



PATIENT

Holly McQuiston

SPECIES

Canine

BREED

Chihuahua

SEX

Spayed Female

AGE

8 Years

WEIGHT

18.8 Pounds

INTERPRETED BY

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

**IMAGING
PERFORMED BY**

Dr. Tam Mengine

HOSPITAL NAME

Stoney Creek VH

REFERRING VET

Dr. Tam Mengine

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DATE

4/7/22

PRESENTING CLINICAL SIGNS

Patient presented for a few weeks of decreased appetite, though weight is up and she is profoundly obese. On CBC / Chem, ALT 280, ALP 2325 (had been 125 / 395 on last bloodwork in 5/20) - otherwise unremarkable. T4 1.8, U/A pending

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, or masses. There is a small pile of dependent mineralized debris in the urinary bladder, which has the appearance of a pile of small stones. Correlate findings with abdominal radiographs to better evaluate the characterization of these mineralizations.

The left kidney has a normal shape and size (4.06 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.

The right kidney has a normal shape and size (4.37 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.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.38 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 measuring 0.34 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.

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. On the right side of the liver, there is an ill-defined, bulging hyperechoic lesion measuring 5.78 cm x 4.79 cm, which is suspicious for a primary hepatic mass.

The gall bladder lumen is significantly distended. Some areas of the wall appear mildly thickened with adherent debris. There is a large amount of non-organized echogenic debris, but some of this debris is starting to create some mucosal strands and organize into an early mucocele. There is no evidence of bile duct dilation.



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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.

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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 measured 0.48 cm. Jejunum wall measured 0.30 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

BREED

Chihuahua

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

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.

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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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- Dependent mineralization within the urinary bladder – findings are most consistent with a pile of small stones. Recommend abdominal radiographs to further determine the number and size of stones present.
- Large, heterogeneous liver with a focal ill-defined, hyperechoic mass lesion – 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 irregularity in the liver is ill-defined, but a mass lesion is suspected.
- Early mucocele development – Recommend close continued monitoring and starting Ursodiol.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The liver is large and heterogeneous. This is most commonly associated with a vacuolar hepatopathy (steroid induced, primary, etc.). Additionally, there is an ill-defined mass lesion visualized on the right side of the liver. Consider a fine needle aspirate of this lesion. If surgical resection would be considered, then I would recommend a CT scan of the liver to better evaluate the mass lesion and determine if surgical resection is warranted.

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The hepatic lesion could be the cause for the elevation in ALP. Additionally, you can have a primary hepatopathy, and that could be more of an incidental (but important) finding. This is how I approach 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

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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.

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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.

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

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

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There is a pile of mineralized debris visualized in the dependent portion of the urinary bladder. I suspect these are small stones. Recommend urinalysis, culture, and abdominal radiographs to determine if these are indeed separate small stones, and if surgical removal is necessary.

The gallbladder is large and distended, and the material within it is starting to organize into an early mucocele. Recommend starting Ursodiol +/- a course of antibiotics. Continue to monitor this gallbladder closely for progression into a potentially surgical lesion.

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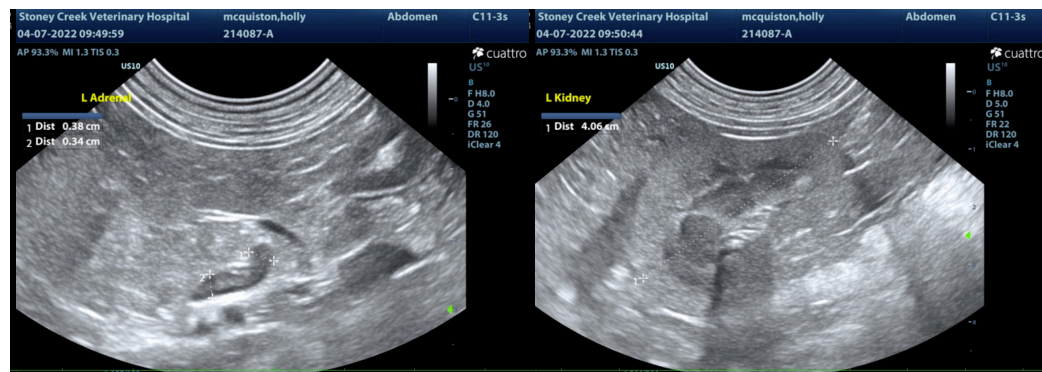
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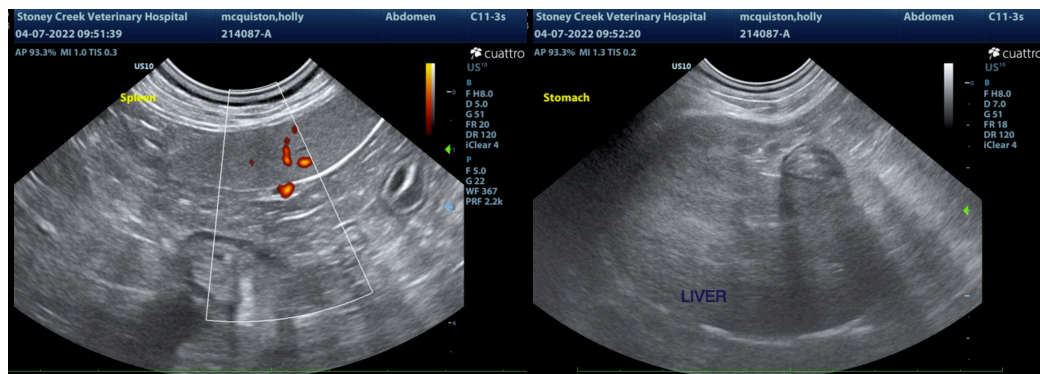
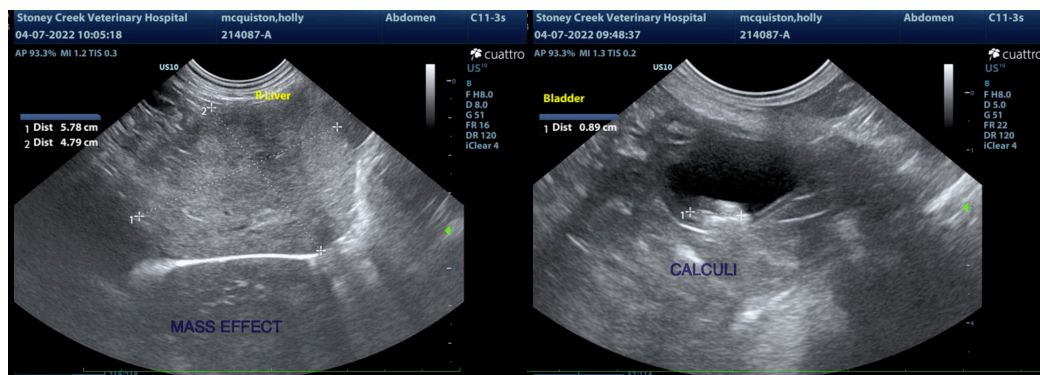
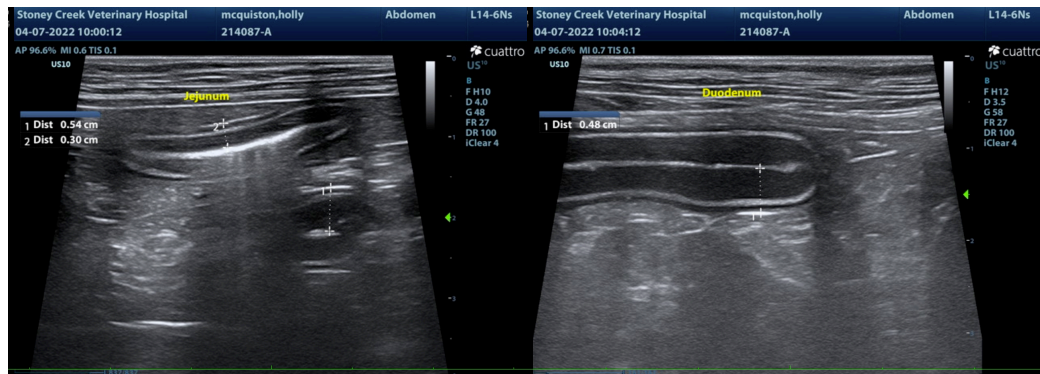
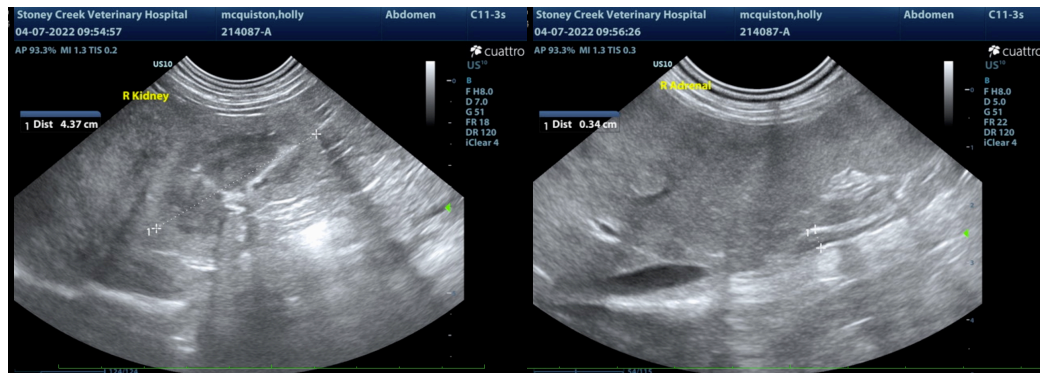
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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