

**DATE PRESENTING CLINICAL SIGNS**

1/5/23 History of diabetes since January. Was well-managed on vetsulin at 8 units after initial dose titration, but recently, appears insulin resistant and has had to increase to 12 units. New hypertriglyceridemia that has not resolved with diet change. Intermittent picky appetite.

PATIENT

Lexie Mihalic

Current Medications: apoquel 5.4 mg SID, flurbiprofen OU BID, vetsulin 12 u BID

Lab Results: 10/27/22, ALKP 306, chol 338, trig 834. 9/29/22: ALKP 283, chol 470, trig 1015, USG 1.057, 2+ T4 3.6. 3/18/2022: ALKP 609 T4 1.4

SPECIES

Canine

Date of Previous IntraPet Ultrasound: No previous.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

BREED

Jack Russell X

Imaging Performed By: Rachel Brillhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**SEX**

Spayed Female

Urinary System

The urinary bladder is significantly 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.

AGE

2/15/11

The left kidney has a normal shape and size (5.44 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.

WEIGHT

19.2 Pounds

The right kidney has a normal shape and size (5.55 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

Kathleen Sennello DVM,
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Adrenal Glands

The left adrenal gland is mildly enlarged and slightly irregular, measuring 0.79 cm at the cranial pole, 0.87 cm at the caudal pole, and 2.01 cm in length. It is observed in its normal position cranial to the left renal artery. It is slightly abnormal in appearance in that there is an ill-defined hyperechoic nodule in the caudal pole measuring 0.91 cm x 0.79 cm. There is no evidence of vascular invasion visualized.

HOSPITAL NAME

Everhart Vet Hospital

The right adrenal gland is normal in size measuring 0.58 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.

REFERRING VET

Dr. Notarangelo

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.

INVOICE

43981

Liver

The liver is large in size, and normal in echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. 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 uniform diameter with minimal fluid distension. Wall thickness is moderately increased. Bowel loops follow a typical curvilinear path. Some areas have reduced detail of wall layering. Duodenum wall measures 0.56 cm. Jejunum wall measures 0.26 cm. There is significant diffuse mucosal speckling. 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

- Hyperechoic nodule in the caudal pole of the left adrenal gland – Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- 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, heterogeneous 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. This is likely a diabetic hepatopathy.
- Diffusely thickened small intestine with prominent mucosal speckling – Bright mucosal speckling has been postulated to represent dilated lacteals or focal accumulations of mucus, cellular debris, etc.. in the mucosal crypts.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

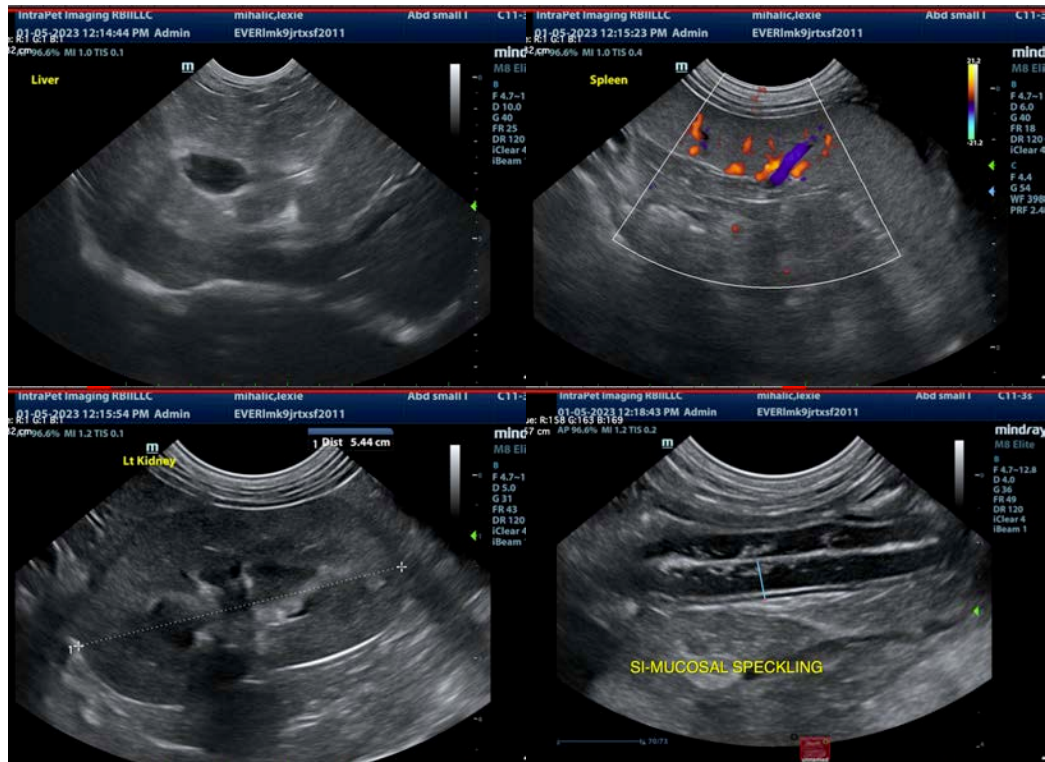
There is a hyperechoic nodule in the caudal pole of the left adrenal gland. This could represent a benign or early neoplastic lesion. Additionally, this could be secreting hormone or be non-active. This lesion is fairly subtle, and the concurrent unregulated diabetes makes interpretation of adrenal function testing a little challenging. Options moving forward would include continued monitoring with ultrasound or a contrast CT

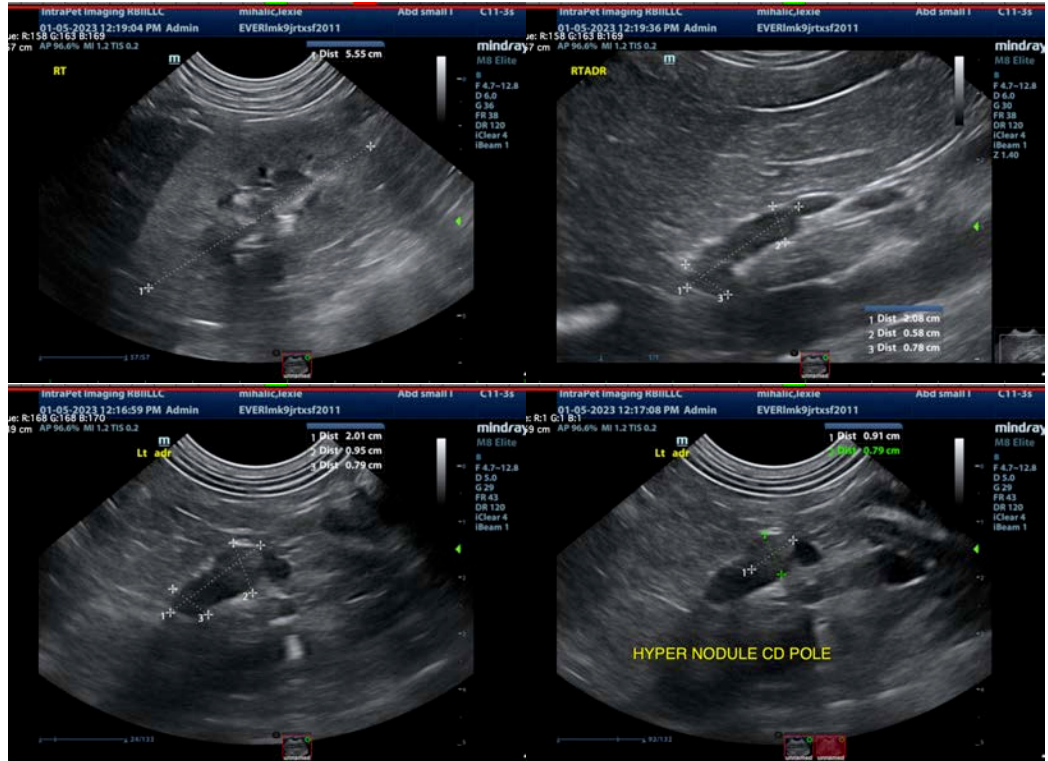
Scan to better evaluate this lesion for possible surgical removal. Additionally, an ACTH stimulation test once this patient is as well regulated as possible could be helpful in interpretation (as well as your clinical impressions). Additionally, I would recommend a blood pressure evaluation and measuring catecholamine levels if hypertension is present.

The bowel is diffusely thickened and has very prominent mucosal speckling. This can be associated with lymphangiectasia, small intestinal disease, etc. Correlate this with clinical signs. If this patient has a history of gastrointestinal disease, then consider the following:

- Consider a novel protein/hydrolyzed protein diet (exclusively at least 4-6 weeks)
- Consider a GI panel to Texas A&M for evaluation of B12 levels, folate, PLI/TLI etc.. to further evaluate for pancreatic/small intestinal disease.
- Recommend chronic probiotic therapy
- If symptoms persist, consider obtaining GI biopsies.

Consider workup for the elevated triglycerides, provided they are significantly elevated post a 12-24 hour fast (which may be challenging for a diabetic - consider 1st morning blood draw prior to feeding and insulin). VIN has an excellent discussion on the treatment of hyperlipidemia and diagnosis.





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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