**PATIENT**

Riley Raymond

PRESENTING CLINICAL SIGNS

Patient on seizure meds: phenobarbital & pot. bromide. Four bouts of uti in short period of time.
 Abnormal PE/Chem/CBC/UA Results: Cystocentesis performed today to send urine culture to lab.

SPECIES

Canine

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.

BREED

German Shepherd

The left kidney has a normal shape and size (6.73 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

SEX

Spayed Female

AGE

3 Years

The right kidney has a normal shape and size (7.18 cm). Overall echogenicity is normal with adequate corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

WEIGHT

70 Pounds

Adrenal Glands

The left adrenal gland is normal in size measuring 0.45 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.

INTERPRETED BY

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 MS, Diplomate ACVIM
 (Small Animal Internal
 Medicine)

The right adrenal gland is normal in size measuring 0.64 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.

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.

IMAGING PERFORMED BY

Amy Mayhew, LVT

Liver**HOSPITAL NAME**

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The liver is large 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.

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The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are primarily anechoic. The cystic and common bile ducts are normal/not visible.

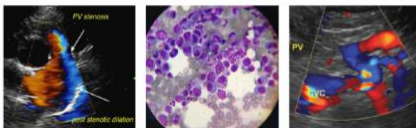
Gastrointestinal**INVOICE**

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The stomach is dilated with a large amount of fluid and irregular shadowing material most consistent with normal ingesta and gas. 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 layering is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

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5/11/22

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The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with moderate distension with ingesta/chyme. 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 measured 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 normal and isoechoic to surrounding 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

- 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. This is likely secondary to the Phenobarbital therapy.
- Large shadowing material within the gastric lumen – Correlate with feedings history and abdominal radiographs. If adequately fasted then consider such differentials as delayed gastric emptying or a partial outflow tract obstruction (none visualized).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

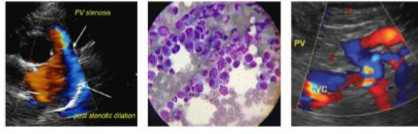
No obvious lesions are visualized associated with the urogenital tract. The urinary bladder is very large, but no obstruction is visualized. Visualization of the proximal urethra is limited due to the urine distention. Correlate findings with a digital rectal exam to palpate the urethra.

The liver is large and hyperechoic. This is likely secondary to the Phenobarbital therapy. It is theoretically possible that the Phenobarbital therapy is causing PU/PD and more dilute urine, which could increase the likelihood of bacterial growth within urine, but this is just speculation. In general, consider these recommendations for recurrent urinary tract infections.

- Always recommend treatment based on urine culture and sensitivity testing to try to reduce the likelihood of fostering antibiotic resistance.
- Recommend external urogenital exam to look for any anatomic features that could increase the likelihood of recurrent urinary tract infections such as a juvenile vulva/hooded vulva, urine pooling, etc., a digital vaginal exam to look for any mass lesions, irregularities, etc.
- Recommend chronic probiotic therapy to enhance normal bacterial flora.
- Recommend frequent urine emptying and try to confirm that full emptying of the bladder is possible and there is not a caudal neurologic lesion.
- Screen for any metabolic conditions that could increase the likelihood of urinary tract infections such as diabetes, Cushing's, Prednisone use, etc.

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- If there is a history of urinary incontinence or an ectopic ureter is suspected, then consider contrast CT to further evaluate the area.

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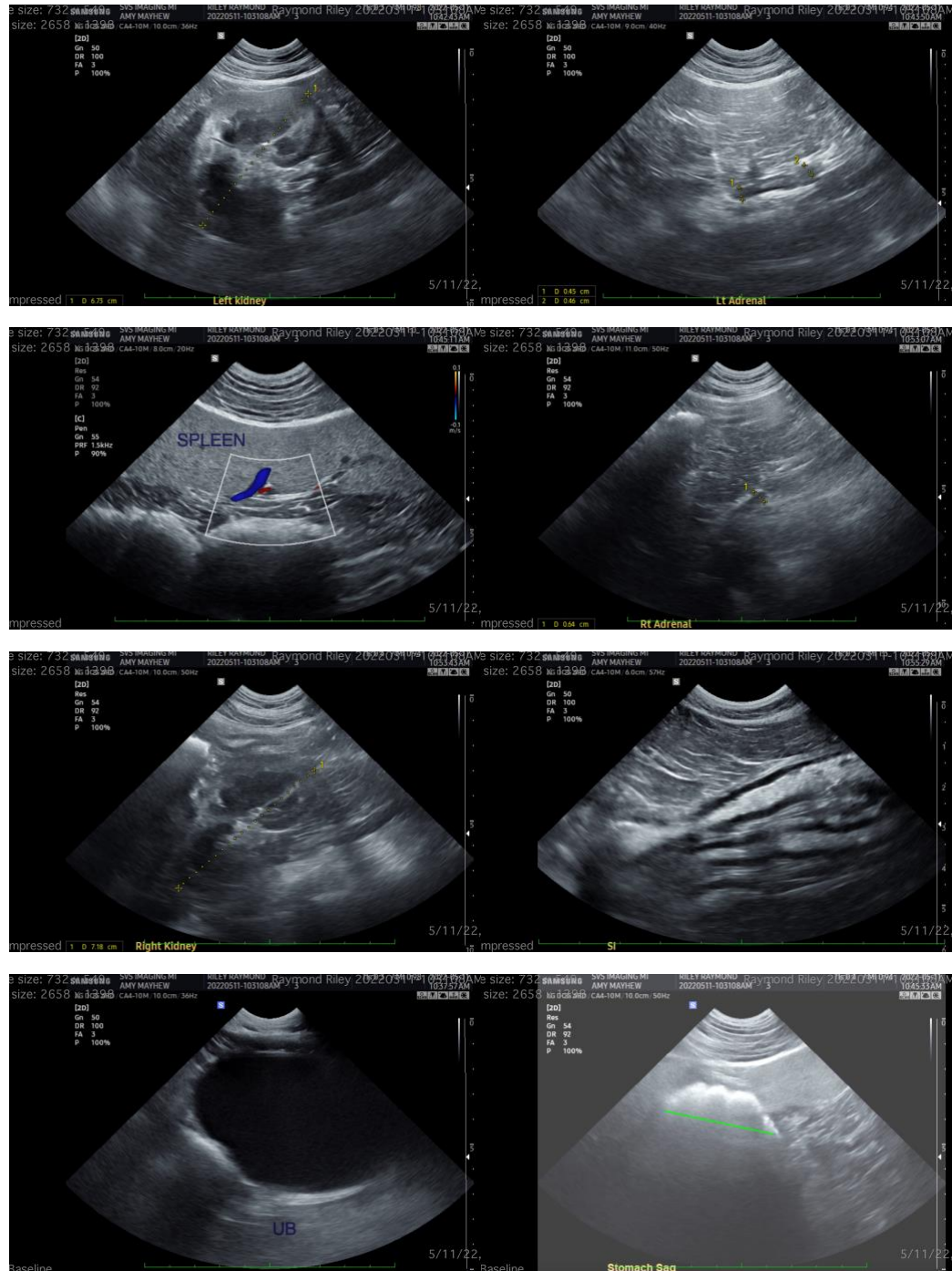
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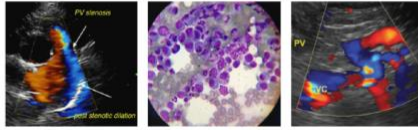
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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

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