



**PATIENT**

Sullivan Miller

**PRESENTING CLINICAL SIGNS**

P has hx of slowly increasing liver values Mild PU/PD P on galliprant and Denamarin

**SPECIES**

Canine

Abnormal PE/Chem/CBC/UA Results: Mild pain on spinal palpation Alkp 1992 PSL 308 2+ proteinuria All else WNL

**BREED**

Dachshund X

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

**SEX**

Neutered Male

The urinary bladder is moderately distended with anechoic urine. The Bladder wall is diffusely mildly thickened, and the mucosa is mildly irregular. The trigone, ureteral papillae, and visible urethra (to a depth of 2cm) appear normal with no evidence of severe mucosal irregularities, or masses. There are a few pinpoint hyperechoic foci visualized in the dependent portion of the urinary bladder, most consistent with small calculi. One such lesion measures at 0.19 cm. Findings are most consistent with bacterial cystitis or lack of urine distension with small calculi/sandy debris. Recommend urinalysis and culture.

**AGE**

10 Years 7 Months

The visualized areas of prostate and surrounding tissue appear normal. Unfortunately, the prostate is not fully visualized likely due to its intrapelvic location. Correlate with rectal exam findings.

**WEIGHT**

26 Pounds

The left kidney has a normal shape and size (5.67 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,  
MS, Diplomate ACVIM  
(Small Animal Internal  
Medicine)

The right kidney has a normal shape and size (5.56 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**

**IMAGING PERFORMED BY**

Dr. Ruth Loomis

The left adrenal gland is normal in size measuring 0.71 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.

**HOSPITAL NAME**

Brookwood AC

The right adrenal gland is normal in size measuring 0.71 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**

**REFERRING VET**

Dr. Ruth Loomis

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**

**INVOICE**

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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 occasional ill-defined hypoechoic nodules visualized. One nodule measures 1.0 cm in diameter.

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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 mild and primarily anechoic. The cystic and common bile ducts are normal/not visible.

**SPECIES**

Canine

**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.

**BREED**

Dachshund X

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. Duodenum wall measures 0.48 cm. Jejunum wall measures 0.39 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

**SEX**

Neutered Male

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.

**AGE**

10 Years 7 Months

**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.

**WEIGHT**

26 Pounds

**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.

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Kathleen Sennello DVM,  
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(Small Animal Internal  
Medicine)

**ULTRASONOGRAPHIC FINDINGS**

- Irregular urinary bladder mucosa with small hyperechoic foci/calculi – Recommend urinalysis and culture and continued monitoring of the urinary bladder.
- Large, heterogeneous liver with occasional ill-defined 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 appearance of these nodules trends towards a benign lesion.

**IMAGING PERFORMED BY**

Dr. Ruth Loomis

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

There is mild irregularity to the urinary bladder wall and small pinpoint foci/calculi. Recommend urinalysis and culture and continued monitoring of the urinary bladder.

**REFERRING VET**

Dr. Ruth Loomis

The liver is large and heterogeneous. There are occasional ill-defined hypoechoic nodules, which trend toward a more benign etiology. Consider the following evaluation for a primary ALP elevation.

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- Induction phenomena are the most common cause for an elevation in ALP. These are systemic illnesses that 'turn on' the liver enzyme. Causes of this include Cushing's disease, dental disease, arthritis, and numerous others. In many cases the exact cause is unclear but as long as ultrasound and bile acids tests are normal most patients do not have progressive changes in their liver. While liver biopsy is not routinely performed, vacuolar hepatopathy, is noted on most biopsies. This is often non-progressive but in rare cases can be more severe and lead to liver failure.

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- If signs of cushings disease are present recommend endocrine function testing to evaluate for cushings disease.

**SPECIES**

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- Consider fine needle aspirate to rule out round cell neoplasia -if this is a concern.

- If a cause for the ALP elevation is not identified: I recommend recheck general blood work every 6 months, ultrasound once per year, and bile acids test every 1-2 years based on other results. If the ALP continues to climb a biopsy could be considered.

**BREED**

Dachshund X

- Consider long term use of denamarin, and monitoring for the signs of cushings developing.

**SEX**

Neutered Male

- A primary vacuolar hepatopathy can be breed related and is seen in Scottish Terriers, Schnauzers, Cocker spaniels etc..

While the adrenal glands are not overtly enlarged, they are somewhat hypoechoic and prominent. If the patient exhibits symptoms and clinical appearance consistent with Cushing's, you could consider pursuing adrenal function testing.

**AGE**

10 Years 7 Months

**WEIGHT**

26 Pounds

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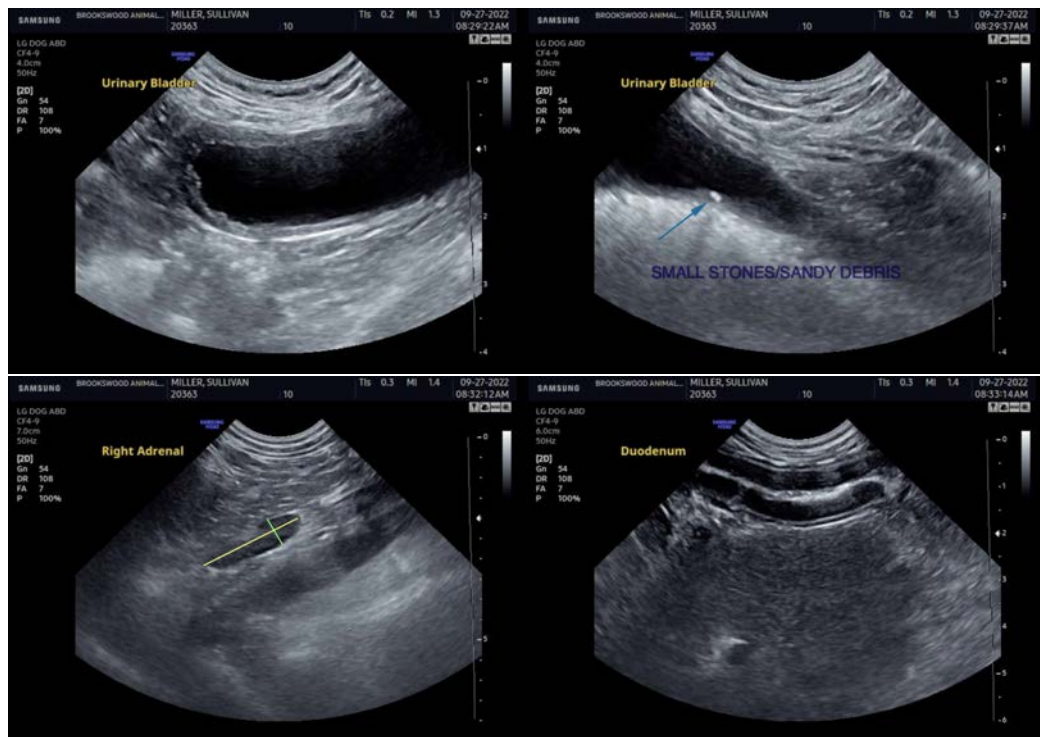
Dr. Ruth Loomis

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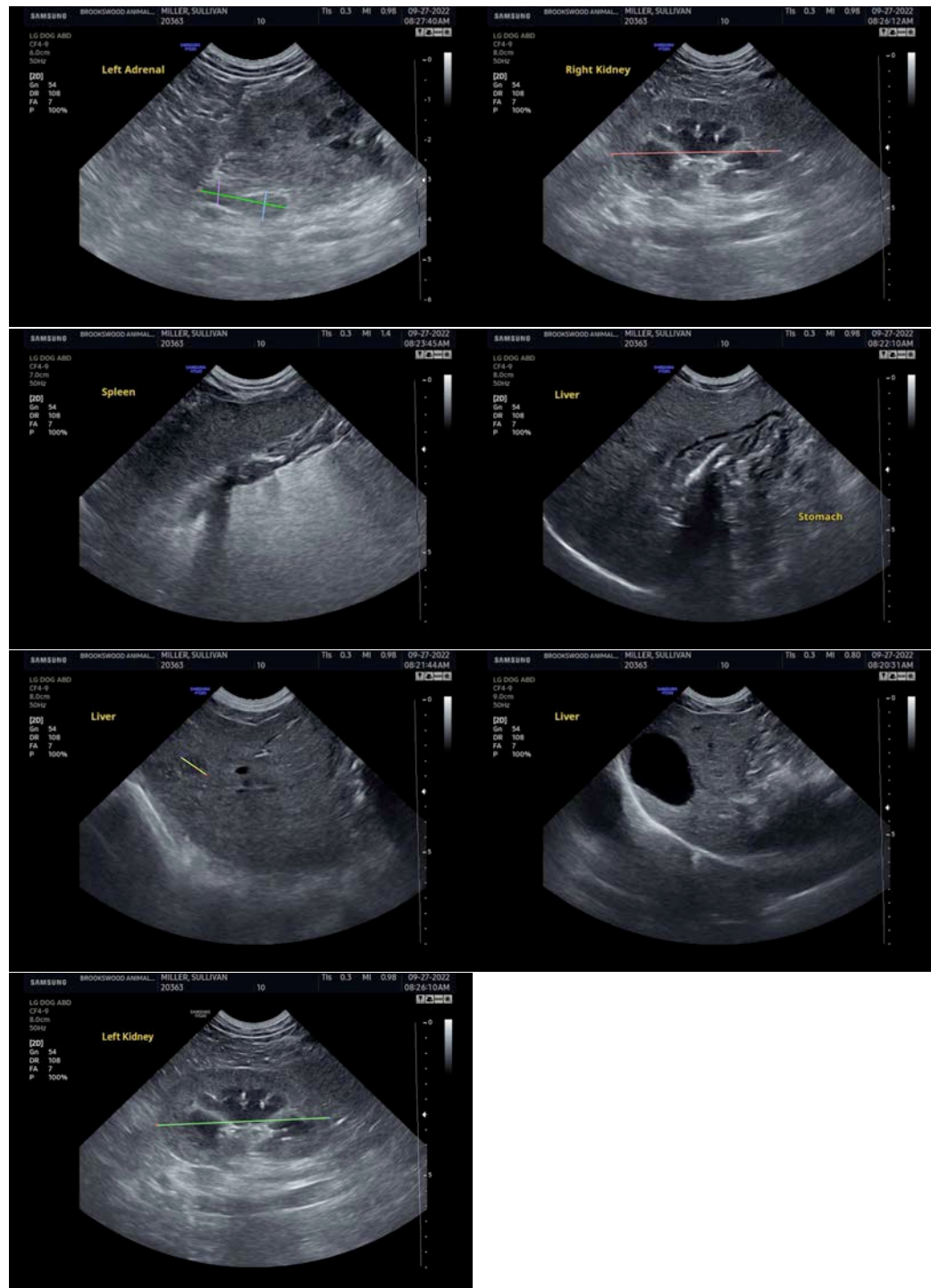
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

**SPECIES**

Canine

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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kathleen.sennello@sonopath.com

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