

**DATE**

12/16/22

**PRESENTING CLINICAL SIGNS**

History: Distended abdomen, lethargic, trembling when laying on side, not drinking, walking slow.

**PATIENT**

Maggie Minnick

Current Medications: Intermittent otitis- has been on Apoquel during flare ups and various antibiotics (oral and topical).

Radiographs: Clouded area around liver lacking definition.

Date of Previous IntraPet Ultrasound: No previous.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

Imaging Performed By: Andi Parkinson, BS, RDMS.

**SPECIES**

Canine

**BREED**

West Highland Terrier

**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 2.0 cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

**AGE**

9/13/2009

The left kidney has a normal shape and size (5.16 cm). 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, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**WEIGHT**

22.2 Pounds

The right kidney has a normal shape and size (5.54 cm). 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, 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 large and irregular, measuring 1.17 cm at the cranial pole and 0.61 cm at the caudal pole x 2.3 cm in length. It is observed in its normal position cranial to the left renal artery. It is somewhat abnormal in appearance in that the cranial pole is slightly hyperechoic, enlarged and rounded, most consistent with a nodule in the cranial pole, measuring 1.7 cm x 1.2 cm. There is no evidence of vascular invasion visualized.

**HOSPITAL NAME**

AMC of Dulaney  
Valley

The right adrenal gland is normal in size measuring 0.4 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.

**REFERRING VET**

Dr. CHrest

**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. There are numerous ill-defined hyperechoic regions in the mid body of the spleen, most consistent with benign myelolipomas.

**INVOICE**

20114

**Liver**

The liver is subjectively large in size 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 is a large mixed echogenicity mass effect visualized in the ventral portion of the liver, measuring 6.15 cm x 5.08 cm. Additionally, there numerous ill-defined hyperechoic nodules within the parenchyma,

measuring 1.0 cm and 0.99 cm and a cystic lesion visualized, measuring 1.29 cm in diameter. There is hyperechoic mesentery surrounding the region of the liver mass.

The gall bladder lumen is significantly distended. Some areas of the wall appear mildly thickened with adherent debris, measuring at 0.34 cm. The debris is primarily nonorganized, and there is no evidence of bile duct dilation, but there is inflammation in the region of the gallbladder and the hepatic mass effect.

### ***Gastrointestinal***

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7 cm 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.

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 0.3-0.5 cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47 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 free fluid, or subjective lymphadenopathy. The omentum is hyperechoic in the cranial abdomen near the gallbladder and hepatic mass.

## **ULTRASONOGRAPHIC FINDINGS**

### **Primary Findings**

- Hyperechoic nodule in the cranial pole of the left adrenal. Adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- Large heterogenous liver with ill-defined hyperechoic nodules, a cyst and a large mixed echogenicity mass effect. 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 area of the mass lesion appears somewhat inflamed/surround by hyperechoic mesentery, but this is also the region of the gallbladder. This has the appearance most consistent with primary hepatic mass (adenoma, carcinoma, etc.), but other differentials are possible.

- Large, distended gallbladder with a mildly thickened wall, large amount of adhered intraluminal debris and surrounding inflammation. Findings are suggestive of cholecystitis. Surrounding inflammation could be secondary to gallbladder inflammation or the mass lesion.

### Secondary Findings

- Ill-defined hyperechoic lesions visualized within the spleen. The findings are most consistent with benign myelolipomas. Recommend continued monitoring.
- Decreased corticomedullary distinction in both kidneys. The bilateral renal findings are consistent with age-related change.

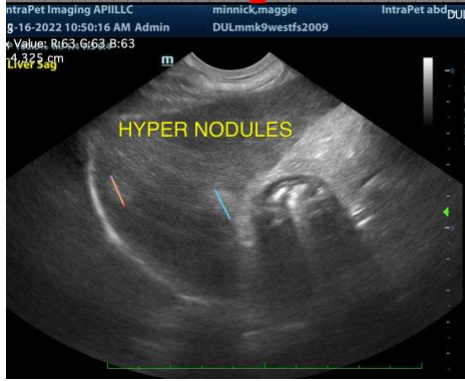
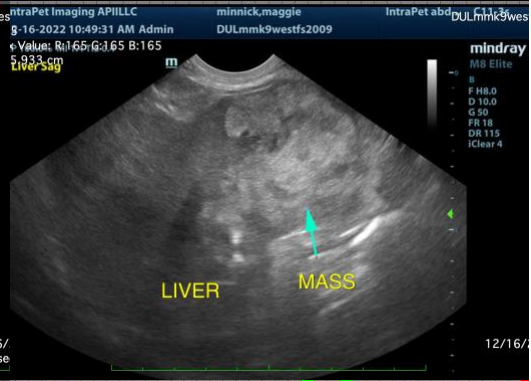
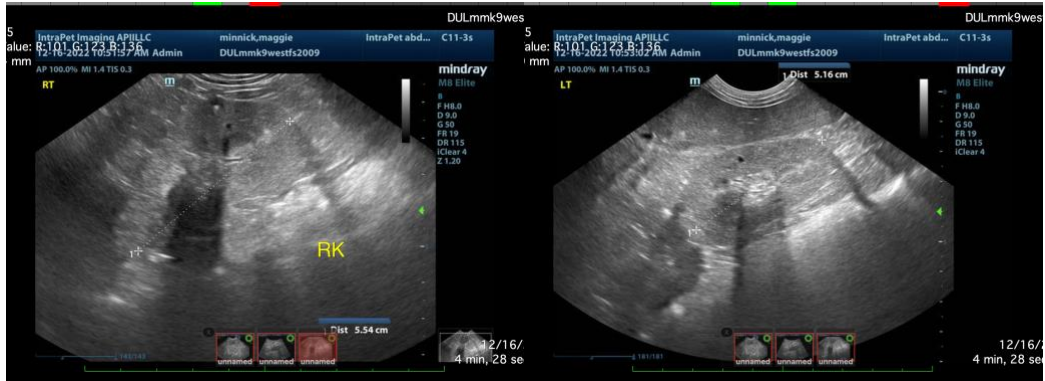
### INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is the general impression of cranial abdominal inflammation, particularly in the liver. There is large mixed echogenicity mass effect visualized, as well as a large amount of debris in the gallbladder with a thickened wall. It is difficult to determine if the inflammation is secondary to the hepatic mass lesion or gallbladder (or both). Correlate these findings with blood work findings and consider empirical medical treatment for cholecystitis with antibiotics, ursodiol, etc. Options moving forward would include possible cytologic evaluation of the liver mass and/or a contrast CT scan to further evaluate the liver mass for possible removal and to further evaluate the gallbladder for the possible need cholecystectomy. If this is not possible, consider referral to a veterinary surgeon for exploratory with the hopes of surgical removal of the liver mass and gross evaluation of the gallbladder to determine if removal is recommended.

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.

There is a nodule visualized in the cranial pole of the left adrenal gland. This could be consistent with a benign or a neoplastic mass and could be secretory or non-secretory. Adrenal function testing is likely unrewarding at this time with a pet that isn't feeling well but recommend a blood pressure evaluation and if a CT scan of the abdomen if performed to further evaluate the gallbladder and liver, the left adrenal can be further evaluated as well. I recommend continued monitoring of this lesion and you could consider adrenal function testing down the road when this patient is feeling better.







**The information and recommendations provided are based on the images presented by the referring veterinarian. 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.

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