

**DATE PRESENTING CLINICAL SIGNS**

2/17/22

History: Several year hx of elevated calcium and ALKP. Ionized Ca checked and low. ALKP levels have been increasing and dog has slowly been losing weight despite a good appetite. O. worried about underlying disease.

PATIENT

Fletcher Bishop

Current Medications: Levothyroxine 0.2 mg po bid.

Lab Results: Attached separately.

Date of Previous IntraPet Ultrasound: No previous IntraPet scans.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

SPECIES

Canine

BREED

Terrier X

SEX

Neutered Male

AGE

8/6/08

WEIGHT

20.42 Pounds

INTERPRETED BY

Beth Johnson, DVM
DACVIM

IMAGING PERFORMED BY

Stephanie Pearce
RDCS, RVT

HOSPITAL NAME

Healing Paws VWC

REFERRING VET

Dr. Levitsky

INVOICE

35739

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**Urinary System**

The urinary bladder is moderately distended with anechoic contents. No masses or inflammatory changes. Calculi exhibiting distal acoustic shadowing are present along the gravity dependent inner wall of the lumen urinary bladder. 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 (4.9 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

The left kidney is normal in size (4.77 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

Adrenal Glands

The left adrenal gland is enlarged in size (2.41 cm long x 0.92 cm at the cranial pole and 0.92 cm at the caudal pole). Normal shape and contour are maintained. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

The right adrenal gland is enlarged in size (2.15 cm long x 0.65 cm at the cranial pole and 0.92 cm at the caudal pole). Normal shape and contour are maintained. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal. A small hyperechoic nodule is noted in the caudal pole. Nodule does not disrupt normal shape and/or architecture.

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). Multifocal well-demarcated hyperechoic homogenous nodules are present. Splenic vasculature appears normal.

Liver

Liver is subjectively enlarged. Margins are smooth but round. It has a normal homogenous echotexture. Parenchyma is diffusely hyperechoic characterized by less prominent than normal portal vein walls and increased echogenicity relative to the spleen. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

GB is moderately distended with anechoic bile and gravity dependent echogenic sediment. 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. 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 (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. Some hyperechoic mucosal speckling is noted in the duodenum.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

Pancreas

The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. 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.

There is no evidence of pericardial effusion in these images.

ULTRASONOGRAPHIC FINDINGS

- Echogenic mucosal small bowel speckling – This is a non-specific finding that has been associated with inflammatory bowel disease in dogs.
- Hyperechoic splenic nodules – most consistent with benign myelolipomas. Other differentials such as fibrosis or calcification caused by old hematomas or infarcts, chronic inflammation, granulomatous disease or metastatic disease cannot be ruled out, but are less likely.
- Hyperechoic hepatomegaly canine – most consistent with benign steroid (endocrine) hepatopathy or reactive or idiopathic hepatopathy. Infiltrative neoplasia such as round cell neoplasia is also possible, but considered less likely.
- 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.
- Bilateral adrenomegaly – consistent with adrenal hyperplasia secondary to pituitary depending hyperadrenocorticism vs normal variant.
- Small hyperechoic adrenal nodule - Differentials 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. Lesions greater than 2 cm are generally primary adrenal neoplasia (benign or malignant) vs hyperplasia with lesions greater than 4 cm being more predictive of malignant neoplasia. Small nodules without other evidence of abdominal disease (to suggest metastatic disease) and/or clinical signs (to suggest hyperadrenocorticism) are most often incidental and should be monitored.

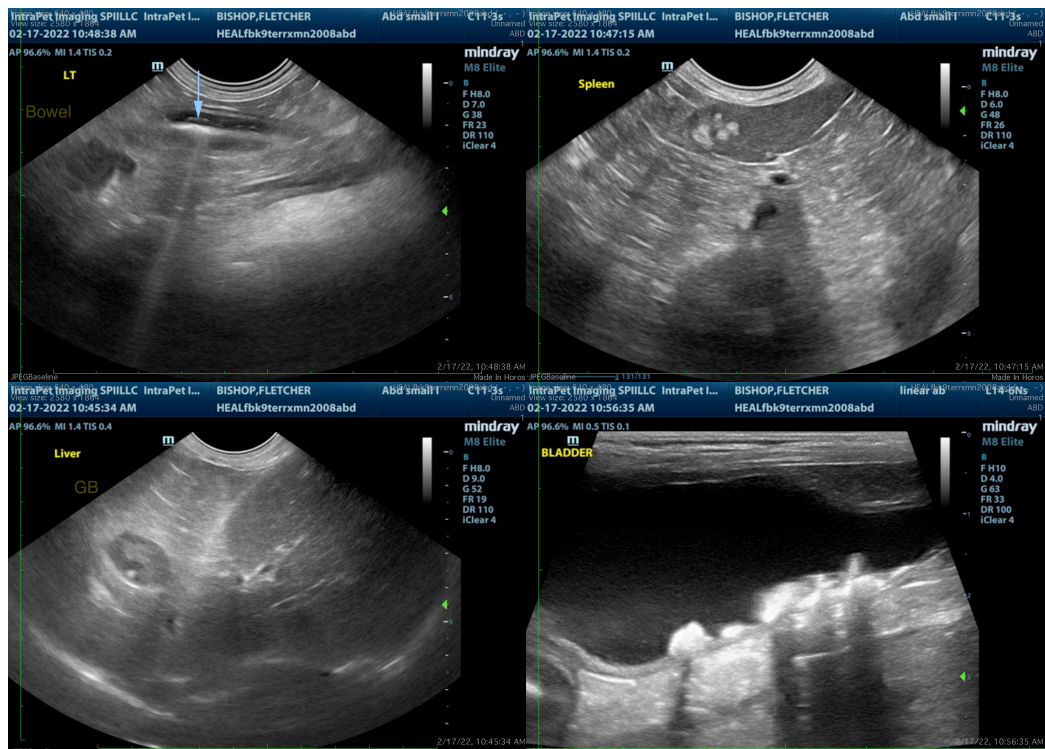
- Urinary bladder cystic calculi

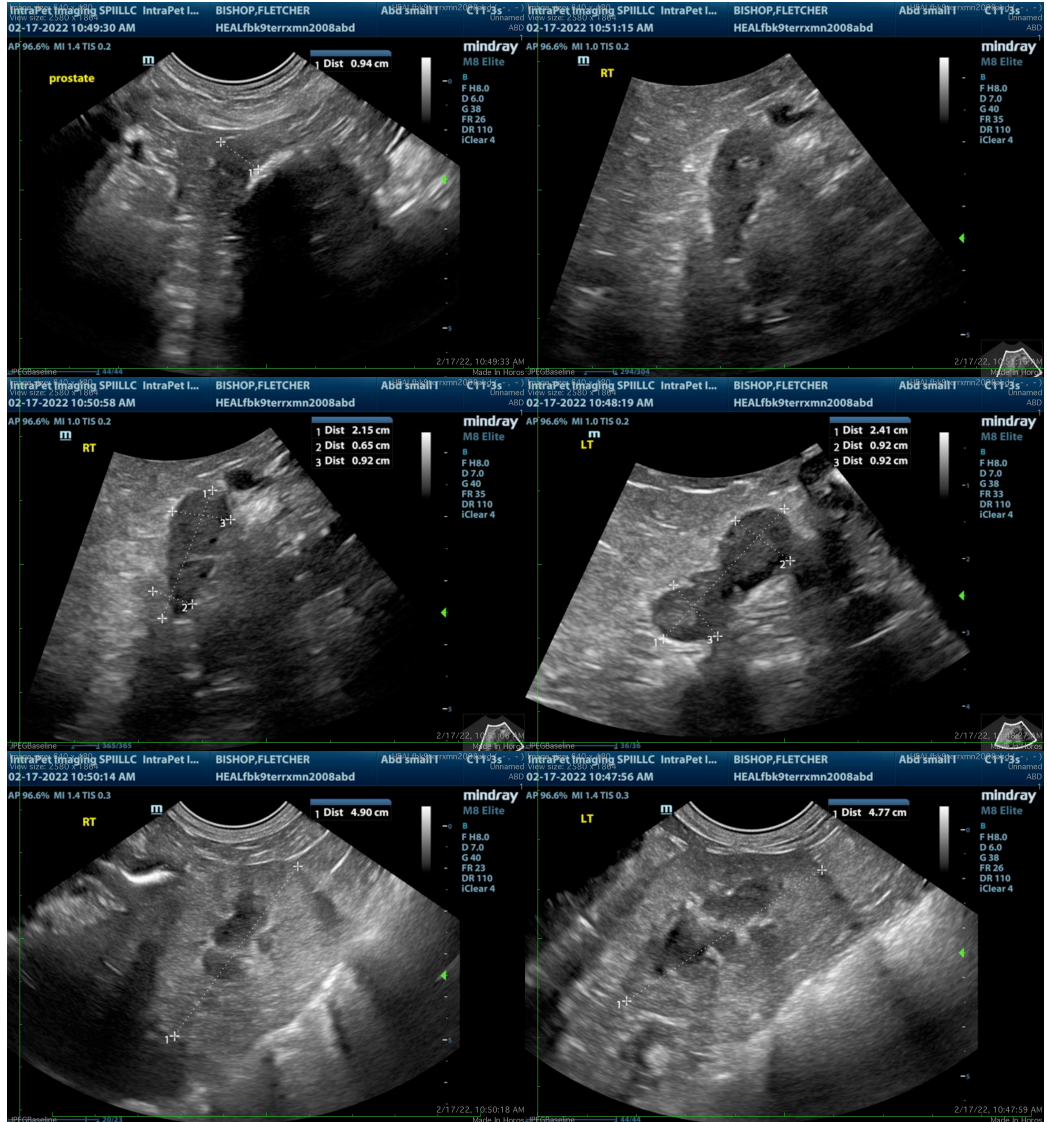
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given the urinary bladder changes, recommendations include a urinalysis and urine culture if indicated based on urinalysis results. If there is a urinary tract infection present, a dissolution protocol could be used for the cystic calculi. If not, other removal mechanisms such as voiding urohydropropulsion versus cystostomy may need to be considered for stone identification and future prevention measures.

Given the chronic high Alk Phos and the bilateral adrenomegaly, a low-dose Dexamethasone suppression test is recommended to rule out hyperadrenocorticism. If hyperadrenocorticism is diagnosed, it is likely pituitary dependent, based on these images.

Finally, given the weight loss in the face of a good appetite combined with mucosal speckling, inflammatory bowel disease is suspected, and a gastrointestinal malabsorption panel including TLI, PLI, folate and cobalamin to Texas A&M GI laboratory is recommended followed by an empirical diet change to a novel or hydrolyzed protein diet, being sure to calculate adequate caloric intake to maintain weight. Ultimately, biopsies of the bowel may be necessary to definitively diagnosis and therefore manage the suspected underlying infiltrative process. Prior to that, due to the hypercalcemia, a PTH/PTHrP (which is a malignancy profile to Michigan State University) is recommended.





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.

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