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Clinical Sonography & Telecytology
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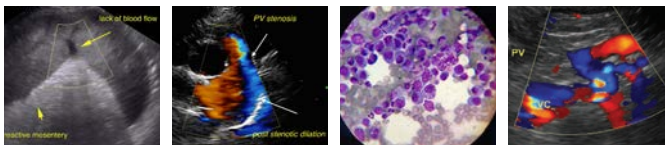

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Kiara Plumpton

SPECIES
Canine

BREED
Miniature Pinscher

SEX
Spayed Female

AGE
13 Years

WEIGHT
10.1 Pounds

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

IMAGING PERFORMED BY
Lindsay P, CVT

HOSPITAL NAME
Carlisle Small Animal Vet Clinic

REFERRING VET
Dr. Kelsey Plumpton

INVOICE
44025

DATE
1/6/23

PRESENTING CLINICAL SIGNS

History of intermittent GI upset (anorexia, vomiting, diarrhea) lasting a few days then resolves for months at a time. previously BW and US wnl, was pu/pd about 5m ago, bw and US wnl, resolved. 10 days ago, no interest in food with intermittent vomiting diarrhea. improved with metro, clav, denamarin, cerenia

Abnormal PE/Chem/CBC/UA Results: 12/29/22: ALT: 537(18-121); AST: 265(16-55); ALP:401(5-160); GGT:31(0-13); Chol:347(131-345) USG: 1.011 12/31/22: Bile acids- Pre:61.6(0.0-14.9); Post:53.1(0.0-29.9) Abdominal rads: nsf

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is minimally distended with anechoic urine. No abnormalities are noted, but evaluation was hampered by lack of urine distention.

The left kidney has a normal shape and size (3.6 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.

The right kidney has a normal shape and size (3.5 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.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.46 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 right adrenal gland is normal in size measuring 0.42 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.

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 subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is homogenous echotexture. 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.

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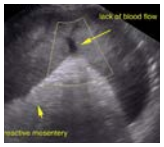
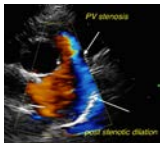
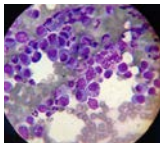
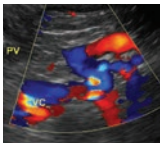

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Gastrointestinal

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.

The visualized areas of duodenum, jejunum and ileum have a uniform diameter with minimal fluid distension. Wall appears subjectively, mildly increased. Bowel loops follow a typical curvilinear path with distinct wall layering. Duodenum wall measures 0.52 cm. Jejunum wall measures 0.31 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, 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.

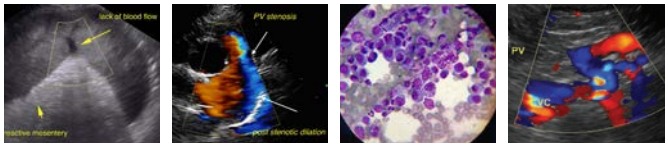
ULTRASONOGRAPHIC FINDINGS

- Mildly reduced corticomedullary distinction in both kidneys – The bilateral renal findings are consistent with age-related change.
- 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.
- Subjectively thickened small intestine – The mild small intestinal wall changes may be a normal variant in this patient or could be consistent with an inflammatory process (e.g., inflammatory bowel disease).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No focal lesions are visualized associated with the liver to explain the elevation in liver enzymes and bile acids. No shunting vessel is visualized, but I cannot definitively rule out a small shunting vessel. Typically, most shunts have bile acid levels >90. This profile could fit with microvascular dysplasia or chronic liver disease. These are my recommendations for further evaluation of elevated liver enzymes:

- Consider close evaluation of history for possible toxic changes examine medications, diet, dietary indiscretion etc...
- Consider PCR on urine/serum for leptospirosis (if not on antibiotics)/serology if recent antibiotic history
- If the ALP is significantly elevated relative to the ALT and symptoms consistent with Cushing's are present, consider adrenal function testing (ACTH stim)



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- Consider Fine needle aspirate if round cell neoplasia is on your differentia list (25 g needle, normal coags)

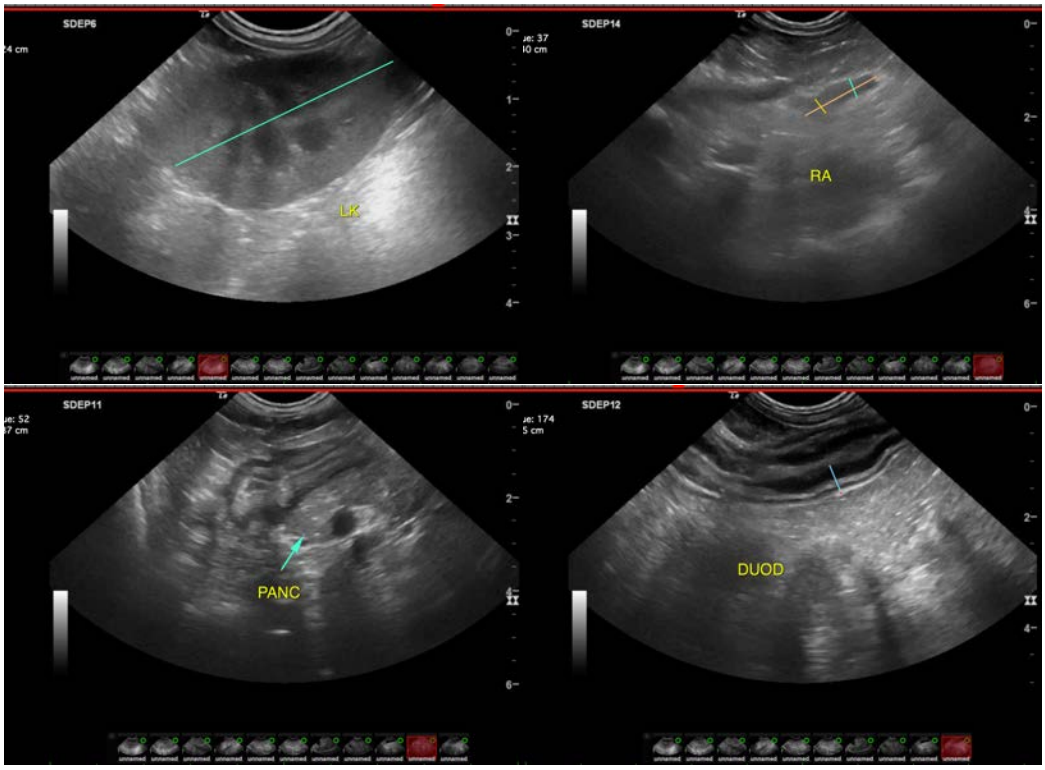
- If no response to supportive care (Denamarin, fluids, antibiotics, +/- ursodiol etc.) Consider liver biopsy with samples obtained for histopathology, culture, and copper levels.

No significant gastrointestinal lesions are observed to explain the chronic intermittent GI signs described. The small bowel does appear subjectively mildly thickened. Unfortunately, there are many causes for chronic GI signs that cannot be diagnosed by ultrasound alone.

Consider such differentials as food allergy/dietary intolerance, GI parasitism, chronic pancreatitis, IBD and less likely neoplasia, etc.. .

- Consider a novel protein/hydrolyzed protein diet (exclusively at least 4-6 weeks)
- Consider a GI panel to Texas A&M for evaluation of B12 levels, folate, PLI/TLI etc.. to further evaluate for pancreatic/small intestinal disease.
- Recommend chronic probiotic therapy.
- If GI signs persist, consider obtaining GI biopsies.

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



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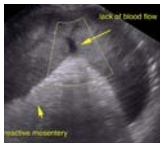
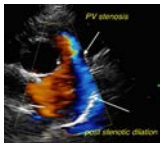
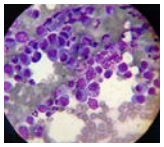
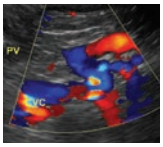

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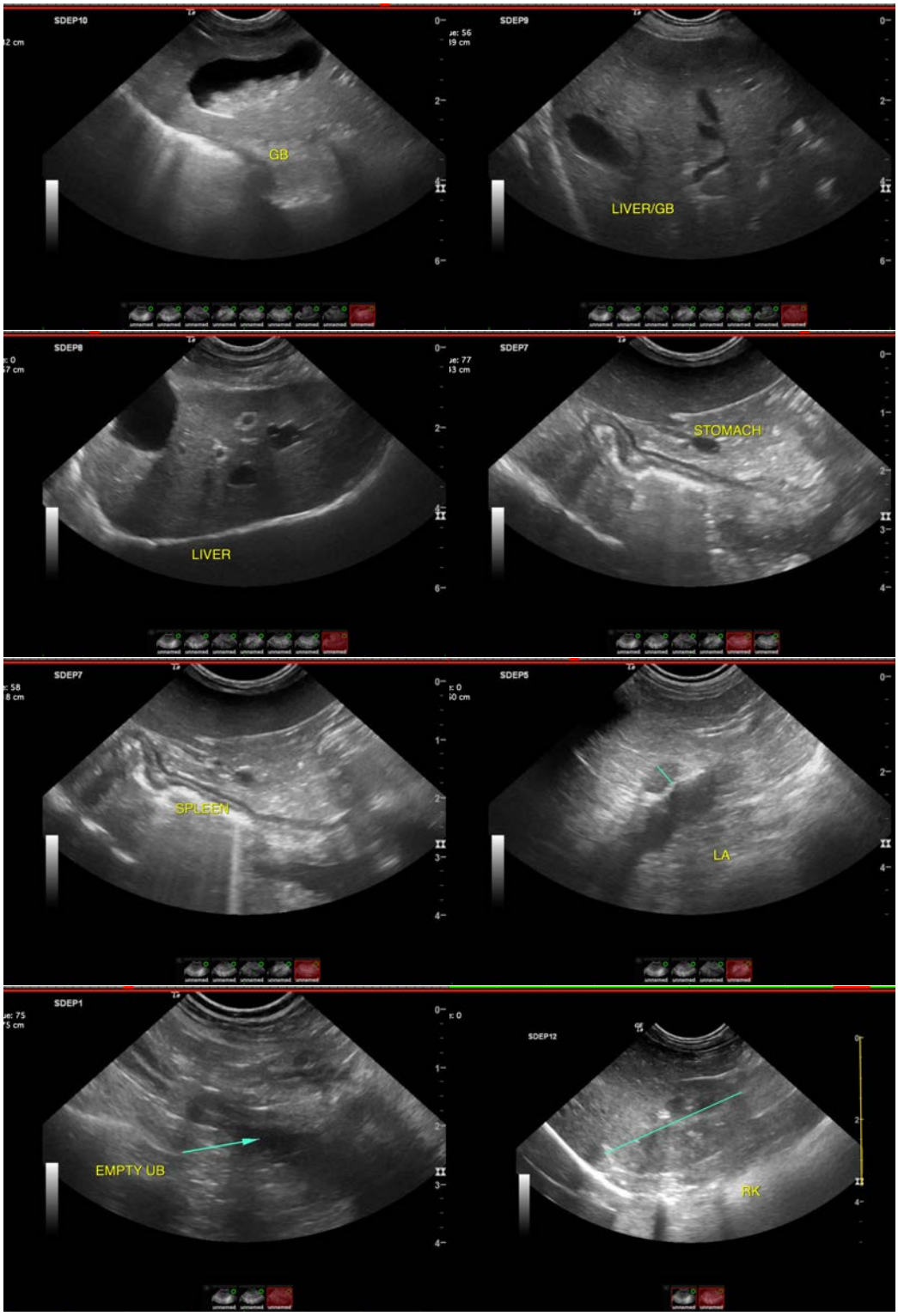

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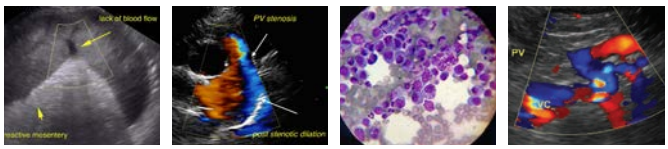

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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