



**PATIENT PRESENTING CLINICAL SIGNS**

Lexi Leigh Schmidt

O just ran out of the denamarin and is here for fasted bloodwork to see what the liver values are doing. O is also having a very difficult time getting P to eat the prescription urinary diet. O is having to resort to adding cat food to the prescription diet to get her to eat it. O at this point would like to d/c the diet, go back to the old food and deal with the urinary issues as they pop up. O doesn't want to make P miserable as she ages. Is fasted for bloodwork today. PE: cataracts present OU, still visual. Cardiopulmonary aus WNL. Underbite, no trauma to tissue. Moderate dental calculus. tense for abdominal palpation, unsure if diagnostic.

**SPECIES**

Canine

**BREED**

Lhasa Apso

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**SEX**

Spayed Female

**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, or masses. There is a hyperechoic shadowing structure visualized in the dependent portion of the urinary bladder, most consistent with a stone measuring 0.68 cm.

**AGE**

13 Years

The left kidney has a normal shape and size (4.31 cm) with shadowing mineralizations at the corticomedullary junction. Overall echogenicity is slightly hyperechoic with poor 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.

**WEIGHT**

18 Pounds

The right kidney has a normal shape and size (5.35 cm) with shadowing mineralizations at the corticomedullary junction. Overall echogenicity is slightly hyperechoic with poor 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 normal in size measuring 0.44 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.

**IMAGING PERFORMED BY**

Chaley Hunt, LVT

The right adrenal gland is normal in size measuring 0.53 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.

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**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.

**REFERRING VET**

Dr. Miranda Bauer

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**Liver**

The liver is large. 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 gall bladder lumen is moderately distended. The wall of the gall bladder has irregular polypoid projections and there is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

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Canine

**Gastrointestinal**

**BREED**

Lhasa Apso

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. In some views the pylorus appears somewhat irregular and prominent. Pyloric wall measures at 0.50 cm. This could be imaging artifact, but continued monitoring is warranted.

**SEX**

Spayed Female

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 0.41 cm. Jejunum wall measures 0.36 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

**AGE**

13 Years

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.

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**Pancreas**

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The right limb of the pancreas is prominent and mottled compared to the surrounding isoechoic mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

**IMAGING PERFORMED BY**

Chaley Hunt, LVT

**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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**ULTRASONOGRAPHIC FINDINGS**

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- Hyperechoic shadowing structure in the dependent portion of the urinary bladder – Findings are most consistent with a stone. Correlate with abdominal radiographs, urinalysis and culture.
- Decreased corticomedullary distinction in both kidneys with corticomedullary mineralization – The bilateral renal findings are consistent with age-related change.
- Prominent, mottled 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.
- 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.
- Mild gallbladder polyps – Consider a GI panel to Texas A&M for evaluation of B12 levels, folate, PLI/TLI etc.. to further evaluate for pancreatic/small intestinal disease.
- Slightly irregular pylorus – The significance of this is unclear. Recommend continued monitoring for vomiting.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

No focal lesions are visualized associated with the liver but is large and hyperechoic. Depending on the severity and the specific liver enzymes that are elevated, you could consider the following general recommendations:

- Consider close evaluation of history for possible toxic changes examine medications, diet, dietary indiscretion etc...
- Consider PCR on urine/serum for leptospirosis (if not on antibiotics)/serology if recent antibiotic history
- If not already done, consider pre and post prandial bile acids to evaluate liver function
- If the ALP is significantly elevated relative to the ALT and symptoms consistent with Cushing's are present, consider adrenal function testing (ACTH stim)
- Consider Fine needle aspirate if round cell neoplasia is on your differentia list (25 g needle, normal coags)
- If no response to supportive care (Denamarin, fluids, antibiotics, +/- ursodiol etc.) Consider liver biopsy with samples obtained for histopathology, culture, and copper levels.

There is a stone visualized in the dependent portion of the urinary bladder. Recommend radiographs to correlate the size and number of stones present. Recommend a urinalysis and culture.

The pancreas is somewhat prominent but does not appear overtly inflamed. This could be remodeling due to previous episodes of inflammation. Additionally, there are very mild polypoid projections visualized in the gallbladder. These could be incidental or be associated with mild inflammation.

On some views the pylorus appears somewhat prominent and irregular in appearance. This is not evident on all views, so the significance of this is unclear. Options moving forward would include monitoring for any vomiting and a recheck ultrasound of this area in 2-3 months.





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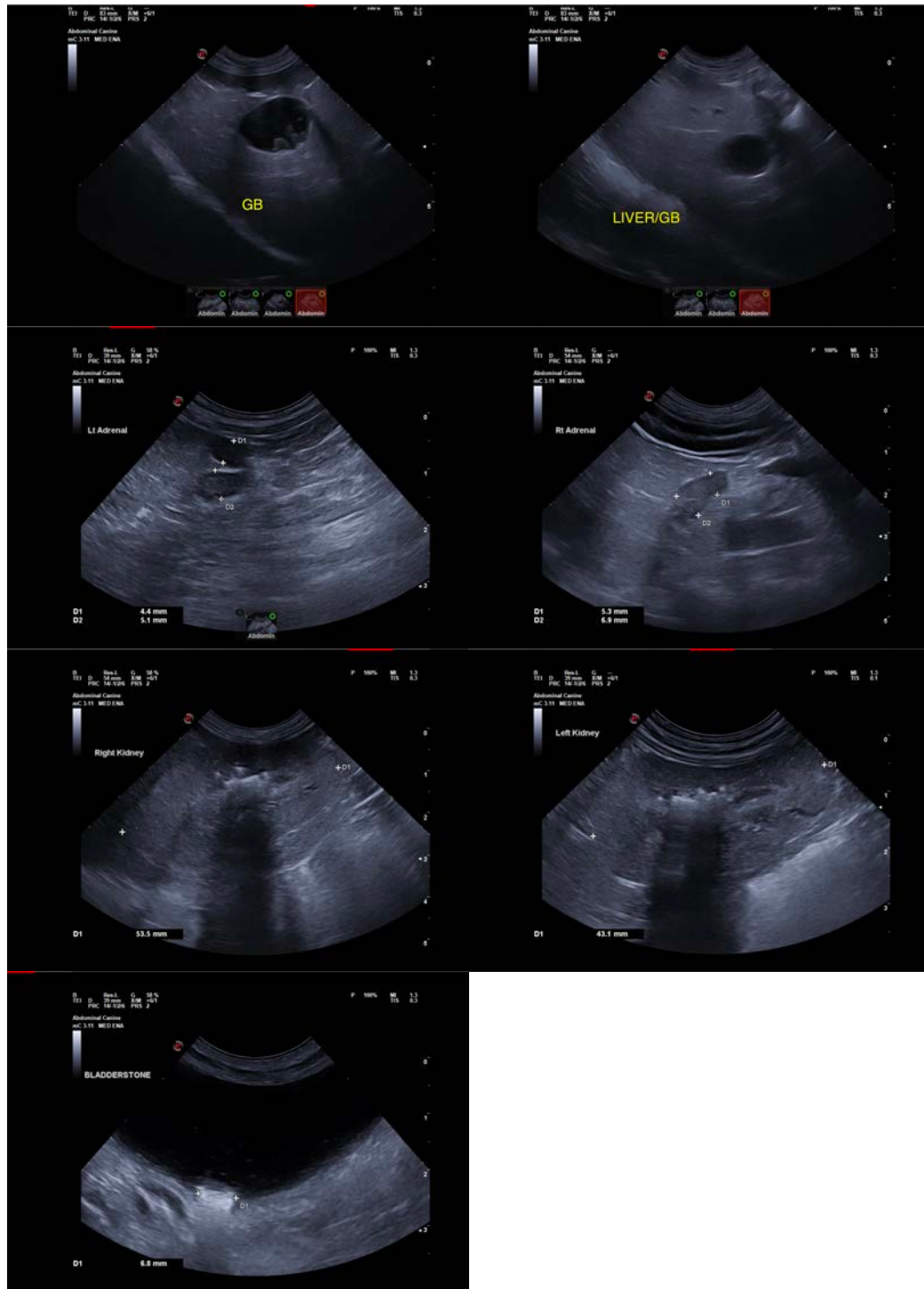
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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