



**PATIENT PRESENTING CLINICAL SIGNS**

Homer Moore Presented for Lethargy, not eating or drinking and P is not getting insulin.  
Abnormal PE/Chem/CBC/UA Results: Hyperglycemia 372mg/dl Elevated ALT 233 U/L Elevated ALP 1015 U/L Current Medications Enrofloxacin 22.7mg, Clav/Amoxi Liquid, Mirtazapine 15mg, IV LRS

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**BREED**

West Highland Terrier

**Urinary System**

The urinary bladder is moderately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

**SEX**

Neutered Male

Prostate is normal in size, echotexture and echogenicity for a neutered male.

**AGE**

12 Years

Kidneys are normal in size and contour. A relatively uniform hyperechogenicity is observed with mildly decreased corticomedullary distinction. There is no pyelectasia noted. No overt masses/nodules are observed. Non-obstructive areas of mineralization/nephroliths are noted in both kidneys. The right kidney measures 6.0 cm. The left kidney measures 5.65 cm.

**WEIGHT**

19.9 Pounds

**Adrenal Glands**

The right adrenal gland is normal in size (1.7 cm long x 1.24 cm at the cranial pole and 0.62 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**INTERPRETED BY**

Beth Johnson, DVM  
DACVIM

The left adrenal gland is normal in size (1.8 cm long x 0.42 cm at the cranial pole and 0.56 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**IMAGING PERFORMED BY**

Sara Hansen

**Spleen**

Spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). Multifocal well-demarcated hyperechoic homogenous nodules are noted. Splenic vasculature appears normal.

**HOSPITAL NAME**

Veneta Vet Hospital

**Liver**

Liver is subjectively enlarged (swollen contour) without disruption of architecture. It has a normal homogenous echotexture. Parenchyma is diffusely hyperechoic characterized by less prominent than normal portal vein walls and increased echogenicity relative to the spleen and falciform fat. Several hypo- to anechoic/cystic nodules noted. One measures approximately 1.0 cm in the caudal left liver. Another measures 2.0 cm near the gallbladder. Visible vasculature and biliary tree appear normal without distension or congestion.

**REFERRING VET**

Dr. Penfold

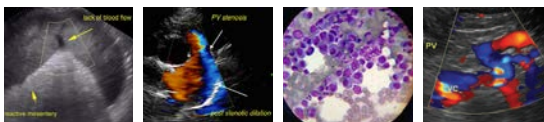
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Gallbladder is moderately distended with anechoic bile as well as suspended and gravity dependent echogenic debris. A shadowing cholecystolith is present. The wall is smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion or inflammation.

**DATE**

10/26/22



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## Gastrointestinal

The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

## Pancreas

The observed pancreas is prominent (enlarged) in size, hypoechoic to surrounding tissue and irregular in shape with a swollen undulating contour. Enhanced hyperechoic ill-defined surrounding fat is noted.

## Free Abdomen

A scant amount of anechoic free fluid is noted near the spleen.

There is no apparent lymphadenopathy noted in these images.

## PRIMARY FINDINGS

- Mild acute pancreatitis
- **Hyperechoic hepatomegaly with several cystic lesions** - This appearance is non-specific and most consistent with a benign steroid (endocrine) or vacuolar hepatopathy or reactive or idiopathic hepatopathy. Inflammatory and/or infiltrative disease (such as round cell neoplasia) are also possible, but considered less likely. The cystic lesions trend toward benign in appearance.
- **Gallbladder debris** - Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness. Cholecystic debris is not necessarily related to hepatobiliary disease. Echogenic bile is most commonly an incidental finding in dogs and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.
- **Nephritis with non-obstructive nephrolithiasis bilaterally** - This appearance can be consistent with chronic interstitial nephritis or glomerulonephritis. Toxic insult and/or infectious disease (pyelonephritis, Leptospirosis, etc.) cannot be ruled out. This finding should be interpreted in combination with suspicion for renal disease and/or supporting laboratory or urinalysis changes.

## SECONDARY FINDINGS

- **Hyperechoic splenic nodules** - most consistent with benign myelolipomas. Other differentials such as fibrosis or calcification caused by old hematomas or infarcts, chronic inflammation, granulomatous disease or metastatic disease cannot be ruled out, but are considered less likely.



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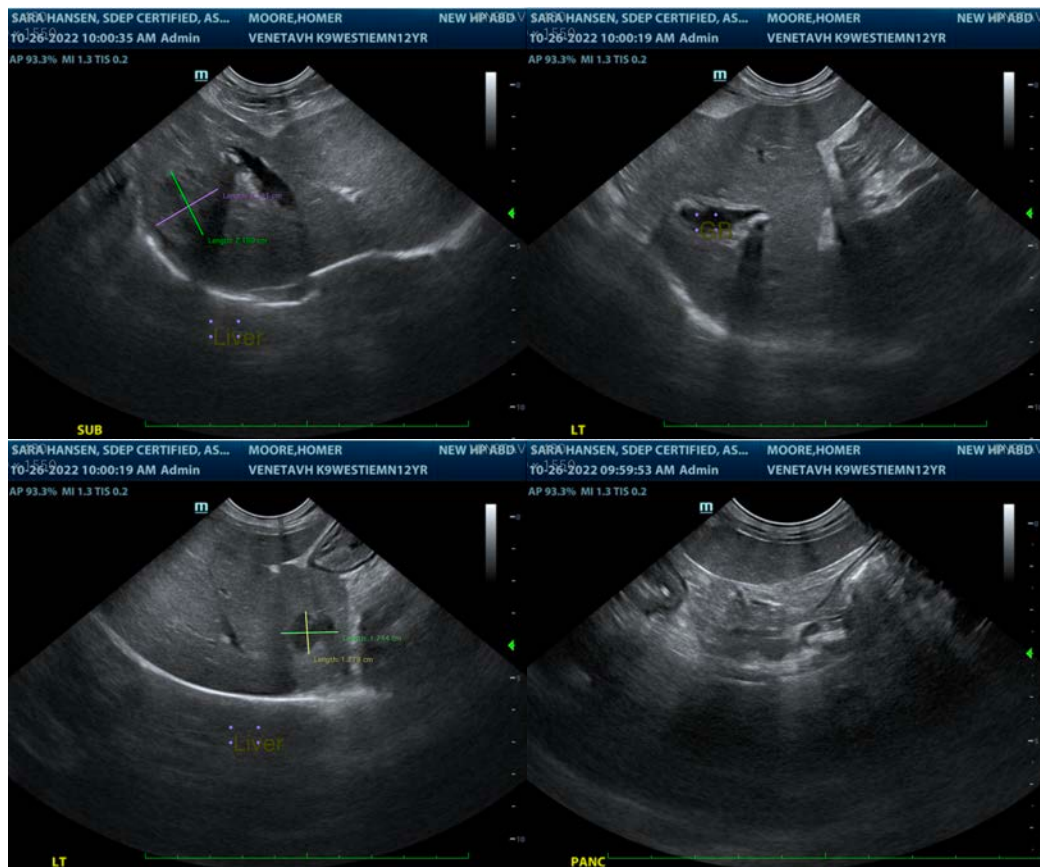
**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

A quantitative PLI is recommended if not recently evaluated.

To look for evidence of possible ketones as a contributing factor to this patient's lethargy and decreased appetite as well as to look for evidence of urinary tract infection, a urinalysis and, if indicated based on urinalysis results, urine culture are recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

Given the mildly increased liver enzymes, which are likely due to a diabetic hepatopathy, but combined with the appearance, testing for Leptospirosis is reasonable if not recently evaluated.

In the meantime, medical management of acute pancreatitis as well as possible ketonuria (if present) is recommended with antiemetics, gastroprotectants, appetite stimulants, or nutritional support as needed, pain management if indicated, broad-spectrum antibiotics, fluid therapy, as well as short-acting insulin that can be changed frequently based on blood sugars, ketones, appetite, etc. If present once ketones have resolved and patient is eating, then transition back to longer-acting normal insulin could be re-initiated.





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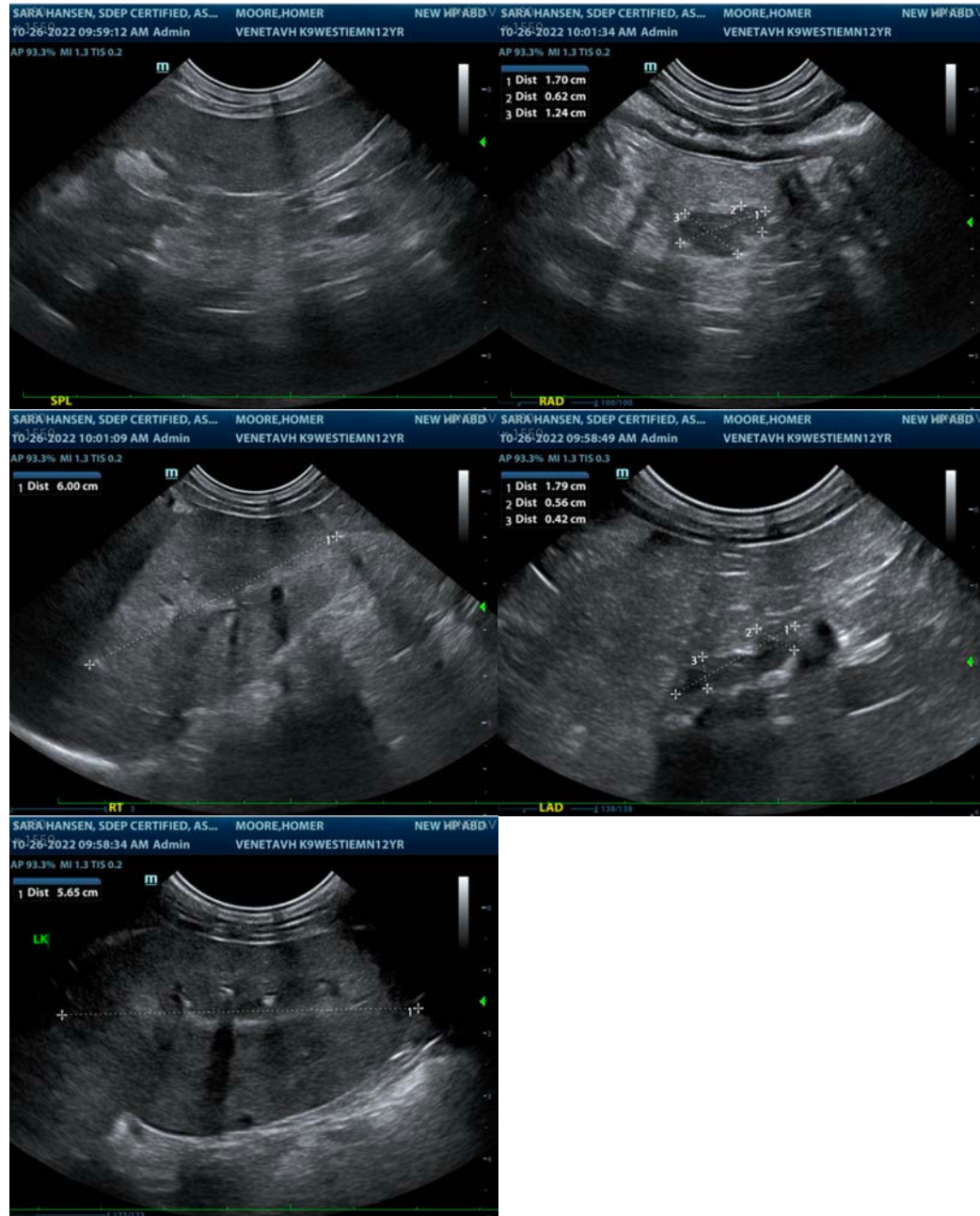
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

**Beth Johnson, DVM, DACVIM**  
 Beth.Johnson@sonopath.com