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Clinical Sonography & Telecytology
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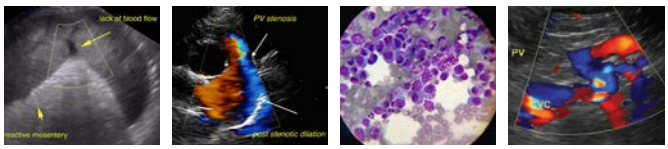

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Tiger Madey

SPECIES
Canine

BREED
Australian Shepherd

SEX
Neutered Male

AGE
13 Years 9 Months

WEIGHT
78

INTERPRETED BY
Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY
Dr. Kaitlyn Rudie

HOSPITAL NAME
Sherwood Family PC

REFERRING VET
Dr. Robert Merrill

INVOICE
46242

DATE
3/28/23

PRESENTING CLINICAL SIGNS

Tiger has had 3 urinary tract infections since August of 2022. Prior to this he had never had an issue. UTI's typically present with frequent urination and licking at prepuce. He has also had two brief episodes of suspected vestibular disease, the first Feb, 25 and the second a few days ago. Tiger is on Cefpodoxime to treat the UTI based on urine culture. He also receives Gabapentin, Galliprant and Adequan injections for arthritis.

Abnormal PE/Chem/CBC/UA Results: Most recent urinalysis and culture performed 3/20/23 revealed E.coli susceptible to Cefpodoxime. BW performed on the same day revealed SDMA of 16, Creat 1.6, Ca 12 (Ca panel pending), ALT 241, Cholesterol 355, and Lipase 315. UA at that time revealed marked rods, increased epithelial cells, WBC and RBC. elevation. No crystals present.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately distended. It has a normal uniform wall thickness. Contents include primarily anechoic fluid with occasional echogenic non-shadowing debris, most consistent with exfoliated cells, mucous and/or small blood clots. Both sterile inflammation as well as urinary tract infection can also present with echogenic debris. No masses or cystoliths are observed. The 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.

The right kidney is normal in size (6.9 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

The left kidney is normal in size (6.3 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

Adrenal Glands

The right adrenal gland is unable to be well visualized in these images.

The left adrenal gland is normal in size (0.72 cm at the cranial pole and 0.85 cm), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

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. Additionally, there is a 2.0 cm discrete hyperechoic nodule in the caudal liver. 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.

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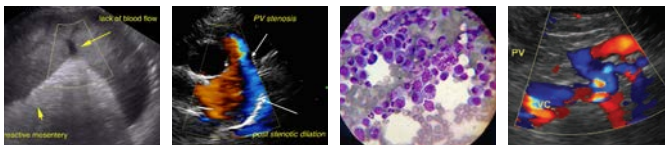

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Gastrointestinal

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.

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.

There were no vascular anomalies appreciated by me in these images.

ULTRASONOGRAPHIC 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.
- **Hyperechoic liver nodule –** Differentials for a discrete liver nodule include primarily benign changes such as nodular hyperplasia, fibrosis of an old hematoma, granuloma, myelolipoma, etc.; however, while considered less likely, primary hepatic neoplasia, infiltrative round cell neoplasia and metastatic disease can mimic benign lesions and cannot be definitively ruled out.
- Urinary bladder debris

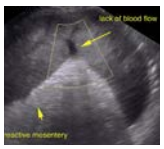
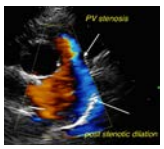
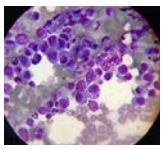
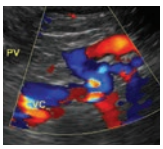
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Given this patient's reported hypercalcemia, if not already evaluated, a thorough rectal and perianal exam is recommended, as is lymph node palpation diffusely. As is reportedly already pending, a malignancy panel to include PTH, PTHrP, and ionized calcium is also recommended.

While the appearance of the liver trends towards benign, if the malignancy panel supports malignancy, a fine needle aspirate of the heterogeneous parenchyma could be considered if patient's coagulation status is appropriate.

Additionally, given this patient's reported neurologic history, a blood pressure is recommended if not recently evaluated.

Finally, there is no obvious ultrasonographic explanation for this patient's recurrent urinary tract infections. Therefore, recommendations include ruling out persistent versus recurrent urinary tract infection by treating the infection (as is reportedly already being done) based on culture and sensitivity

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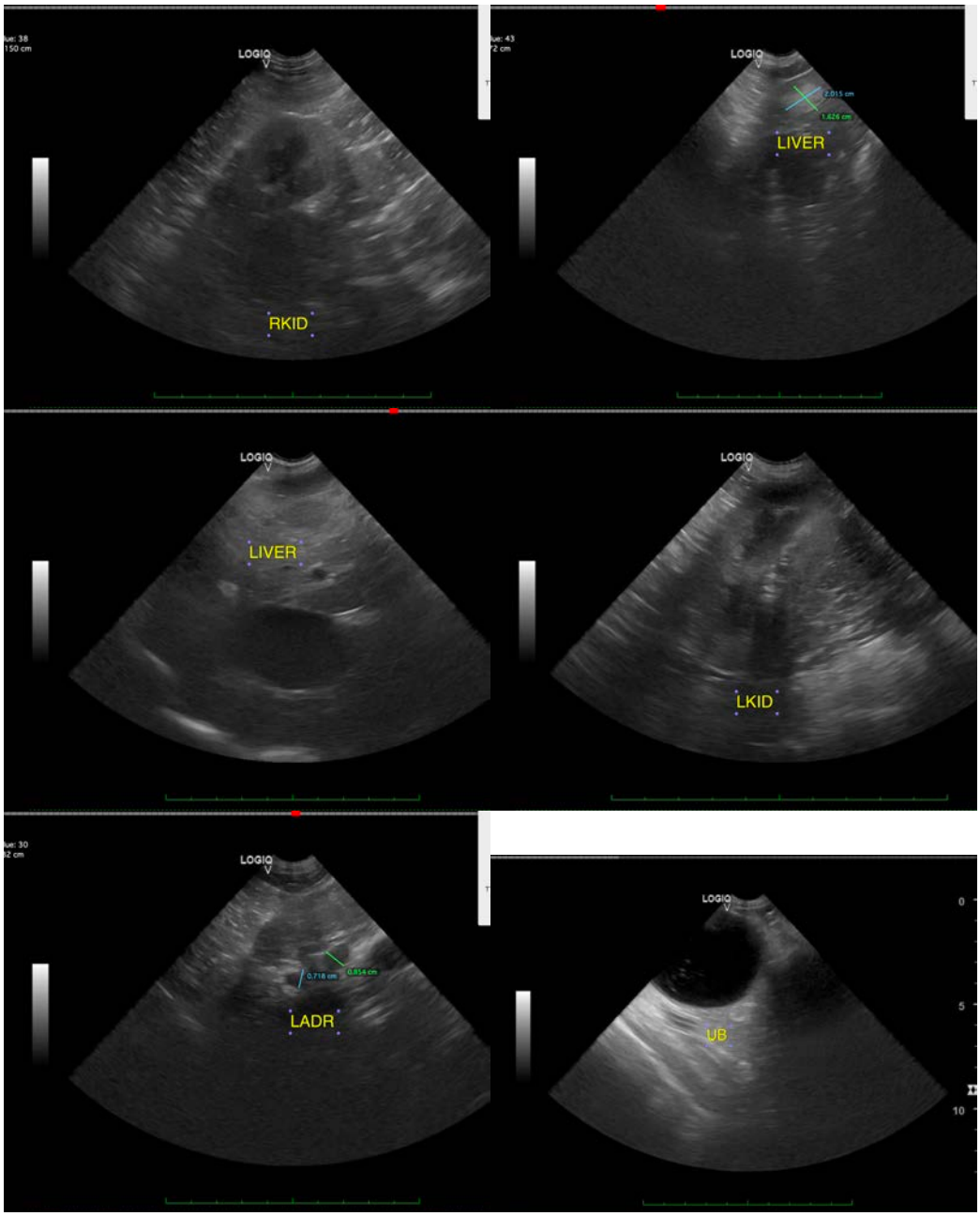
results for a longer treatment course (i.e., 4-6 weeks). The course should include a 2nd culture a week to 10 days after starting antibiotics to ensure full clearance and be sure no secondary organisms, etc. are present, and end with a final 3rd culture a week to 10 days after finishing antibiotics to be sure that the infection has fully cleared. If after that they continue, then further evaluation for recurrent urinary tract infections would be warranted.



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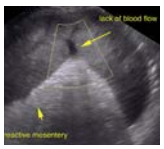
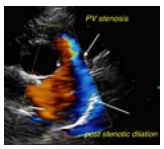
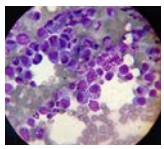
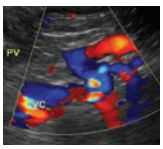

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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