



**PATIENT**

Bob Frolich

**PRESENTING CLINICAL SIGNS**

Shaking, painful, distended abdomen; cervical pain, hepatopathy. R/O HAC vs. hepatopathy vs. neoplasia vs. other. Current meds: Buprenorphine 12/9 @ 1:48am, Dasuquin, Denamarin, Gabapentin. Abnormal PE/Chem/CBC/UA Results: Phos. 2.3, alb. 4.2, ALT 154, ALP 817. U/A at RDVM: WNL.

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

**BREED**

Feist

The urinary bladder is moderately distended with anechoic urine. The Bladder wall appears to be normal in thickness with slightly irregular mucosa. The area of the trigone, ureteral papillae and proximal urethra (to a depth of 2cm) appear normal with no mass lesions or calculi visualized. Findings are most consistent with either cystitis or lack of urine distention.

**SEX**

Neutered Male

The prostate is normal in size (0.71 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**

10 Years

The left kidney has a normal shape and size (5.19 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.

**WEIGHT**

32.7 Pounds

The right kidney has a normal shape and size (5.49 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.

**INTERPRETED BY**

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

**Adrenal Glands**

The left adrenal gland is normal in size measuring 0.64 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 0.83 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. The spleen echotexture is mildly heterogenous, the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. There is an intraparenchymal, large, hypoechoic nodule/mass effect measuring 1.23 cm x 1.76 cm. Additionally, there is a hypoechoic smaller peripheral nodule measuring 0.61 cm x 0.45 cm, which deviates the splenic capsule.

**REFERRING VET**

Dr. Taylor McConnell

**Liver**

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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. No focal nodules or cystic lesions are observed.

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The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are primarily anechoic. The cystic and common bile ducts are normal/not visible.



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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.

**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**

Feist

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.

**Pancreas**

**AGE**

10 Years

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**

**WEIGHT**

32.7 Pounds

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.

**Other**

No significant pericardial effusion.

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(Small Animal Internal  
Medicine)

**PRIMARY FINDINGS**

- Large, heterogeneous liver – 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.
- Hypoechoic intraparenchymal splenic mass and smaller superficial hypoechoic nodule – There are two splenic lesions visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, inflammation, and infiltrative neoplasia. Due to the deviation in the splenic capsule and the character of the lesions, neoplasia is a concern.

**IMAGING PERFORMED BY**

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**SECONDARY FINDINGS**

- Mild mucosal irregularity to the bladder wall – most consistent with cystitis. Recommend urine analysis and culture.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Relatively small splenic lesions are visualized, but their appearance is concerning due to the deviation of the capsule and irregularity. I do not see any evidence of inflammation surrounding the spleen, so it is unknown if this is a source of discomfort, but this seems unlikely. There is no evidence of gallbladder inflammation, pancreatitis, etc., which are common causes of abdominal pain. Additionally, there was no free fluid in the abdomen.

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The liver is large and mildly heterogeneous. This in combination with the ALP elevation could be consistent with a vacuolar hepatopathy. I can provide recommendations for evaluation of the ALP elevation, but none of these differentials would cause abdominal pain. Consider this as referred pain from the cervical pain reported (?). Here are considerations for an ALP elevation:

**SPECIES**

Canine

- 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 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.

**BREED**

Feist

- If signs of cushings disease are present recommend endocrine function testing to evaluate for cushings disease.

**SEX**

Neutered Male

- Consider fine needle aspirate to rule out round cell neoplasia -if this is a concern.

**AGE**

10 Years

- 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.

**WEIGHT**

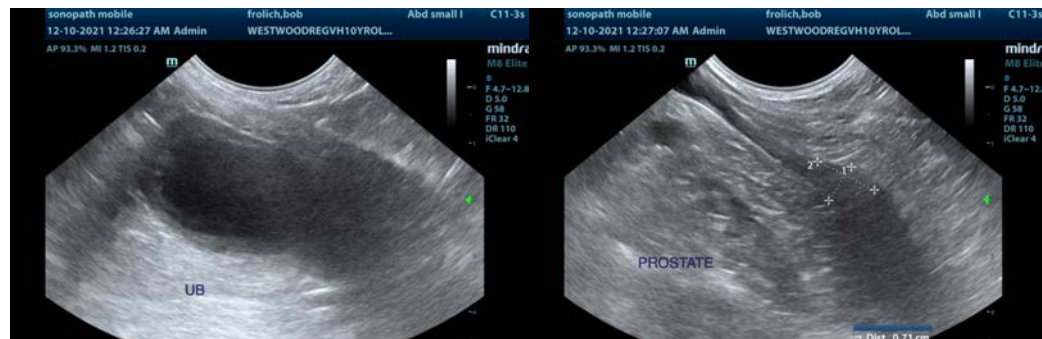
32.7 Pounds

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

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

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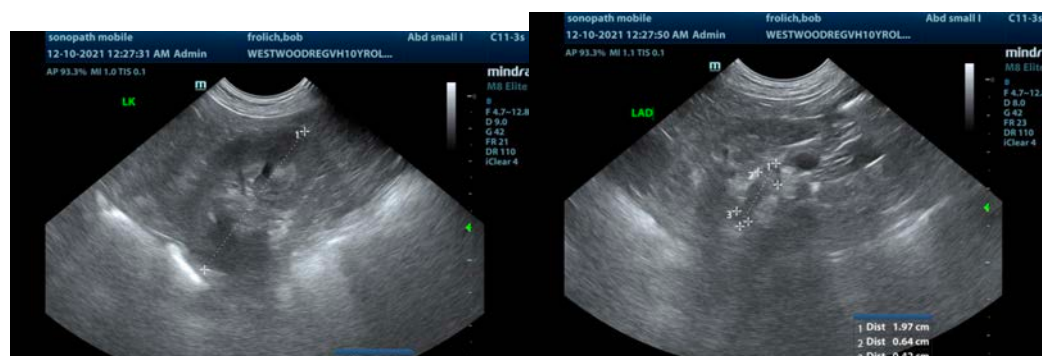


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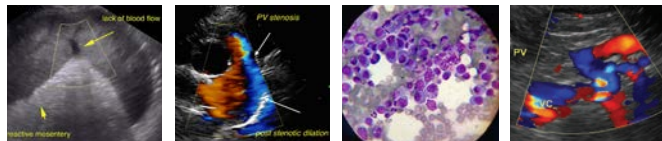
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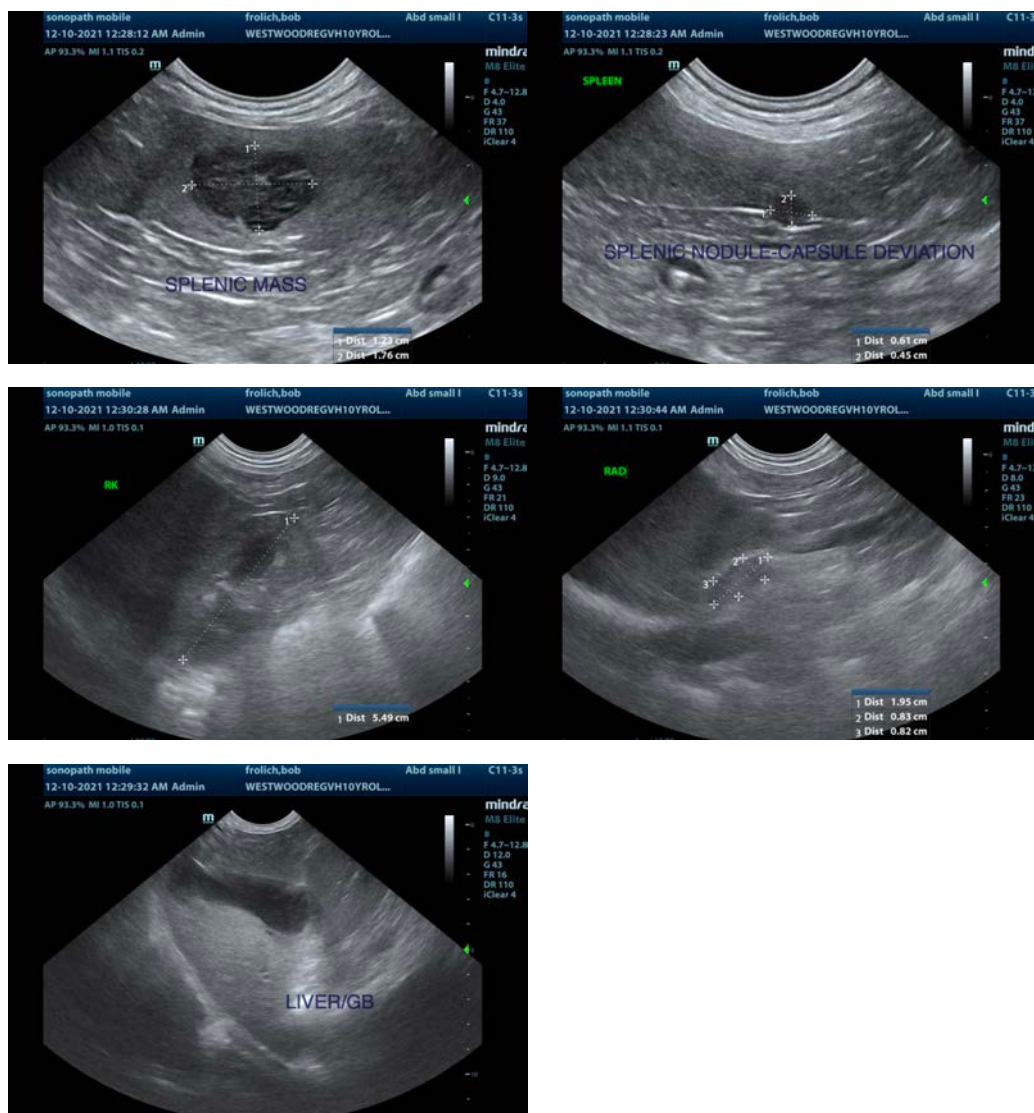
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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