

**DATE PRESENTING CLINICAL SIGNS**

11/9/22 Diagnosed with GB mucocele in 3/2021 which was removed. History of elevated liver values that have since resolved. Patient is on urosodiol.

PATIENT History of hypothyroidism managed with levothyroxine. History of cutaneous MCT removed in 2021.

Rylie Fuchs Current Medications: None listed.

Lab Results: 10/21/22 - CBC/Chem/T4/Ua - all values WNL.

Date of Previous IntraPet Ultrasound: No previous.

SPECIES Sedation: Not required to complete full diagnostic ultrasound.

Canine Stat Report: Not requested.

BREED ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Weimeraner

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.

SEX

Spayed Female

The left kidney is slightly small in size (5.23 cm) and irregular in shape (likely due to a previous infarct in the cranial pole) with occasional pinpoint non-obstructive nephroliths. 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 or hydroureter. Renal vasculature is normal.

AGE

8/4/13

WEIGHT

70.5 Pounds

The right kidney has a normal shape and size (7.2 cm) with pinpoint non-obstructive nephroliths. 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, infarcts or hydroureter. Renal vasculature is normal.

INTERPRETED BY

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

Adrenal Glands

The left adrenal gland is large and somewhat irregular, measuring 1.7 cm at the cranial pole, 1.2 cm at the caudal pole, and 3.8 cm in length. It is visualized in its normal position cranial to the left renal artery. It is abnormal in appearance in that it is large, irregular, hypoechoic, and there is the suggestion of a soft tissue density in the phrenicoabdominal vein, which could indicate early vascular invasion.

IMAGING PERFORMED BY

Stephanie Warga
RDCS, RVT

The right adrenal gland is normal in size measuring 0.59 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.

HOSPITAL NAME

North Laurel AH

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. There is a small hypoechoic nodule visualized within the parenchyma measuring 0.82 cm x 0.54 cm.

REFERRING VET

Dr. Steere

Liver

The liver is borderline small and slightly irregular. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. There is some dilation of the intrahepatic bile ducts with mineralization. The common bile duct is extremely dilated. No focal nodules or cystic lesions are observed.

INVOICE

42679

Absent gallbladder, removed surgically in 2021 due to gallbladder mucocele. The bile duct is severely dilated and somewhat tortuous, measuring at a maximal dilation of 2.3 cm to 1.6 cm, and is dilated all the way to the duodenal papillae with concern for a possible shadowing/obstructive stone at the duodenal papillae.

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 measures 0.34 cm. Duodenum wall measures 0.46 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 hypoechoic as compared to the surrounding isoechoic mesentery, particularly in the right limb. 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.

Other

A brief view of the heart was submitted. No significant pericardial effusion was seen.

PRIMARY FINDINGS

- Large, irregular left adrenal gland with possible invasion of the phrenicoabdominal vein – Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- Small, hypoechoic splenic nodule – There is a non-cavitated, hypoechoic splenic nodule visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.
- Heterogeneous, irregular, borderline small 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.
- Surgically absent gallbladder – Gallbladder mucocele removed in 2021.
- Severely dilated bile duct – The bile duct was reported to be normal in the previous scan 2021. There is concern for a possible shadowing stone at the duodenal papillae causing an obstruction/partial obstruction.
- Dilated and mineralized intrahepatic bile ducts – This is typically associated with chronic inflammation.

SECONDARY FINDINGS

- Borderline small left kidney with a likely previous infarct
- Hypoechoic, prominent right limb of the pancreas – The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The bile duct is severely dilated with a maximal diameter of 2.4 cm. There is a small questionable area at the duodenal papillae most consistent with a stone. The bile duct was reported as normal on the previous scan. If the patient is clinically normal, I suspect this is a chronic partial obstruction, and a contrast CT scan would likely be helpful for further evaluation. If this is not possible recommend continued close monitoring with ultrasound and labwork.

Additionally, the liver appears somewhat small and irregular with some mildly dilated intrahepatic bile ducts with mineralizations and small stones. Consider a liver function test to ensure that the chronic inflammatory changes in the liver are not leading to early fibrosis. If bile acids are elevated, recommend a liver biopsy (provided coagulation parameters are normal).

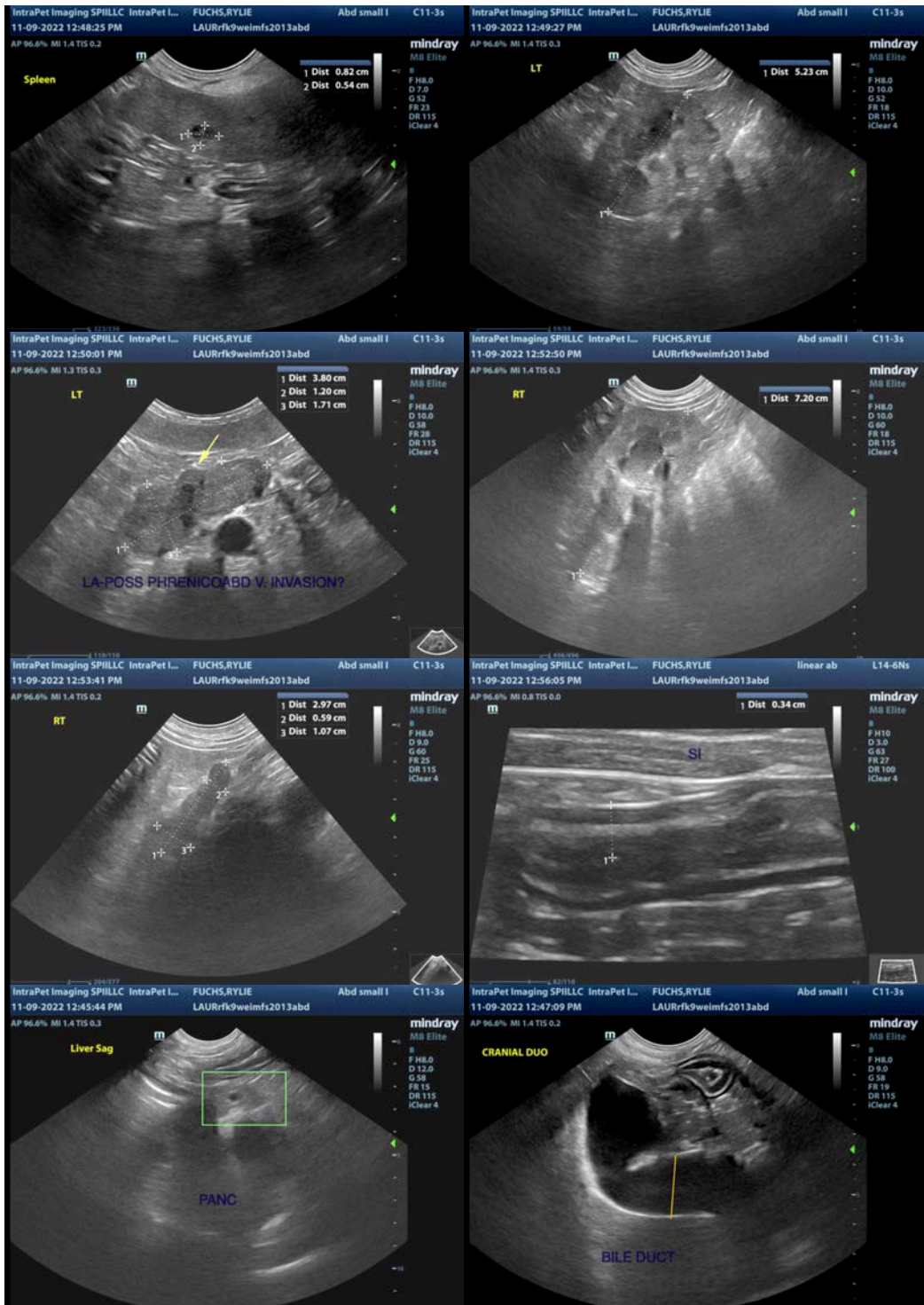
The left adrenal gland is large and irregular, most consistent with a mass effect. It measures at 1.2 cm in diameter on today's scan and was 0.63 cm in diameter in 2021. These lesions can be benign or malignant and can be secreting hormone or be non-active. The possible early invasion into the phrenicoabdominal vein is concerning. These are my recommendations for further evaluation of an adrenal mass:

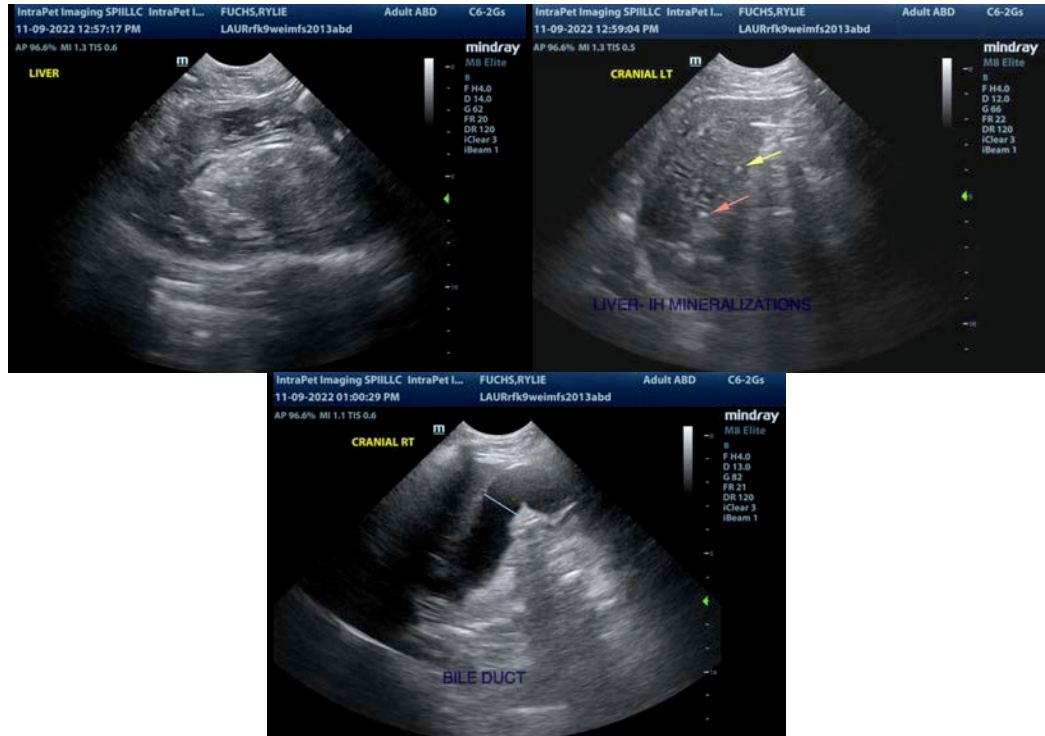
- If signs of cushings are present, consider adrenal function testing. I prefer an ACTH stimulation test combined with an adrenal panel to the University of Tennessee's endocrine lab to look for atypical adrenal hormones as well as cortisol. (other testing can suffice)
- If adrenal dependent cushings is suspected and supported by adrenal function testing consider medical therapy with lysodren or trilostane and/or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)-This can be a challenging surgery with significant risk for complication
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma
- Due to the invasive nature of these masses a CT scan is recommended to evaluate for metastasis and vascular invasion.
- If no symptoms of cushings are present, consider either referral for surgery or if surgery is not an option consultation with a veterinary oncologist regarding chemotherapeutic options and continued monitoring with ultrasound (in 4-6 weeks) can be considered.
- Some aggressive adrenal tumors can grow quickly and there is risk for acute hemorrhage from vascular invasion.

There is a small hypoechoic nodule visualized in the spleen. Options moving forward would include a fine needle aspirate of the nodule or continued monitoring with ultrasound.

Given that this patient is relatively asymptomatic at this time, if possible, the most prudent next step would be to consider a liver function test, a blood pressure evaluation, and coagulation parameters. Provided all of

these appear normal, consider a contrast CT scan to further evaluate the left adrenal gland and the bile duct/duodenal papillae to try to make a medical/surgical plan moving forward.





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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