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Clinical Sonography & Telecytology
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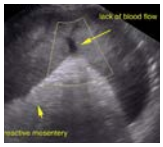
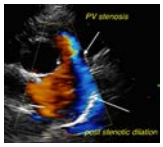
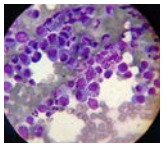
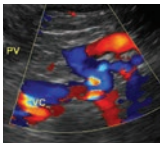





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Oscar Thomas

SPECIES
Canine

BREED
Chihuahua X

SEX
Neutered Male

AGE
12 Years

WEIGHT
10.42 kg

INTERPRETED BY
Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY
Dr. Laura de Cordon

HOSPITAL NAME
Mason Dixon Animal Emergency Hospital

REFERRING VET
Dr. Michelle Bateman

INVOICE
41379

DATE
9/16/22

PRESENTING CLINICAL SIGNS

Oscar presented on 9/15/22 as a transfer from his primary veterinarian for continued work up and treatment for vomiting, diarrhea, and decreased appetite.

Abnormal PE/Chem/CBC/UA Results: Oscar presented on 9/15/22 as a transfer from his primary veterinarian for continued work up and treatment for vomiting, diarrhea, and decreased appetite. On exam Oscar was dehydrated. His abdomen was soft and non-painful. A heart murmur was noted. Bloodwork EPOC--Chloride (98), HCT (58) PCV/TS--48 and 4.8 1. Suspect pancreatitis 2. Giardia (+) 3. Panhypoproteinemia - r/o GI loss (likely) vs. hepatic vs. renal

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.

Prostate is normal in size, echotexture and echogenicity for a neutered male.

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 4.89 cm. The right kidney measures 5.49 cm.

Adrenal Glands

Adrenal glands are plump/swollen in size. Normal shape and contour are maintained without evidence of capsular invasion. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal. The left adrenal gland measures 1.5 cm at the cranial pole and 1.2 cm at the caudal pole. The right adrenal gland measures 1.3 cm at the cranial pole and 1.2 cm at the caudal pole. Hyperechioic nodules are noted in both poles of both adrenal glands.

Spleen

The spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). No focal nodules or masses are observed. Splenic vasculature appears normal.

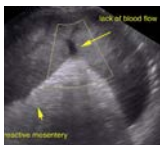
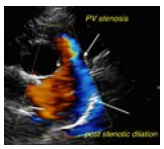
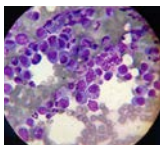
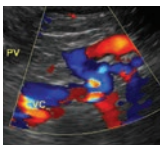
Liver

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.

The gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.

Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is mildly distended with echogenic non-shadowing luminal contents and gas consistent with normal ingesta. There is no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

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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). However, in the mid cranial abdomen, there is a focal loop of what appears to be small bowel with a diffuse concentric hypoechoic loss of layering that measures 1-1.2 cm thick. This area is surrounded by hyperechoic enhanced fat. 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.

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.

There is no apparent lymphadenopathy noted in these images.

PRIMARY FINDINGS

- **Focal bowel thickening with loss of layering** – concerning for infiltrative neoplasia such as round cell neoplasia or adenocarcinoma. A benign inflammatory process (especially given the reported giardia) is possible but considered slightly less likely, given the loss of layering.
- **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.
- **Bilateral adrenomegaly –** consistent with adrenal hyperplasia secondary to pituitary dependent hyperadrenocorticism vs stress or normal variant. Interpret in combination with clinical signs of hyperadrenocorticism.
- **Hyperechoic adrenal nodules in both adrenal glands –** Differentials include primary adrenal cortical adenoma or adenocarcinoma, pheochromocytoma, myelolipoma, adrenal hyperplasia secondary to pituitary disease or metastatic disease. Ultrasound alone cannot differentiate between functional and non-functional nodules and/or between benign and malignant disease. Small nodules without other evidence of abdominal disease (to suggest metastatic disease) and/or clinical signs (to suggest adrenal disease) are most often incidental and should be monitored.

SECONDARY FINDINGS

- Age related kidney changes

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given this patient's panhypoproteinemia, 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.

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.

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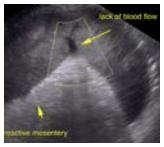
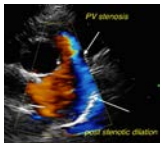
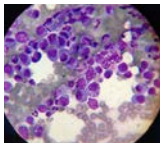
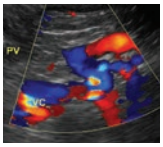

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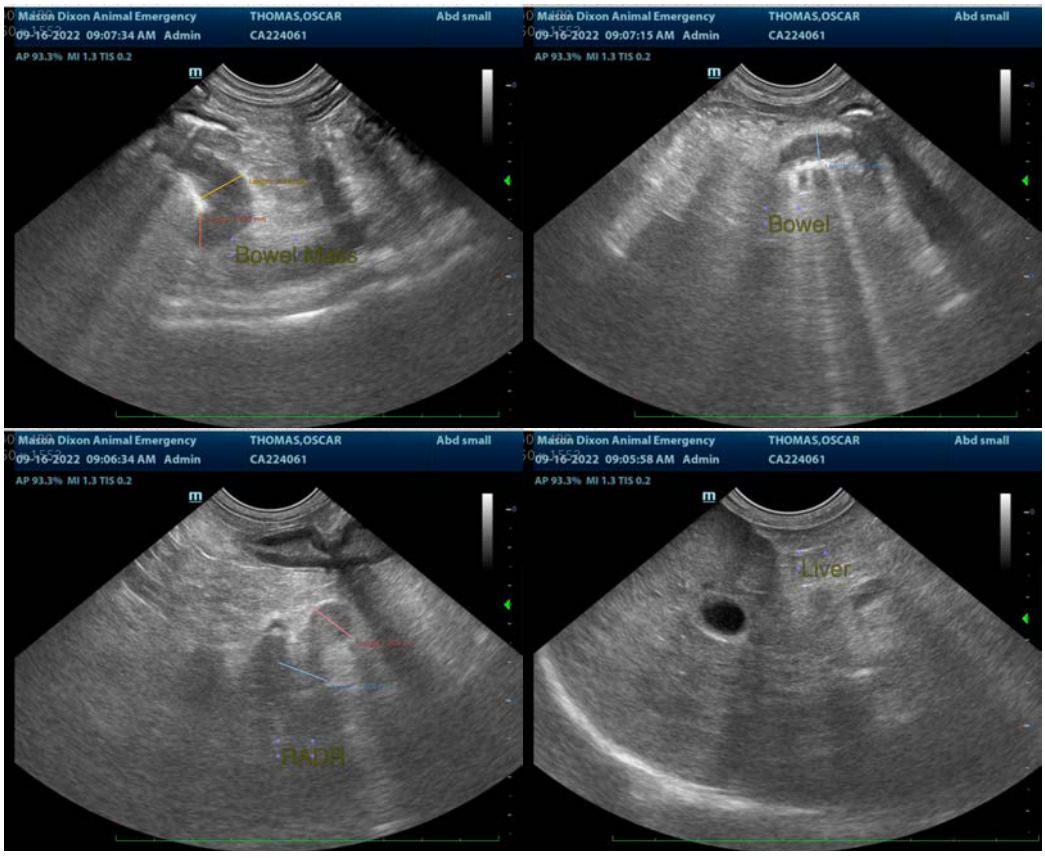
Tissue sampling of the bowel mass is recommended to definitively diagnose the infiltrative process, and can be attempted via a fine needle aspirate (if patient's coagulation status is appropriate) endoscopically or with an exploratory laparotomy and bowel mass excision, resection, and anastomosis, etc.

Alternatively, empirical deworming with a 5-day course of Panacur, management of the giardia, and transition to a low-fat diet given the suspected concurrent protein losing enteropathy, etc. could all be tried in addition to cobalamin supplementation, unless cobalamin supplementation is not warranted based on GI panel results, with monitoring of the focal thickness for possible resolution after therapy. This approach is in case the focal thickening is secondary to a benign inflammatory process related to the underlying GI disease, giardia, etc.

Recommendations are to address the gastrointestinal disease first. However, pending patient response, etc. to the above-mentioned recommendations, if clinical signs of hyperadrenocorticism are present including polyuria, polydipsia, panting, etc., testing for hyperadrenocorticism in the form of a low-dose Dexamethasone suppression test could be considered in the future. A blood pressure is also recommended if not recently evaluated.



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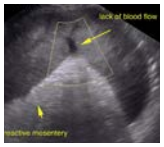
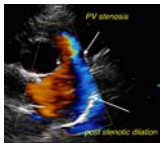
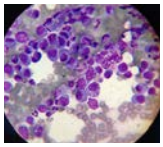
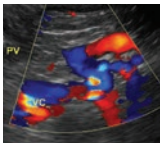

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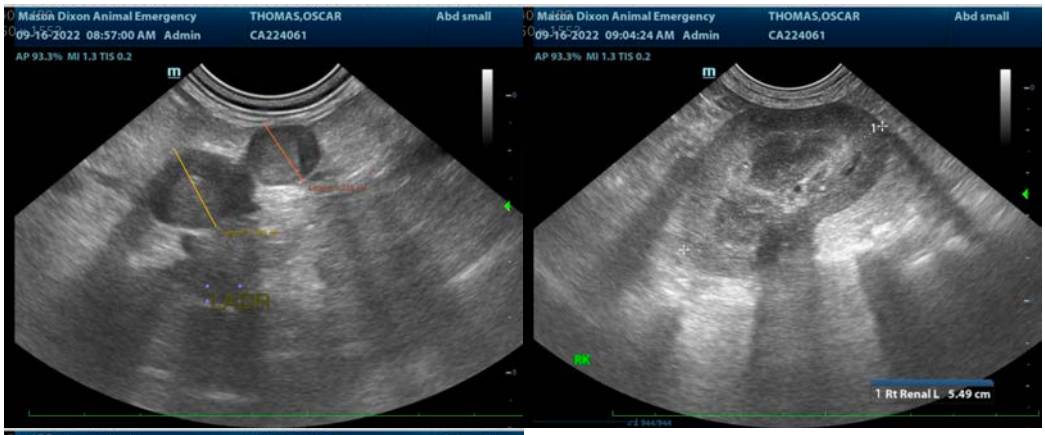

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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