



**PATIENT PRESENTING CLINICAL SIGNS**

Niko Matrisciano

Patient presents due to high liver enzymes. Current med: Cytopoint injections.  
Abnormal PE/Chem/CBC/UA Results: T.P. 7.8, globulin 3.8, ALT 184, Alk. Phos. 425, calcium 12., Precision PSL 152, CPK low.

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**BREED**

**Urinary System**

Mixed

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.

**SEX**

Neutered Male

The prostate is normal in size (0.76 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.

**AGE**

11 Years

The left kidney has a normal shape and size (5.76 cm) with small pinpoint mineralizations. 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, infarcts or hydroureter. Renal vasculature is normal.

**WEIGHT**

61.5 Pounds

The right kidney has a normal shape and size (5.8 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)

**Adrenal Glands**

The left adrenal gland is normal in size measuring 0.40 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**

Kelly Vazquez

The right adrenal gland is normal in size measuring 0.61 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.

**HOSPITAL NAME**

Companion AH

**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. Tsai

**Liver**

**INVOICE**

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The liver is large and irregular. 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, variably appearing (some hyperechoic, some mixed echogenicity, some slightly cystic in appearance) mass effects and nodules throughout the liver. Some of these lesions appear to deform the hepatic margins. No "normal" hepatic tissue is visualized.

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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.



**PATIENT**

***Gastrointestinal***

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The stomach contains mild fluid/ingesta. 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.

**SPECIES**

Canine

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. The duodenum measured as normal (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.)

**BREED**

Mixed

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**

11 Years

***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**

61.5 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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**ULTRASONOGRAPHIC FINDINGS**

- Large, heterogeneous, irregular liver with numerous variably appearing nodules and mass lesions – There is very little “normal” appearing liver. There are numerous nodules to small mass lesions visualized throughout the parenchyma. Some of these appear to deformed the hepatic margins and have some criteria for malignancy, but diffuse regenerative nodules/hyperplastic nodules, etc. are also possible.

**IMAGING PERFORMED BY**

Kelly Vazquez

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

**HOSPITAL NAME**

Companion AH

The liver is large, irregular and nodular. Many of these lesions are variable in appearance. Some are hyperechoic, some are hypoechoic, some have mixed echogenicity, even a target-like appearance. It is difficult to think that all these lesions are neoplastic (unless this patient is very ill), but there is some criteria for malignancy visualized, so this could be a combination. Consider the following:

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Dr. Tsai

- Recommend evaluation of liver function with pre- and post-prandial bile acids.
- A fine needle aspirate could be considered. There is concern that this would only be providing a very small impression of what is going on.
- Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.
- If further evaluation is desired, consider surgical biopsies to sample various areas of the liver and different lesions. A contrast CT scan could be considered prior to this to better characterize the appearance and nature of these lesions. Samples of more “normal” looking tissue should be obtained as well, looking for a concurrent primary hepatopathy.

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There is a mild globulin elevation and possibly a calcium elevation. Recommend evaluation of an ionized calcium. If this is elevated, then consider evaluation of PTH and PTHrP levels to look for supportive evidence of a possible neoplastic process.

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**HOSPITAL NAME**

Companion AH

**REFERRING VET**

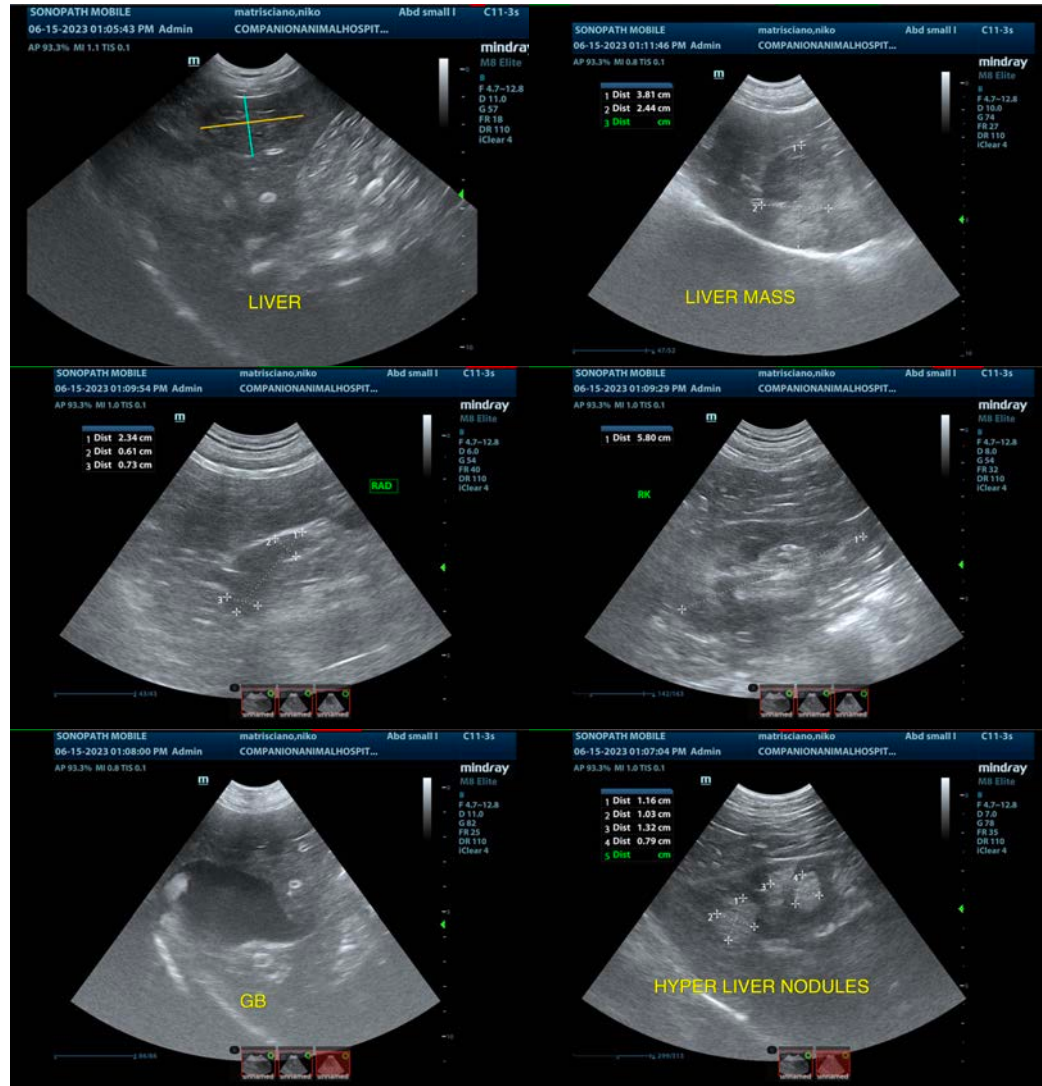
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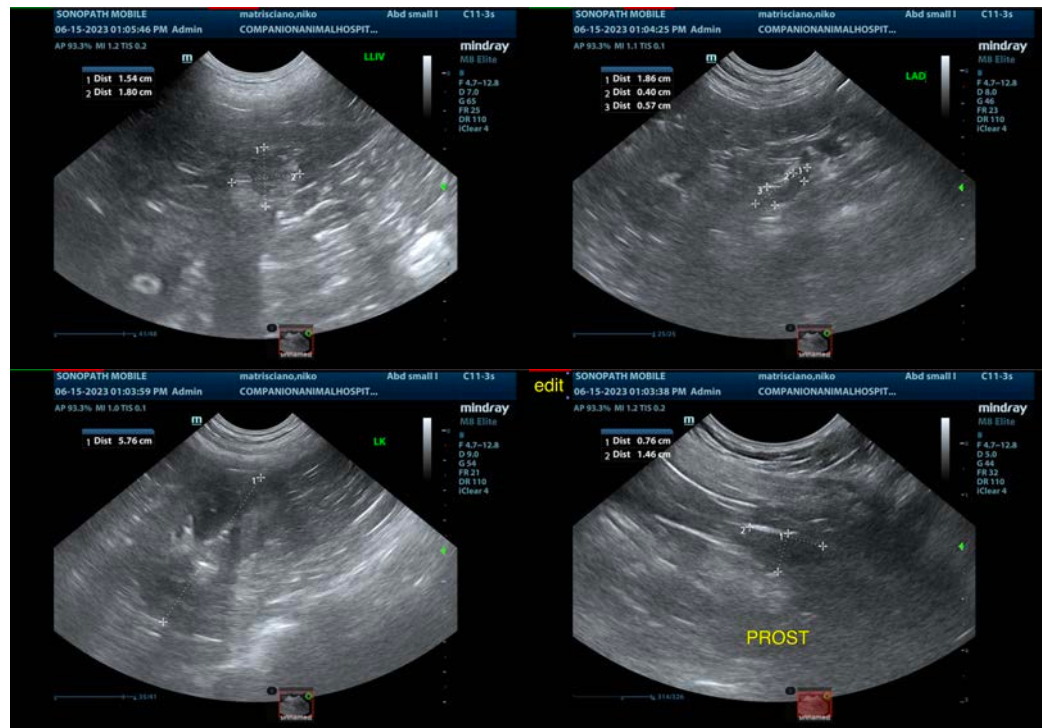
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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