SonoPath
Clinical Sonography & Telecytology
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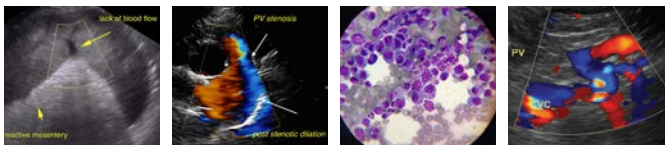

SonoPath.com™
1-800-838-4268 info@sonopath.com

PATIENT

Lola Fluxman

SPECIES

Canine

BREED

Bichon Bolognese

SEX

Spayed Female

AGE

15 Years

WEIGHT

7.4 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Megan Cassels-Conway

HOSPITAL NAME

Central Broward AH

REFERRING VET

Dr. Megan Cassels-Conway

INVOICE

46153

DATE

3/23/23

PRESENTING CLINICAL SIGNS

Presented 3/15/23 for anorexia, lethargy, weakness after boarding at emergency hospital for 2 weeks, lost 1lb while there. History of hepatopathy, CKD, cystoliths, CHF. Vomiting and diarrhea 1 week prior to boarding was attributed to galliprant which was started 2-3 weeks prior. P was taken off galliprant when vomiting and diarrhea started, resolved with metronidazole, zofran, proviable. 2 days after boarding vomiting and diarrhea resumed. Elevated liver enzymes and significant azotemia with bacteriuria treated with orbax, metronidazole, zofran, proviable, entyce, SQ fluids, cerenia (still on all except metronidazole). Azotemia improved, liver enzymes still elevated. Started clavamox last night. P on long term cardalis, pimobendan, ursodiol SID, antinol, gabapentin, tacrolimus.

Abnormal PE/Chem/CBC/UA Results: 3/20/23 CBC: Monocytosis 909 Chem: Globulin 3.9, AST 140, ALT 367, ALP 1516, GGT 29, TBili 0.7 BUN 43, Creat 1.8, SDMA 33.6, K 6.1, Chol 426 3/15/23 CBC stat: HCT 36%, neutrophilia, basophilia Chem 17 + lytes: ALP 1634, ALT 349, BUN 125, Creat 3.9, GGT 26, Phos 10.4, K 5.9, NA 142, TBili 1.5 PCV 42% TP 7.8 UA: 1.012, 2+ protein, 3+ blood, WBC 21-50, rods>100 C/S: Heavy growth Ecoli 2/16/23 (recheck after 2 weeks on galliprant, P doing well at this time) CBC: Eosinophilia 1370 CHEM: ALT 137, ALP 1417, BUN 55, Creat 1.5, SDMA 16.7

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, or masses. In the dependent portion of the urinary bladder there is hyperechoic shadowing material with at least two stones visualized measuring approximately 0.81 cm x 0.79 cm. Findings are most consistent with cystic calculi. Recommend urinalysis and culture and correlate findings with abdominal radiographs.

The left kidney has a normal shape and size (3.75 cm) with small pinpoint mineralizations and pyelectasia at 0.27 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 infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (4.06 cm) with pinpoint small mineralizations and mild pyelectasia at 0.22 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 infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is relatively normal in size measuring 0.50 cm at the cranial pole, 0.71 cm at the caudal pole, and 1.1 cm in length, but slightly irregular in shape. It is observed in its normal position cranial to the left renal artery. It is somewhat abnormal in appearance in that there is a hypoechoic nodule at the caudal pole measuring 0.71 cm x 0.73 cm. There is no evidence of vascular invasion visualized.

The right adrenal gland is normal in size measuring 0.46 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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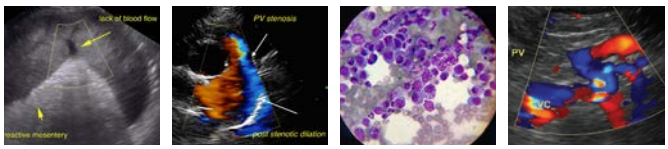

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Spleen

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 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. There is a small anechoic cyst visualized in the left side of the liver. Additionally, there are numerous diffuse ill-defined hypoechoic nodules throughout the parenchyma.

The gall bladder lumen is significantly 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 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 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.) 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

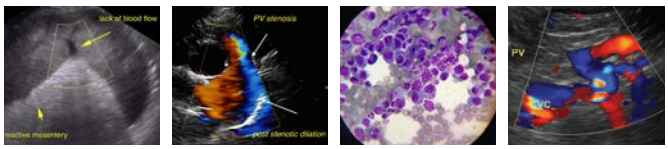
The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

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

- Shadowing mineralizations visualized in the dependent portion of the urinary bladder – Findings are most consistent with cystic calculi. Correlate findings with abdominal radiographs, urinalysis and culture.
- Hypoechoic nodule at the caudal pole of the left adrenal – Adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.



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- Decreased corticomedullary distinction in both kidneys with mild bilateral pyelectasia – The bilateral renal findings are consistent with age-related change. Pyelectasia of the kidney(s)could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.
- Heterogeneous liver with diffuse ill-defined nodules – 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 nodules observed trend toward a more benign process but underlying neoplasia cannot be ruled out.
- Significantly distended gallbladder with moderate gallbladder debris – The significance of the gallbladder distention is uncertain. There is no evidence of bile duct dilation, and gallbladder distention can be normal in a fasted patient.

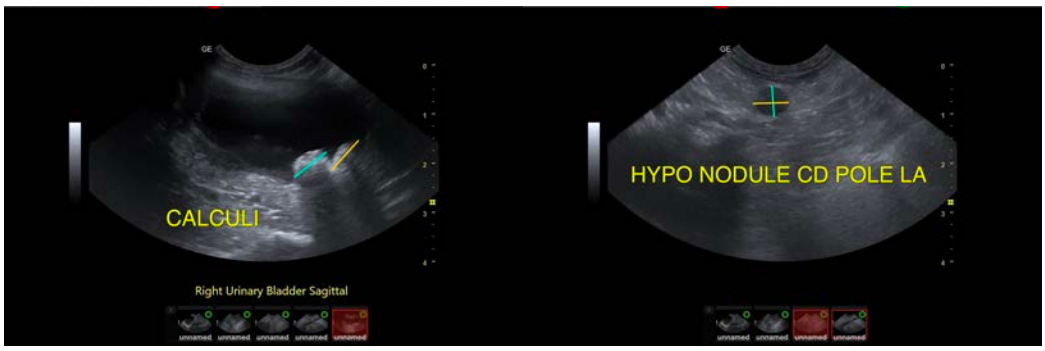
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The combination of the bladder stones and the appearance of the kidneys with bilateral pyelectasia is concerning for possible pyelonephritis.

The liver enzyme elevations are at least partially due to a primary hepatopathy, as the liver is large and has diffuse ill-defined nodules. The appearance of these nodules trends towards a benign etiology such as regenerative nodules, etc. A fine needle aspirate of the liver could be considered to rule out round cell neoplasia (provided coagulation parameters are normal). The gallbladder is significantly distended, which is likely normal for a fasted patient, but continued monitoring of bilirubin is warranted in case evidence of progressive gallbladder disease develops. Additionally, you could consider Ursodiol therapy.

There is a hypoechoic nodule on the caudal pole of the left adrenal. This could represent a benign incidental nodule or could be an early neoplastic nodule. Additionally, this could be secreting hormone or be non-active. Recommend a blood pressure evaluation. If hypertension is present, you could consider measuring catecholamines, looking for possible pheochromocytoma. If signs of Cushing's are present you could consider adrenal function testing, but interpretation of these tests would be challenging with the concurrent medical issues that are present. If surgical removal was to be considered, a contrast CT scan would be recommended for surgical planning, looking for evidence of metastasis and vascular invasion.

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



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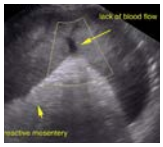
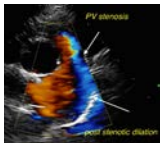
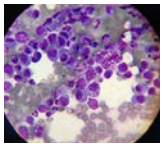
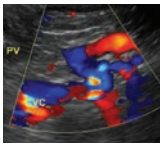

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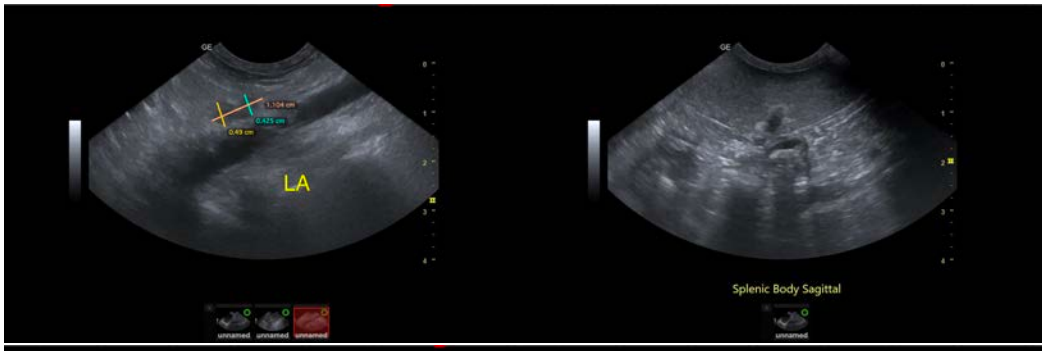

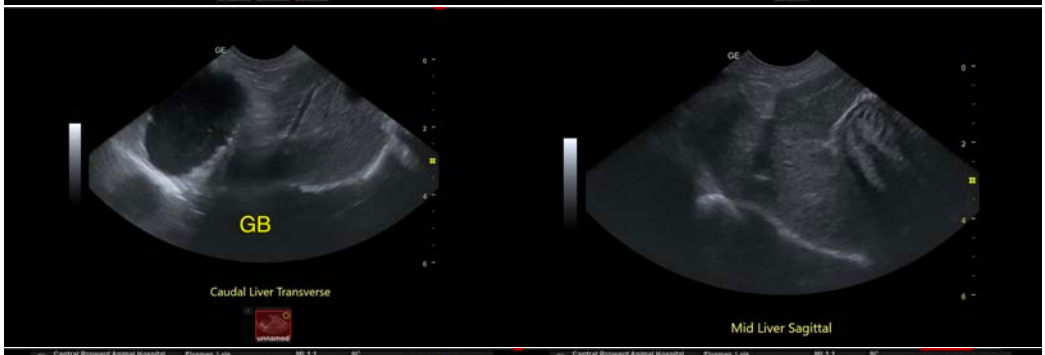

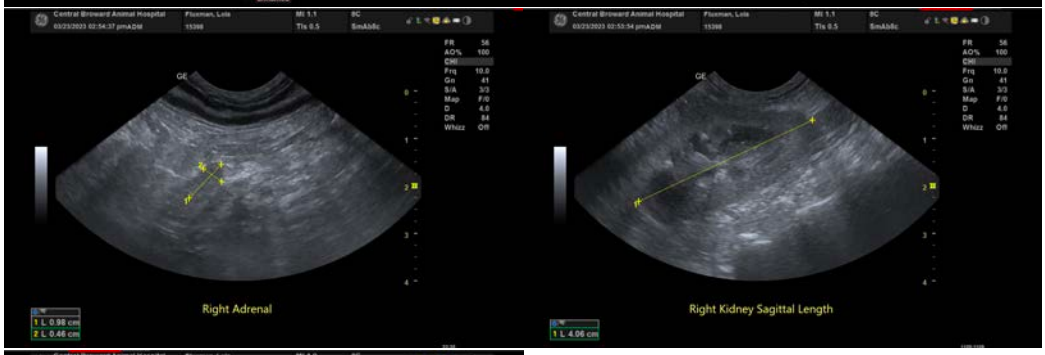

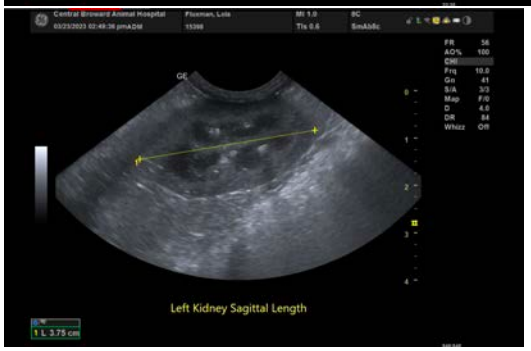

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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