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Clinical Sonography & Telecytology
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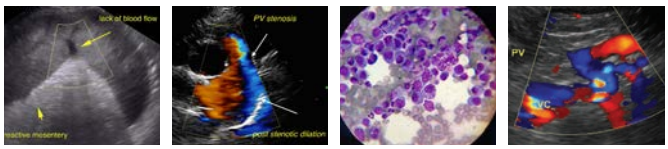

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1-800-838-4268 info@sonopath.com

PATIENT
Juno Anglin

SPECIES
Canine

BREED
Australian Labradoodle

SEX
Spayed Female

AGE
13 Years

WEIGHT
12.7 kg

INTERPRETED BY
Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY
Dr. Nigel Gumley

HOSPITAL NAME
Cedarview AH

REFERRING VET
Dr. Nigel Gumley

INVOICE
41887

DATE
10/6/22

PRESENTING CLINICAL SIGNS

Previously diagnosed with Stage B2 CVD; currently on pimobendan 3.75 mg BID. Recently shaking and restless; on gabapentin for back pain. PU/PD, intermittent vomiting, loose stool. Abdominal US pending.

Abnormal PE/Chem/CBC/UA Results: Enlarged liver; potty abdomen, severe periodontal disease; grade 5/6 systolic apical heart murmur, normal femoral pulses, lungs clear, MM pink, back pain. BP 140/86, 146/91, 149/71 Mild anemia (0.36), mild hyperkalemia, Increased ALP; normal ALT

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

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.

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. There is no evidence of pyelectasia, mineral or infarcts observed. The left kidney measures 5.0 cm. The right kidney measures 5.6 cm. Small cortical cysts noted in both kidneys.

Adrenal Glands

The right adrenal gland is normal in size (1.2 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.

The left adrenal gland is normal in size (0.64 cm at the cranial pole 0.87 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

Spleen

Previous splenectomy performed.

Liver

Liver is subjectively enlarged with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is not fully distended/empty with suspended and gravity dependent echogenic debris present. The wall is smooth without visible thickening. The cystic duct and common bile duct contain echogenic densities without pathologic obstruction noted of either duct. The common bile duct tapers normally to the duodenal papilla. There is no evidence of effusion or inflammation.

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.

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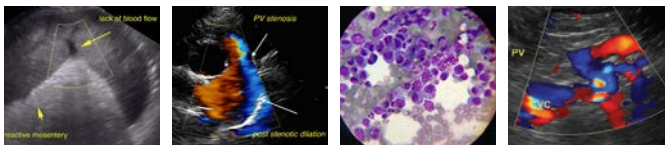

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The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

Pancreas

The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

Free Abdomen

There is no evidence of free peritoneal effusion noted in these images.

Medial iliac lymph nodes are visualized but considered normal.

PRIMARY FINDINGS

- **Heterogenous Liver –** These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.
- **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.
- Echogenic densities within the biliary tree – Either representative of organized sludge and debris, or potentially small disruptive polyps can't be definitively ruled out.

SECONDARY FINDINGS

- Age related kidney changes with bilateral cortical cysts

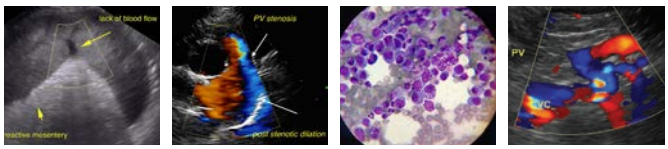
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Based on the appearance of this patient's adrenal glands, hypoadrenocorticism is exceedingly unlikely. In fact, the clinical signs and combination of ultrasound changes described above are more consistent with hyperadrenocorticism or Cushing's disease. However, given the gastrointestinal signs, patient breed, and mild hyperkalemia, it is recommended to rule it out with a baseline cortisol. If baseline cortisol is less than 2, a full ACTH stimulation test is recommended.

A gastrointestinal malabsorption panel (including cobalamin, folate, TLI and PLI) to Texas A&M GI Laboratory is recommended for further evaluation of GI and pancreatic function.

As stated above, the PU/PD combined with the liver and gallbladder changes described may be suggestive of hyperadrenocorticism, which can be present despite normal appearing adrenal glands. Therefore, if indicated following the above recommended diagnostics, a low-dose Dexamethasone suppression test could be considered to rule out hyperadrenocorticism. However, hyperadrenocorticism should not be diagnosed or treated when a patient is concurrently ill with something. Therefore, addressing the gastrointestinal disease is recommended first.

Empirical therapeutic recommendations include empirical deworming with a 5-day course of Panacur, antiemetics, gastroprotectants, a probiotic such as Proviable of Visbiome (given the diarrhea), and



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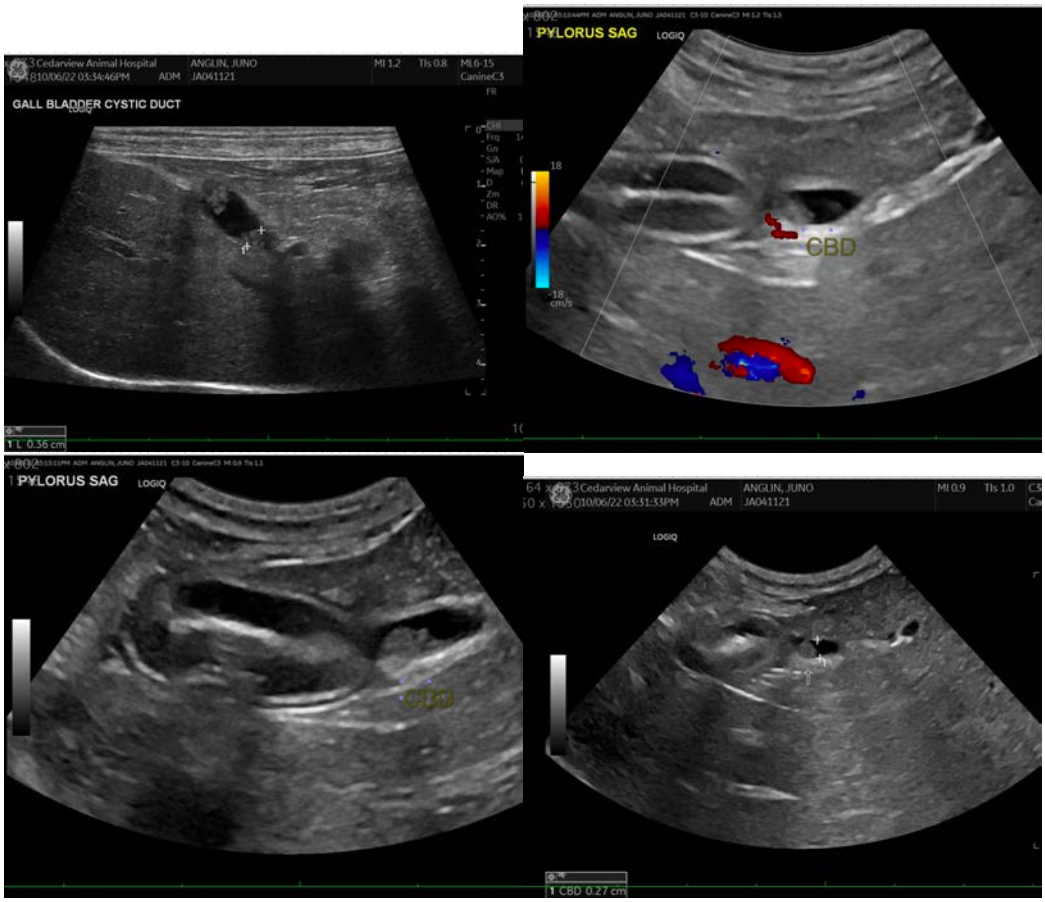
potentially a transition to either a bland, easy to digest diet, or potentially hydrolyzed protein diet based on trial and error response.

Given the PU/PD, 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 presence of debris/small polyps within the biliary tree, recommendations include either beginning an empirical course of Ursodiol and monitoring, or, given the lack of liver enzyme changes and/or clinical signs, etc., just monitoring. When recheck ultrasound is performed, recommendations including coning down the color flow sector so that it is just the same diameter as the duct that you're examining. If it is too wide, it won't pick up flow in a polyp. Then use power doppler if possible over the polyps to try to determine actual tissue versus sludge or debris.



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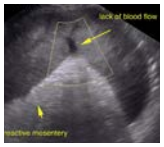
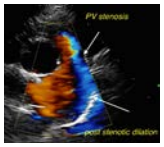
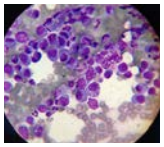
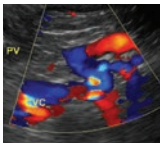

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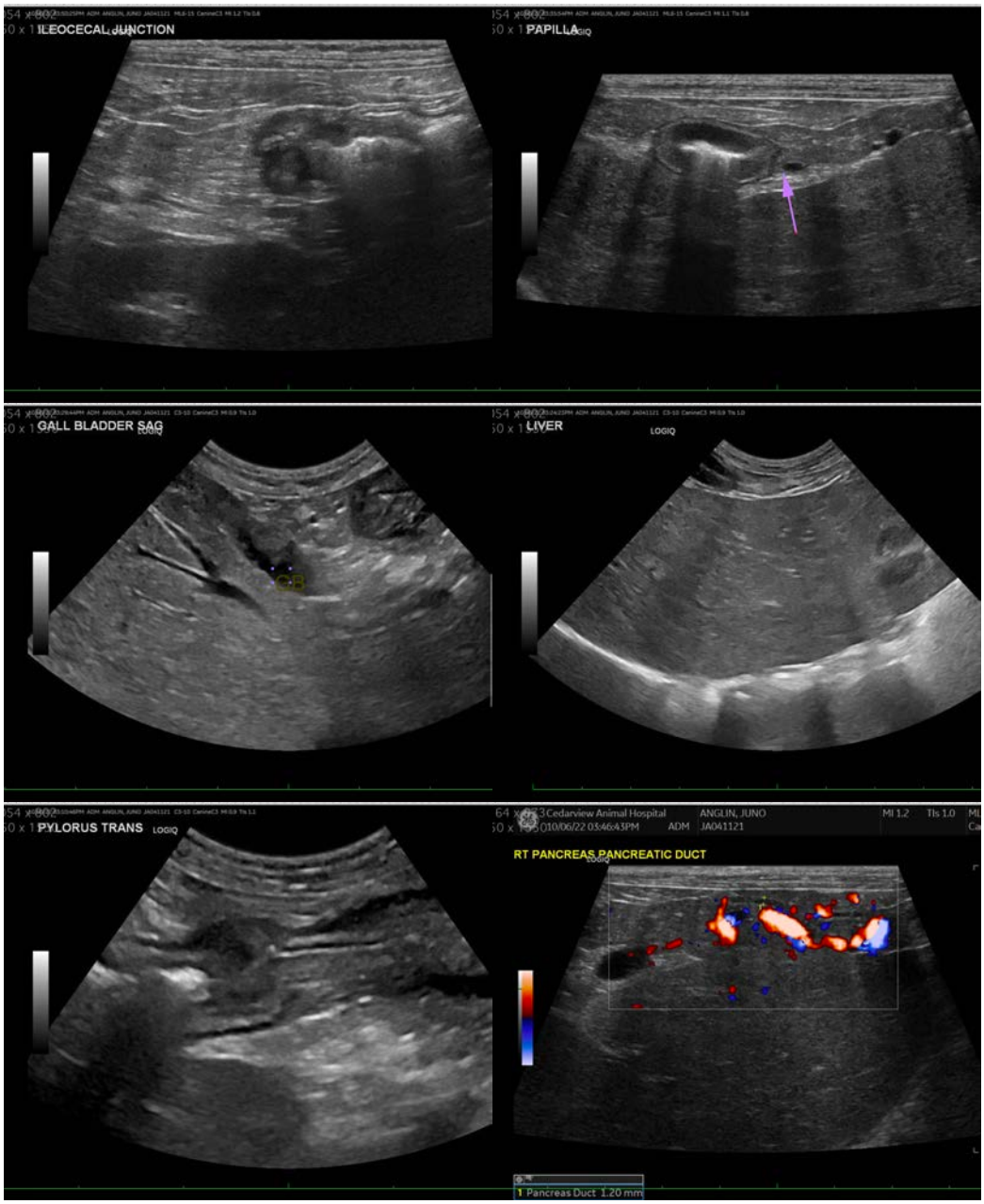

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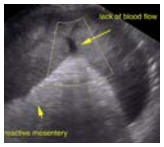
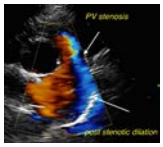
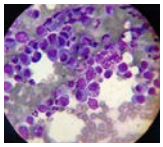
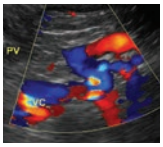

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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