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Clinical Sonography & Telecytology
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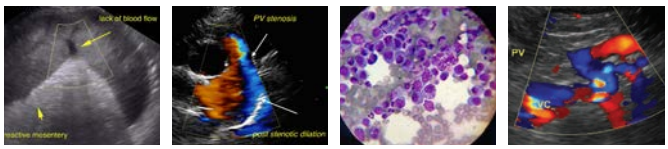


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Suzanne Sturgeon

SPECIES

Canine

BREED

Schnauzer

SEX

Spayed Female

AGE

12 Years

WEIGHT

25 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Jonathan Moss

HOSPITAL NAME

Harvest Hills VH

REFERRING VET

Dr. Jonathan Moss

INVOICE

43079

DATE

11/30/22

PRESENTING CLINICAL SIGNS

Presented for second opinion on liver masses.
Abnormal PE/Chem/CBC/UA Results: Nov 23rd 2022: ALP 1454, ALT 113, BUN 31, CRE 1.1, Glu 113, TP 7.5 Aug 10th 2022: ALP 1909, ALT 200, BUN 32, CRE 1.2, Glu 106, TP 7.5 Jun 10th 2022: ALP 1623, ALT 137, BUN 28, CRE 1.3, Glu 132, TP 7.5 UA showed USG-1.010, 1+ protein

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, masses or cystic calculi.

The left kidney has a normal shape and size (4.28 cm) with pinpoint non-obstructive nephroliths and a larger nephrolith measuring 0.40 cm that is non-obstructive but located within the renal pelvis. There is mild renal pelvic dilation at 0.38 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 infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (4.87 cm) with pinpoint non-obstructive nephroliths and pyelectasia at 0.27 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 infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.45 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 region of the right adrenal (between right cranial kidney and vena cava) is unremarkable, but the adrenal is not distinctly visualized. 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.

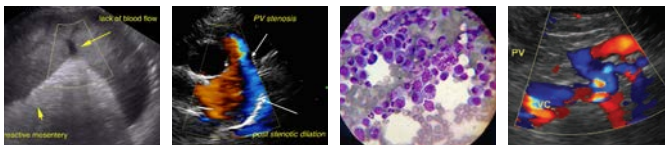
Liver

The liver is large and rounded. 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.

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.

Gastrointestinal

The stomach is moderately dilated with fluid and irregular shadowing material most consistent with normal ingesta and gas. It measures at a normal thickness of <0.7cm with some variability due to the



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presence of rugal folds. The distinction of the gastric wall layering 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. Duodenum wall measures 0.51 cm. Jejunum wall measures 0.37 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 effusion. There is a prominent lymph node medial to the spleen measuring 0.63 cm. The omentum is generally of normal echogenicity.

ULTRASONOGRAPHIC FINDINGS

- Bilateral pyelectasia and small non-obstructive nephroliths – Pyelectasia of the kidney(s)could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other. The small nephroliths visualized are likely incidental, but there is a small nephrolith visualized in the left renal pelvis, which should be monitored for movement.

- Large, heterogeneous liver with rounded margins – 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. No focal mass lesions are observed, but a rounded isoechoic mass effect can be difficult to distinguish from a rounded liver lobe.

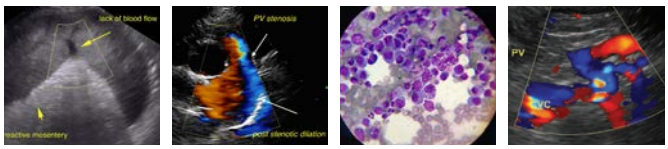
- Moderate gallbladder debris – The significance of the aggregated gallbladder debris is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting but seems unlikely to be causing a current issue. Recommend continued monitoring.

- Moderate shadowing material visualized within the gastric lumen – Correlate with the feeding history and abdominal radiographs. If the patient was adequately fasted consider such differentials as delayed gastric emptying, a partial outflow tract obstruction (none seen) or ingested foreign material. This shadowing material impairs full evaluation of the stomach and cranial abdomen.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No overt mass lesions are observed on today's scan. The liver is large, rounded, and heterogeneous. In some views, it can be difficult to differentiate an isoechoic mass effect from a rounded area of liver lobe, but no discrete masses are clearly observed.

Both kidneys appear to have mild pyelectasia and small stones. Recommend urinalysis and culture to help rule out pyelonephritis.



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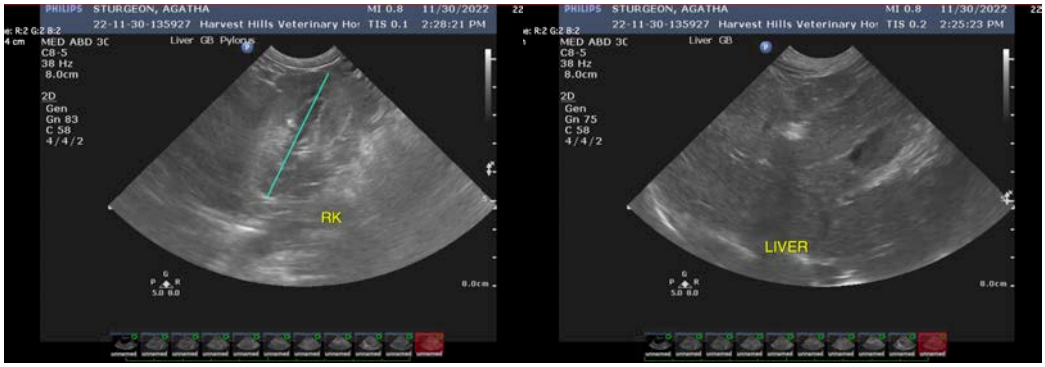
There is moderate debris visualized within the gallbladder, but no surrounding inflammation at this time. Recommend continued monitoring with lab work and ultrasound.

The changes observed on today's scan are most consistent with a primary hepatopathy, as the biliary changes are relatively mild. These are my recommendations for further evaluation of a primary ALP elevation.

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

If there is further concern for the possibility of liver mass lesions due to worsening of liver values, further enlargement of the liver, etc., consider repeat imaging or a contrast CT scan.



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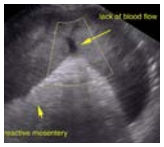
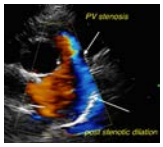
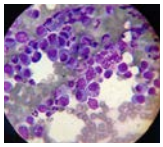
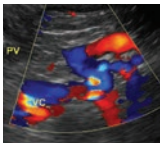

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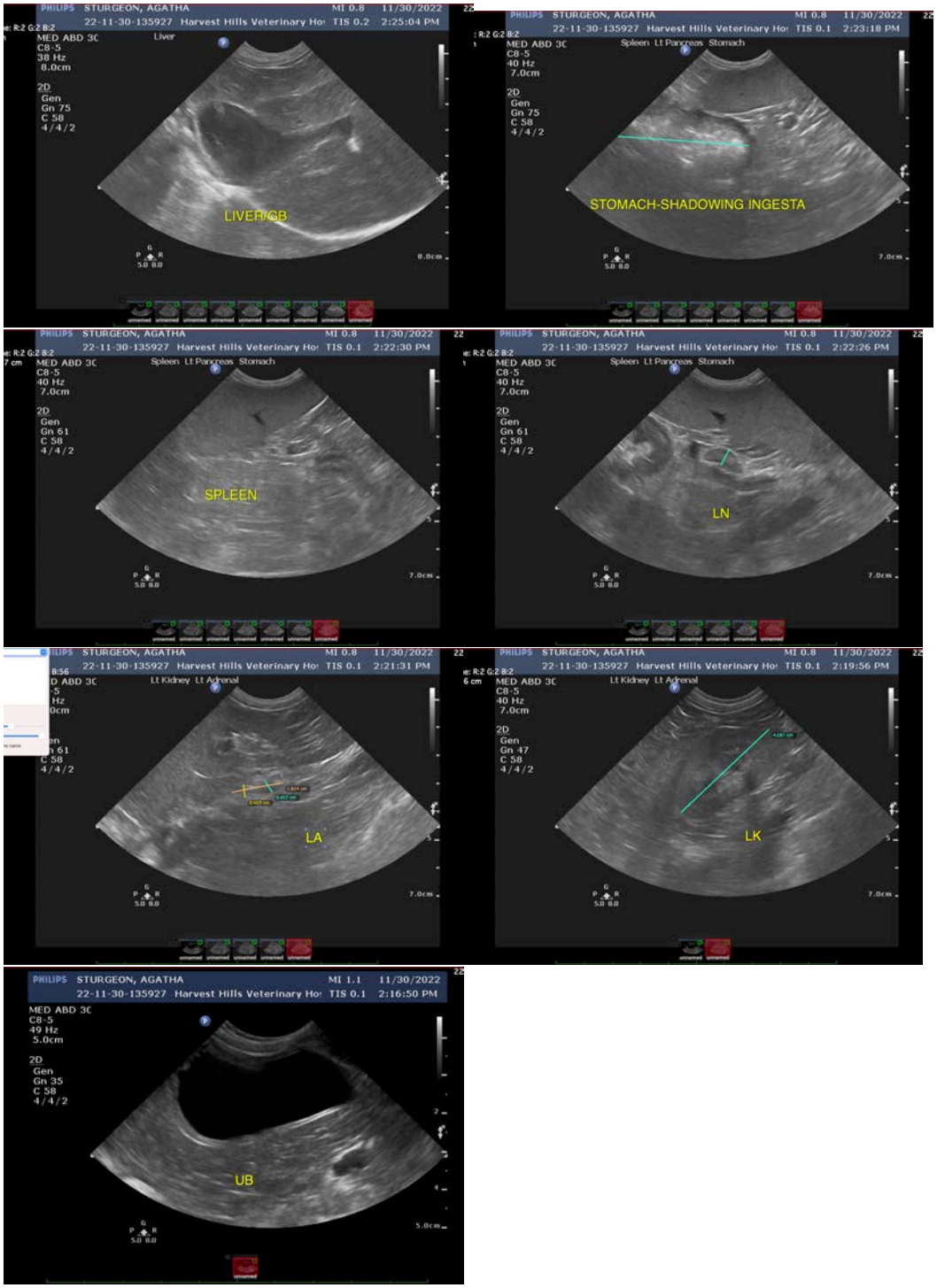

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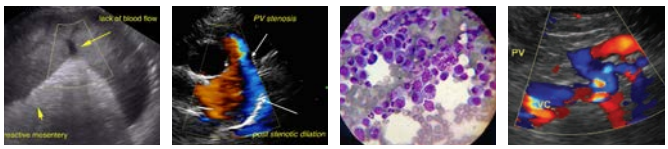

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

kathleen.sennello@sonopath.com