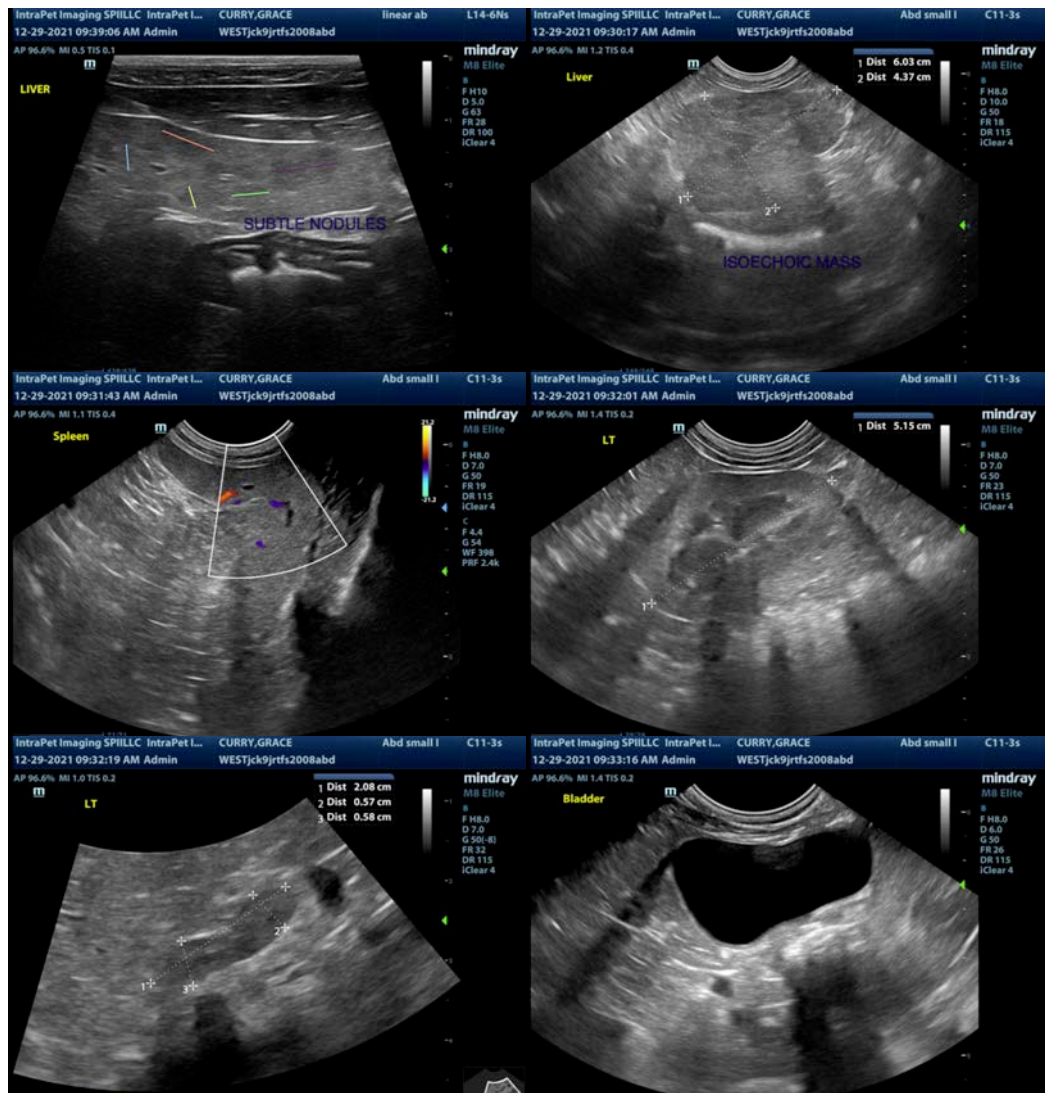
SECONDARY FINDINGS

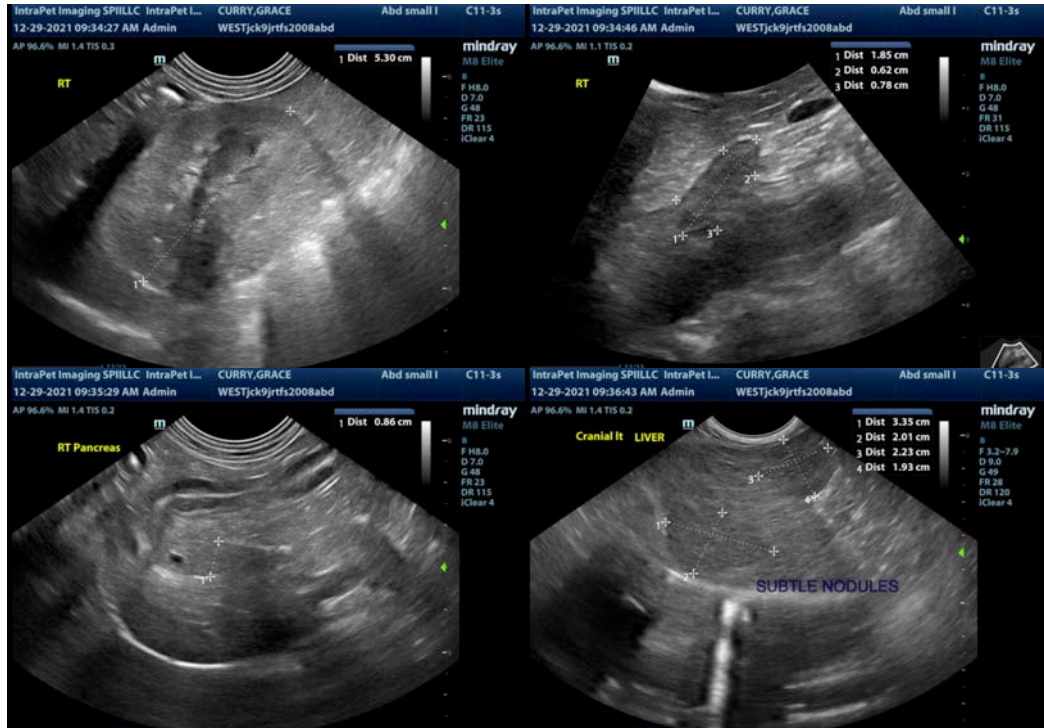
- Prominent, mottled pancreas – The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.
- Moderate gallbladder sludge – The significance of the aggregated gallbladder sludge is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The appearance of the liver is very abnormal in that it is irregular and nodular. No single large focal lesion is observed. These changes can either be benign or malignant. It is very likely that a biopsy would be necessary to get a clear clinical picture, but initially I would consider:

- Pre- and post-prandial bile acids to evaluate liver function
- If signs of Cushing's are present, you could consider adrenal function testing, but both adrenal glands are relatively normal in size.
- Recommend a fine needle aspirate primarily to rule out round cell neoplasia.
- Consider a liver biopsy with histopathology, cultures, and copper levels.
- A contrast CT scan of the liver could be performed to get a more global visualization of the extent of these lesions, but I suspect they are diffusely involved with the liver and unlikely to be surgically resected.
- Recommend 3-view thoracic radiographs.





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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