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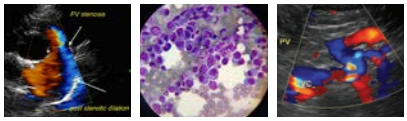

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**DATE**

10/13/22

**PATIENT**

Rabbit Triplett

**SPECIES**

Canine

**BREED**

York-A-Poo

**SEX**

Neutered Male

**AGE**

2/14/14

**WEIGHT**

12.9 Pounds

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**

Rachel Brilhart RDMS

**HOSPITAL NAME**

Animal Emergency Hospital

**REFERRING VET**

Dr. Willer

**INVOICE**

42049

## PRESENTING CLINICAL SIGNS

Excessive PU/PD, panting. B 155 8/13. BG 360 10/11. Glucose 4+, Ketones 2+. 10/11 PM started vomiting, lethargic. Now anorexic. Abdomen painful.

Current Medications: Apoquel daily, Gabapentin, Meloxicam, Novolin N 2U BID.
Lab Results: LDDS- not consistent with Cushings. T4 2.1, ACTH Post 20.2. 10/11 BG 360, Glucose 4+, Ketones 2+.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

## 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 prostate is normal in size (0.55 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.

The left kidney has a normal shape and size (4.69 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 (5.27 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/borderline enlarged measuring 0.72 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 borderline large measuring 0.86 cm at the crania pole, 0.93 cm at the caudal pole, and 2.53 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 abnormal in appearance in that there is a hyperechoic nodule in the cranial pole measuring 0.66 cm x 0.75 cm. This does not significantly deviate the shape of the right adrenal gland and there is no evidence of vascular invasion.

### *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 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. There are numerous ill-defined, hypoechoic nodules throughout the hepatic

parenchyma. Two specific nodules are visualized, one measuring 1.49 cm x 2.09 cm. Another measures 0.95 cm in diameter.

The gall bladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. There is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

### *Gastrointestinal*

The stomach contains a large amount of fluid. 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 appears subjectively, mildly increased. Bowel loops follow a typical curvilinear path with distinct wall layering. Duodenum wall measures 0.50 cm. Jejunum wall measures 0.36 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 large and hypoechoic to surrounding mesentery, particularly in the right limb. There is no evidence of nodules or cystic lesions. There is evidence of regional mesenteric inflammation. Consistent with severe pancreatitis.

### *Free Abdomen*

There is free abdominal fluid. No lymphadenopathy. The omentum is severely hyperechoic around the pancreas.

### *Other*

A small amount of pleural effusion is visualized cranial to the diaphragm.

## ULTRASONOGRAPHIC FINDINGS

- Borderline bilateral adrenomegaly with a hyperechoic nodule in the cranial pole of the right adrenal gland – The bilateral adrenomegaly could be consistent with bilateral hyperplasia (e.g., secondary to pituitary-dependent hyperadrenocorticism), bilateral infiltrative neoplasia, inflammatory adrenal disease, other. Correlation with clinical findings is recommended. The hyperechoic nodule in the right adrenal gland could represent a benign or neoplastic lesion. Differentials include hyperplasia, adenoma, carcinoma, pheochromocytoma, etc.

- Large, hypoechoic, irregular pancreas with surrounding hyperechoic mesentery and free fluid – The pancreatic changes are most consistent with 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 with hypoechoic nodules – 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. The nodules observed trend toward a more benign process but underlying neoplasia cannot be ruled out.

- Moderate gallbladder debris – The significance of the aggregated gallbladder debris is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting but seems unlikely to be causing a current issue. Recommend continued monitoring.

- Large fluid dilated stomach – These findings are likely most consistent with ileus secondary to pancreatitis.

- Subjectively thickened small intestine – This is most likely secondary to the free fluid and duodenal inflammation secondary to pancreatitis.

- Free abdominal fluid

- Fluid visualized cranial to the diaphragm – most consistent with pleural effusion. Recommend 3-view thoracic radiographs.

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The pancreas appears severely inflamed with surrounding hyperechoic mesentery and free fluid. Recommend aggressive medical management for pancreatitis. The stomach is significantly fluid dilated. I suspect this is due to ileus secondary to pancreatitis. I typically recommend passing a nasogastric tube to empty the stomach, and starting prokinetics such as Metoclopramide, as this will aid patient comfort and reduce nausea.

The liver is large and heterogeneous. This would be typical for a diabetic hepatopathy, but there are some hypoechoic nodules. These types of nodules typically trend towards a more benign etiology but continued monitoring and possibly even a fine needle aspirate are warranted once this patient's DKA and pancreatitis are resolved.

Both adrenal glands are borderline enlarged. This should be reassessed once this patient is feeling better. Additionally, there is a hyperechoic nodule in the cranial pole of the right adrenal gland. The significance of this is uncertain. This could represent a benign or an early neoplastic lesion and could be secreting hormones or be non-secretory. Recommend a blood pressure evaluation and evaluation of the adrenal changes in the future once this pet is feeling better. I suspect this is not contributing to active disease at this time but may make management of the diabetes more challenging. These are my general recommendation for evaluation of an adrenal nodule:

- 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)

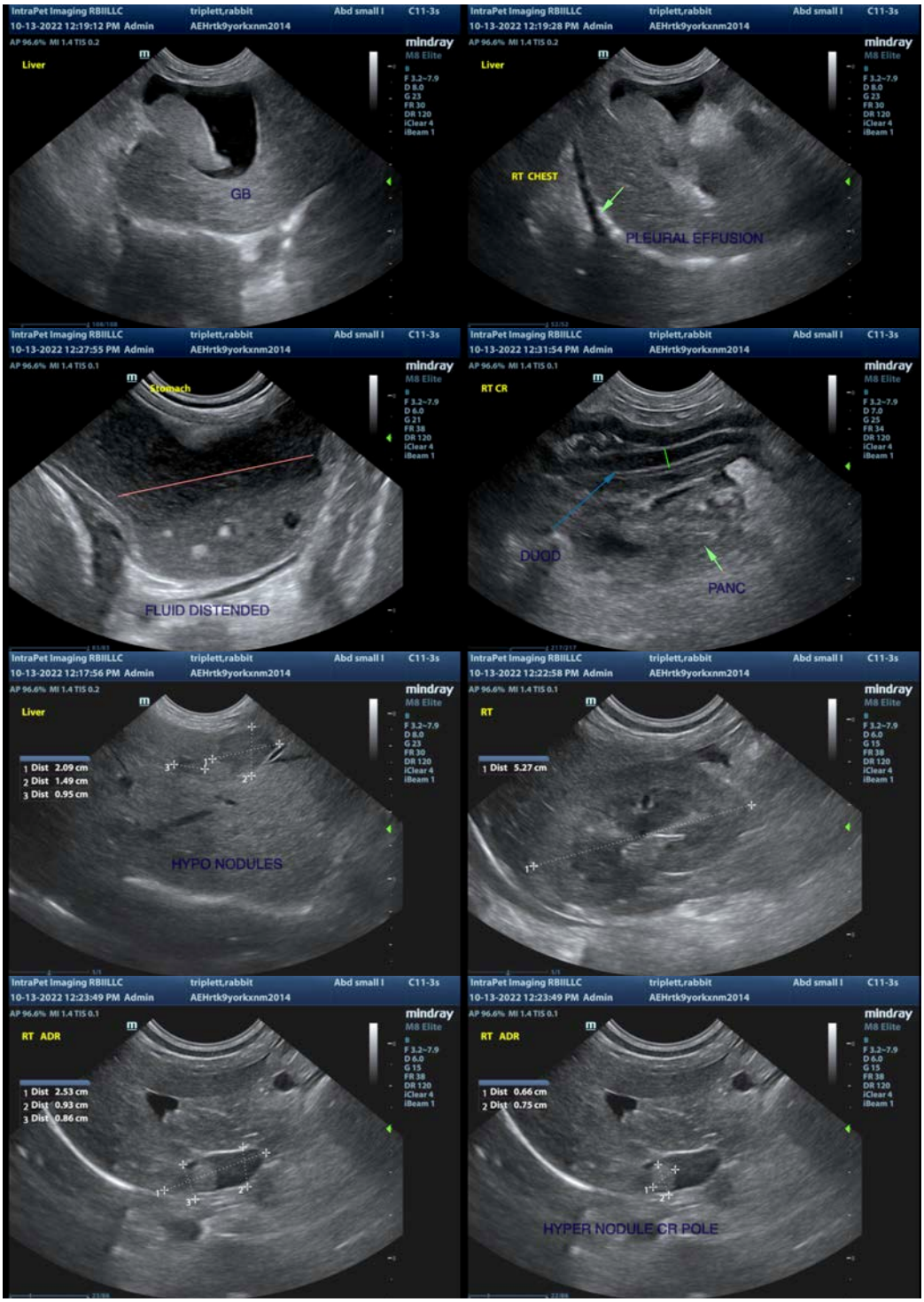
- If adrenal dependent cushings is suspected and supported by adrenal function testing consider medical therapy with lysodren or trilostane or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)

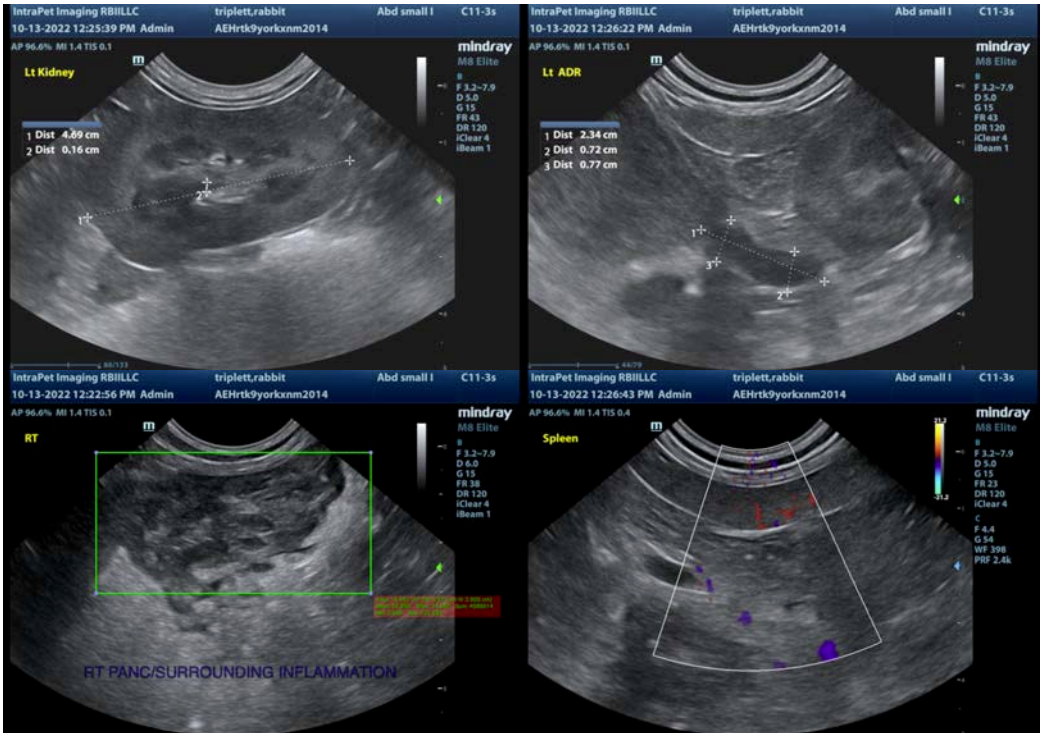
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma

- 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.

There is free abdominal fluid and what appears to be pleural effusion. This could be secondary to vasculitis and pancreatitis. Recommend 3-view thoracic radiographs and continued monitoring. If it worsens or persists, you could consider collecting a sample for fluid analysis and cytology.






**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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