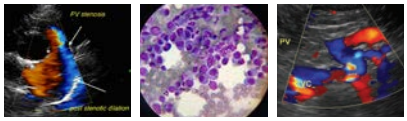
IMAGING PERFORMED BY

IntraPet.com



SonoPath

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**DATE**

1/24/23

**PATIENT**

Charley Rose Tingle

**SPECIES**

Canine

**BREED**

Pug

**SEX**

Spayed Female

**AGE**

6/16/16

**WEIGHT**

26.7 Pounds

**INTERPRETED BY**

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

**HOSPITAL NAME**

Animal Emergency Hospital

**REFERRING VET**

Dr. Ruby

**INVOICE**

44425

## PRESENTING CLINICAL SIGNS

Was here on 6/16/22 hx of severe elevation of LE and pancreatitis, dilated biliary duct Final AUS perform:- splenic nodule - pancreas prominent- moderate to severe pancreatitis - aggressive therapy - Heterogeneous liver (non specific) – Distended Gallbladder with dilated common bile duct- suggestive of extrahepatic biliary obstruction- no focal obstruction but concern for obstruction due to swollen pancreas- consider plasma; risk for needing surgery. Prognosis with surgery is guarded. Elected medical management, Seeing improvement -- She ultimately did well and left here Progress since here-- under continued care with RDVM , Liver values returned to completely normal just in December. She has seen the surgical specialist since for mast cell removal on skin ( good margins) in oct Hx of being on z/d diet long term, however she is able to get chicken here if she will not eat her food on long term denamarin and ursodiol PC tonight hunching/prayer position- it is how things started last time No vomiting no diet changes.

Current Medications: Vitamin B, Protonix, Cerenia, Buprenorphine.
Lab Results: See attached.
Date of Previous IntraPet Ultrasound: 6/21/2022. See attached.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Rachel Brilhart, RDMS.

## 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 (5.06 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.

The right kidney has a normal shape and size (4.79 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.

### *Adrenal Glands*

The left adrenal gland is normal in size measuring 0.65 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 but irregular in appearance, measuring 0.74 cm at the cranial pole, 6.0 cm at the caudal pole, and 1.6 cm in length. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is somewhat abnormal in appearance in that there is a hyperechoic ill-defined region on the cranial pole, concerning for an indistinct nodule, measuring 0.77 cm x 0.73 cm. There is no evidence of vascular invasion visualized.

### *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 1.07 cm diameter hypoechoic nodule visualized within the parenchyma (previous measurement 6/2022 was 0.88 cm)

### *Liver*
The liver is subjectively normal in size, and 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 to significantly distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are mild and primarily anechoic. The proximal bile duct is visualized and is prominent, measuring 0.43 cm in diameter. It is not clearly visualized more caudally.

### *Gastrointestinal*
The stomach contains moderate to large shadowing ingesta. 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. The duodenum measured as normal (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.) 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 large and hypoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is evidence of regional mesenteric inflammation. Consistent with moderate to severe pancreatitis.

### *Free Abdomen*
There is a small amount of free fluid. No lymphadenopathy. The omentum is severely hyperechoic around the pancreas.

## ULTRASONOGRAPHIC FINDINGS

- 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. This lesion is relatively stable in appearance since the last scan approximately 6 months ago.

- Large hypoechoic, heterogeneous pancreas with surrounding hyperechoic mesentery – The pancreatic changes are most consistent with moderate to severe pancreatitis/pancreatic inflammation. Recommend fPLI testing and continued monitoring for improvement or possible development of a pancreatic abscess. Consider fine needle aspirate if not improving.

- 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.

- Moderately distended gallbladder with proximal bile duct dilation – Dilation of the common bile duct could be consistent with a functional obstruction (i.e. primary hepatic disease resulting in hepatocellular swelling) or with an extrahepatic bile duct obstruction (ie. choledocholith, bile duct

tumor, pancreatic disease, other).

- Moderate to large shadowing ingesta within the gastric lumen – Correlate this with the feeding history. If this patient was adequately fasted, consider such differentials as delayed gastric emptying or a partial outflow tract obstruction. Delayed gastric emptying is commonly associated with pancreas.

- Ill-defined hyperechoic region on the cranial pole of the right adrenal –Right adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

- Small volume free abdominal fluid.

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The pancreas is large and hypoechoic and surrounded by hyperechoic mesentery with some free fluid in the abdomen. These findings would be most consistent with severe pancreatitis. It appears somewhat similar to the previous scan 6 months ago. If this is persistent, I would consider a fine needle aspirate of the pancreas. If this is a relapse, then severe pancreatitis is possible. While the proximal bile duct is dilated, it is unclear if any obstruction is evident at this time. Recommend aggressive therapy for pancreatitis +/- fine needle aspirate of the pancreas.

The changes visualized associated with the stomach and bile duct are likely secondary to the pancreatitis, as well as the free fluid. If symptoms are not improving, you could consider sampling of the free fluid for fluid analysis and cytology to rule out peritonitis or neoplastic effusion.

There is an ill-defined hyperechoic region on the cranial pole of the right adrenal gland. The significance of this is currently unclear. This could represent a benign or early neoplastic lesion and could be non-active or could be secreting hormone. These are my general recommendations for further evaluation of a nodule on the adrenal:

- 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 or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)

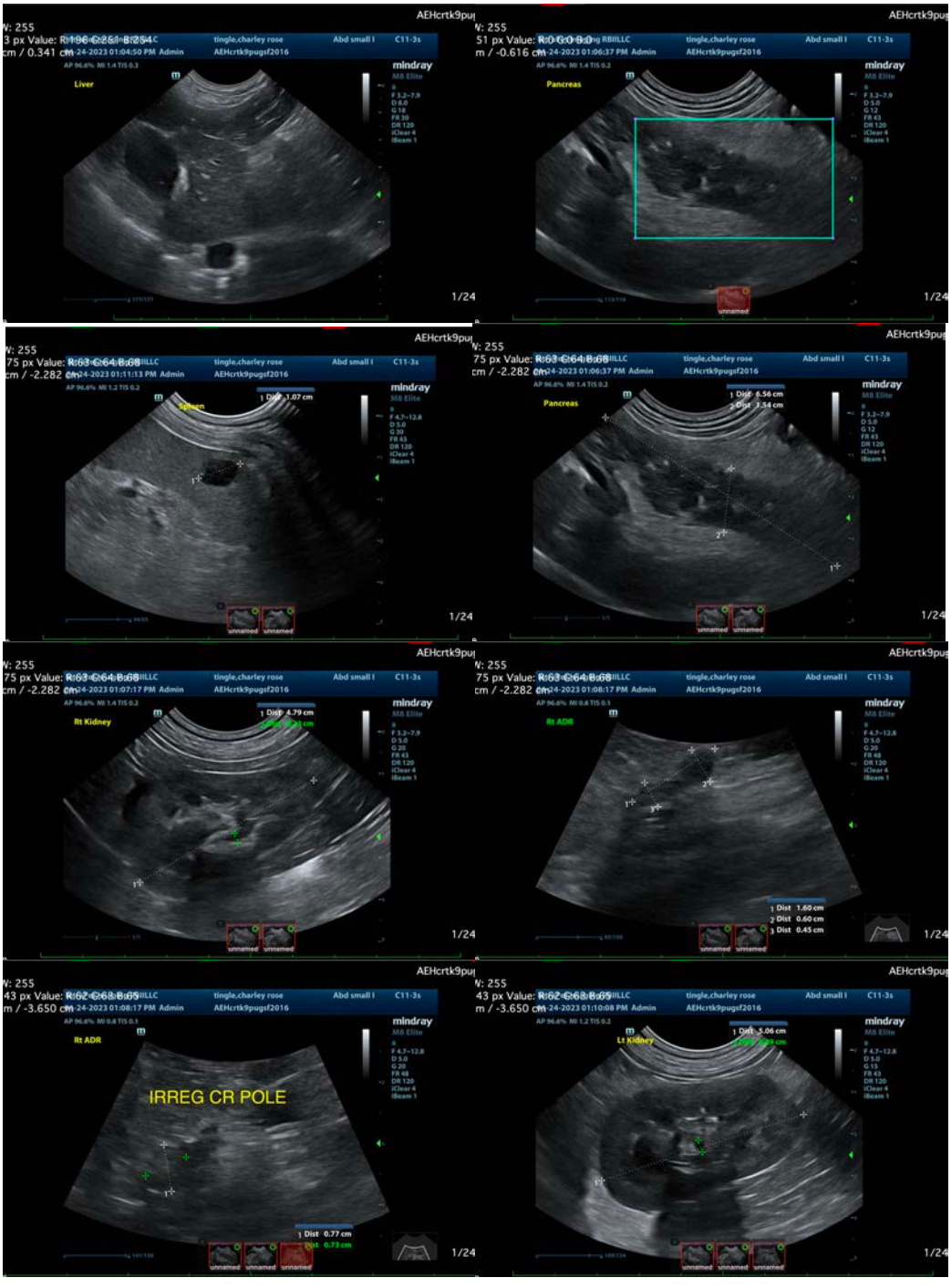
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma

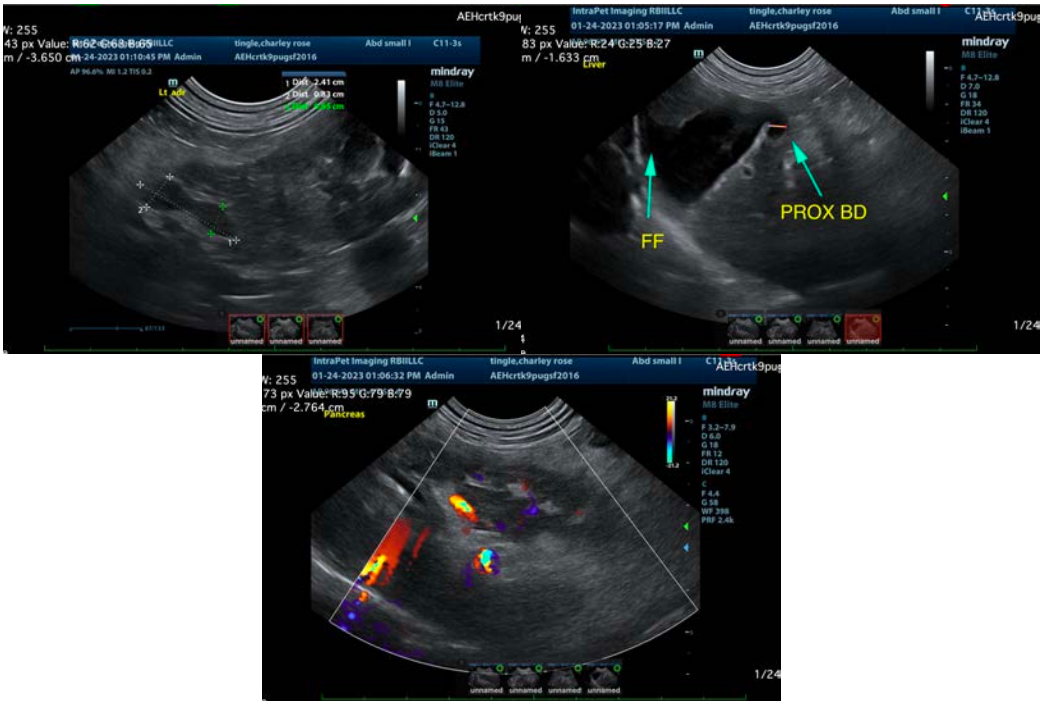
- If no symptoms of cushings are present, consider either referral for surgery or continued monitoring with ultrasound (in 3-4 months).

- Many of these nodules can be benign and incidental in nature, unfortunately that is difficult to determine with a single ultrasound.

Adrenal function testing should be postponed until this patient is feeling better, as test results would be impossible to interpret, but blood pressure testing is recommended, and monitoring of the adrenal glands.

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.


Liver
Pancreas
Spleen
Pancreas
Rt Kidney
Rt ADR
Rt ADR
IRREG CR POLE
Lt Kidney




**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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