

**DATE PRESENTING CLINICAL SIGNS**

7/13/23

Patient was diagnosed with diabetes in December 2022. At the time, had ALT 122 and ALKP of 301. After stabilizing diabetes, BW was rechecked and ALT was 143 and ALKP was 201. After 1 month trial of denamarin, ALT was 224 and ALKP was 328. Owner reports no PUPD at home, eating normally, continuing to slowly lose weight (P was BCS 8/9 at diabetes diagnosis, 7/9 now). Ultrasound was recommended for further evaluate for causes of persistent liver enzyme elevation.

PATIENT

Comet Thomas

SPECIES

Canine

Current Medications: Vetsulin 13U BID
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

BREED

Chihuahua X

Imaging Performed By: Rachel Brillhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**SEX**

Neutered Male

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, or masses. There is a small shadowing hyperechoic foci in the dependent portion of the urinary bladder consistent with a small stone measuring 0.41 cm.

AGE

8/18/17

The prostate is normal in size (0.87 cm) and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

WEIGHT

34.6 Pounds

The left kidney has a normal shape and size (5.63 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

INTERPRETED BY

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(Small Animal Internal
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The right kidney has a normal shape and size (5.9 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

HOSPITAL NAME

Fullerton AH

Adrenal Glands

The left adrenal gland is normal in size measuring 0.66 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.

REFERRING VET

Dr. Durastanti

The right adrenal gland is normal in size measuring 0.67 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.

INVOICE

43828

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 subjectively normal in size with smooth peripheral margins. The parenchyma is hyperechoic and homogenous in echotexture. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are mild and primarily anechoic. 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. Duodenum wall measures 0.45 cm. Jejunum wall measures 0.40 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.

ULTRASONOGRAPHIC FINDINGS

- Small hyperechoic shadowing focus in the dependent portion of the urinary bladder – Findings are most consistent with small stone. Correlate with urinalysis, culture and radiographs.
- 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.
- Large, hyperechoic liver – The diffuse hepatic changes are non-specific and can be seen with vacuolar hepatopathy, reactive change, nodular hyperplasia or, less likely, inflammatory/immune-mediated disease, infiltrative neoplasia, or other hepatopathy. Findings are likely consistent with a diabetic hepatopathy.

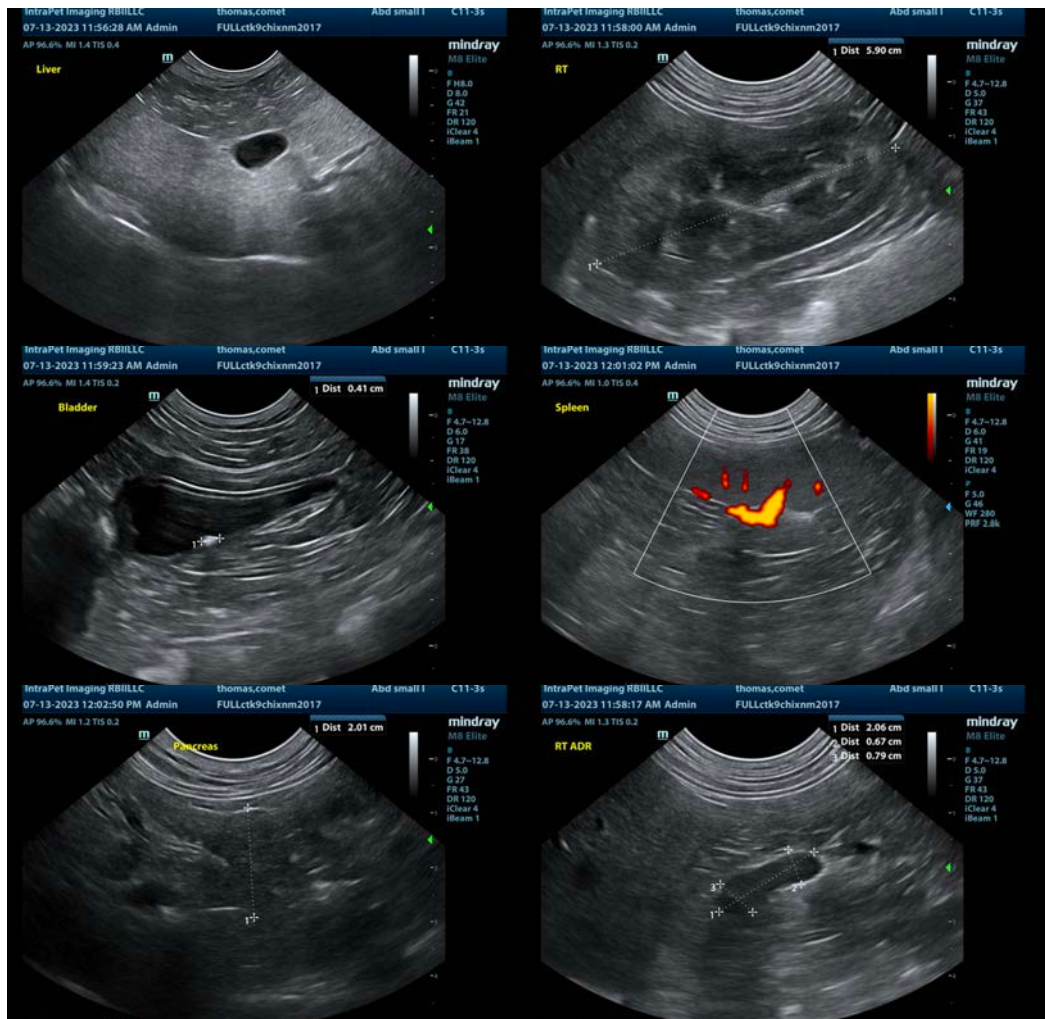
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

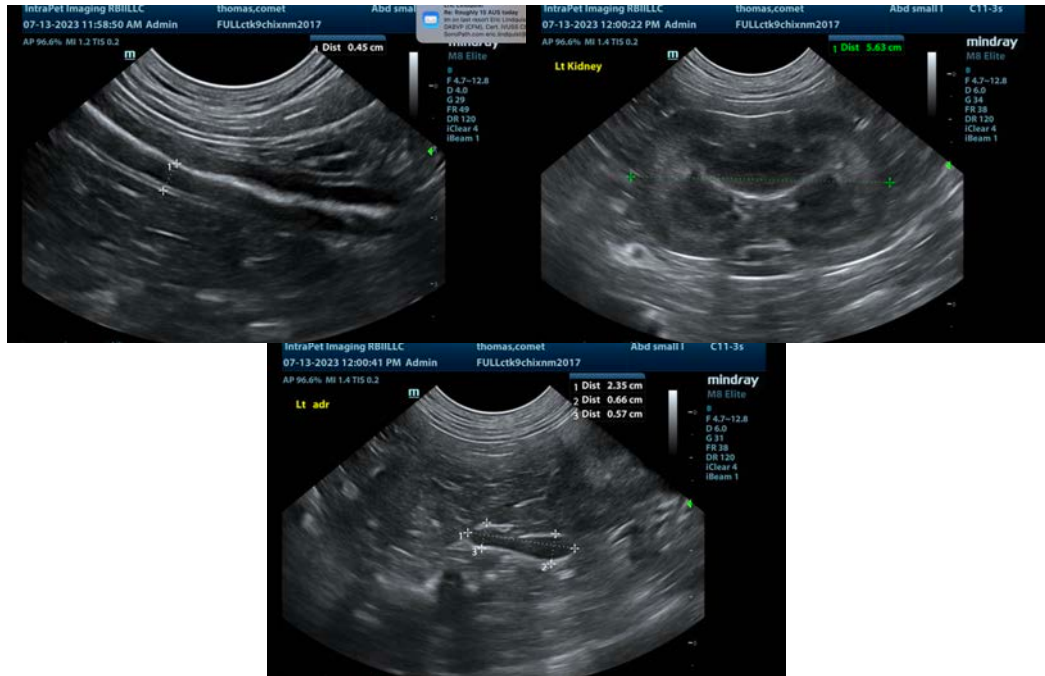
No focal lesions are visualized associated with the liver to explain the elevation in liver enzymes reported.

The gallbladder appears normal and there is no significant evidence of biliary disease. I suspect these findings are most consistent with a diabetic hepatopathy. You could consider a liver function test +/- a fine needle aspirate of the liver (provided coagulation parameters are normal) to confirm there isn't any evidence of infiltrative disease or significant liver dysfunction, but it is likely that further evaluation of diabetes control could be considered (12 hour glucose curve) or two week evaluation with a freestyle libre, looking for any evidence of Somogyi effect, etc.

There is a small stone visualized in the urinary bladder. Correlate with abdominal radiographs, urinalysis and culture. If there is no evidence of inflammation at this time, continued monitoring could be considered.

The pancreas is slightly prominent but there is no evidence of overt inflammation at this time. This is most consistent with pancreatic remodeling, although current mild inflammation cannot be definitively ruled out.





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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