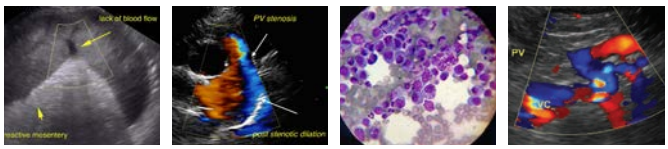
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™



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

PATIENT
Maggie Vine

SPECIES
Canine

BREED
Shih Tzu

SEX
Spayed Female

AGE
12 Years

WEIGHT
12.3 Pounds

INTERPRETED BY
Beth Johnson, DVM
DACVIM

IMAGING PERFORMED BY
Diane McFadden, RVT

HOSPITAL NAME
Newton Vet Hospital

REFERRING VET
Dr. Wyman-Greenwald/Barrohn

INVOICE
46050

DATE
3/22/23

PRESENTING CLINICAL SIGNS

Vomiting, not eating, lethargy; elevated liver enzymes

Abnormal PE/Chem/CBC/UA Results: phos 5.7, Ca 12.7, TP 8.3, glob 4.4. chol 406, ALKP 7993, GGT 109, tbili 5.9, Cl 981, WBC 27,000 with neuts 25.4 and platelets 639

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.

The right kidney is normal in size (4.5 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 (4.69 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 normal in size (1.98 cm long x 1.19 cm at the cranial pole and 0.45 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 (1.42 cm long x 0.35 cm at the cranial pole and 0.40 cm at the caudal pole), 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). A 1.0 cm x 0.80 cm hypo- to anechoic non-capsule disrupting nodule was noted near the head of the spleen. Splenic vasculature appears normal.

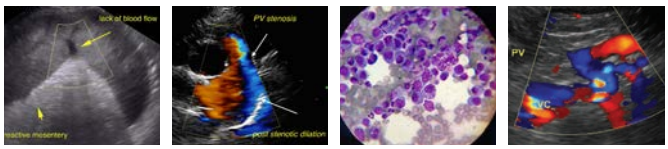
Liver

Liver is subjectively enlarged (swollen contour). Mild parenchymal remodeling with diffusely mildly coarse architecture and increased portal markings is present. No focal nodules or masses are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is moderately overdistended with organized, aggregated and centralized non-gravity dependent sludge. Striations of sludge separated by anechoic areas are noted extending from the lumen to the luminal wall. The wall is mildly thick, irregular and hyperechoic. There is no evidence of CBD dilation. Enhanced hyperechoic ill-defined surrounding fat is noted.

Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is moderately to markedly over distended with fluid as well as echogenic non-shadowing luminal contents and gas consistent with normal ingesta/chyme. 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). 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. However, the proximal duodenum is also mildly fluid distended.

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.

The cranial abdomen primarily is diffusely enhanced/hyperechoic in appearance.

ULTRASONOGRAPHIC FINDINGS

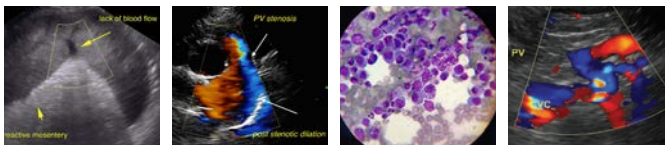
- Gallbladder mucocele with evidence of inflammation surrounding it.
- **Hypoechoic hepatomegaly** – This appearance is consistent with an acute hepatopathy or acute cholangiohepatitis. Infiltrative neoplasia (round cell neoplasia) should also be considered.
- **Gastric and proximal duodenal fluid distention** – most consistent with stasis or ileus secondary to the inflammation in the surrounding area. An obstruction can't be ruled out but is considered less likely.
- **Hypo to anechoic splenic nodule** – likely represents a benign lesion such as a cyst, hematoma, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia can mimic benign lesions, and cannot be ruled out.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Ideally, further evaluation of this patient's hydration status as well as the reported hypercalcemia +/- further evaluation of the liver changes would all be pursued while instituting supportive/symptomatic medical management, and recommendations for that approach will be provided. However, there is concern based on these images that the time allotted for that approach won't be available due to severity of the mucocele, in which case a surgical cholecystectomy and liver biopsy may be necessary prior to obtaining further information. If the patient is stable to pursue additional diagnostics and attempt medical management, then recommendations include:

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 malignancy panel is recommended to include ionized calcium, PTH, and PTHrP, followed potentially by a fine needle aspirate of the liver if patient's coagulation status is appropriate, especially if PTHrP comes back increased, all while treating in the form of fluid therapy, antiemetics, gastroprotectants, hepatic nutraceuticals such as Ursodiol and/or Denamarin, and broad-spectrum antibiotics as well as nutritional support such as appetite stimulants and/or feeding tube. If, however, the medical approach is



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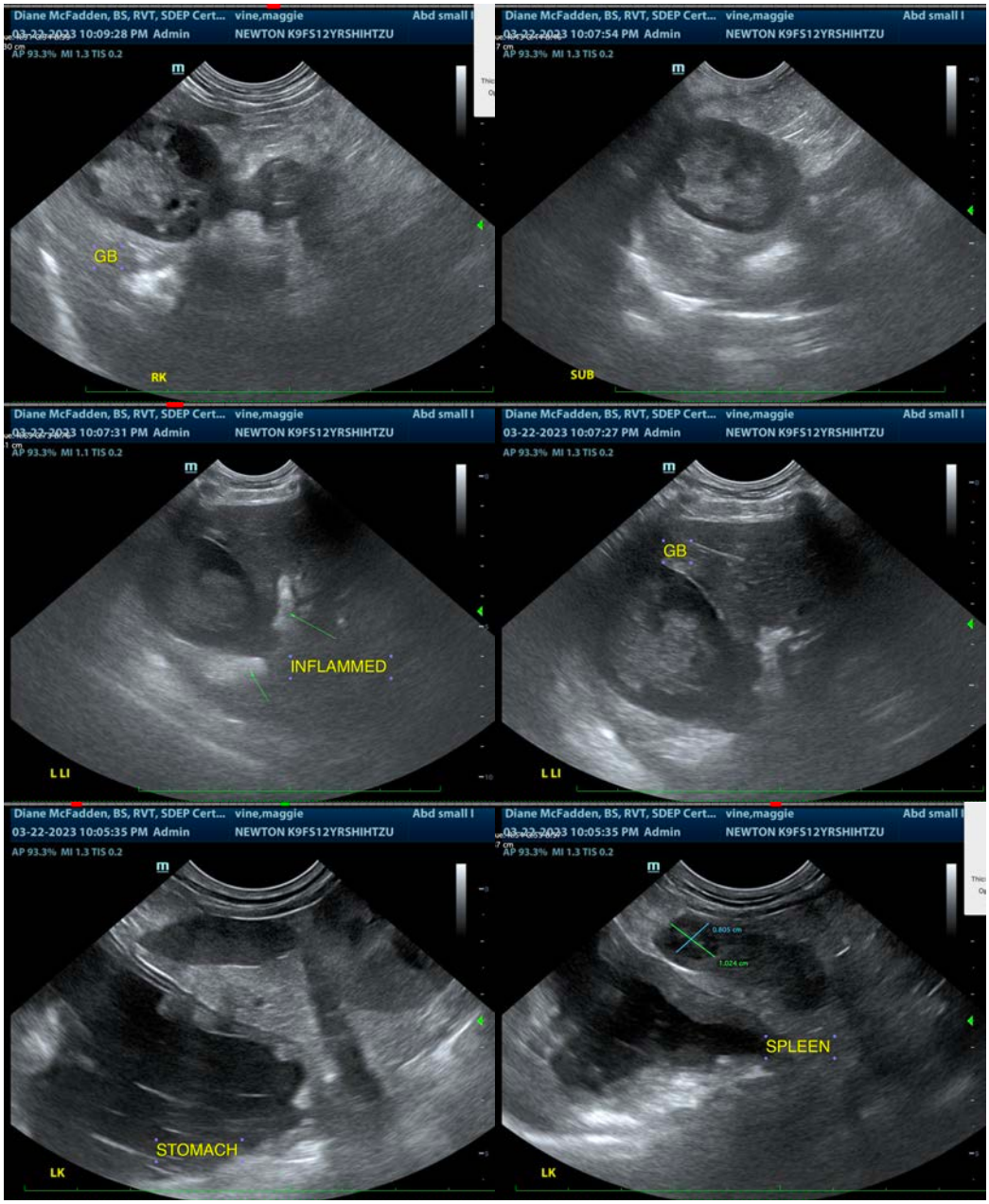
elected, close monitoring should be implemented so that if there is not rapid improvement and/or certainly if there is a decline, an exploratory laparotomy for planned cholecystectomy and liver biopsy is pursued sooner rather than later.



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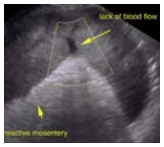
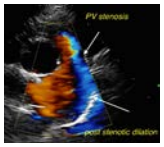
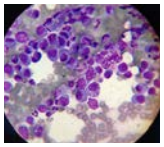
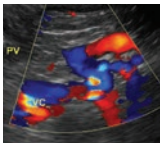

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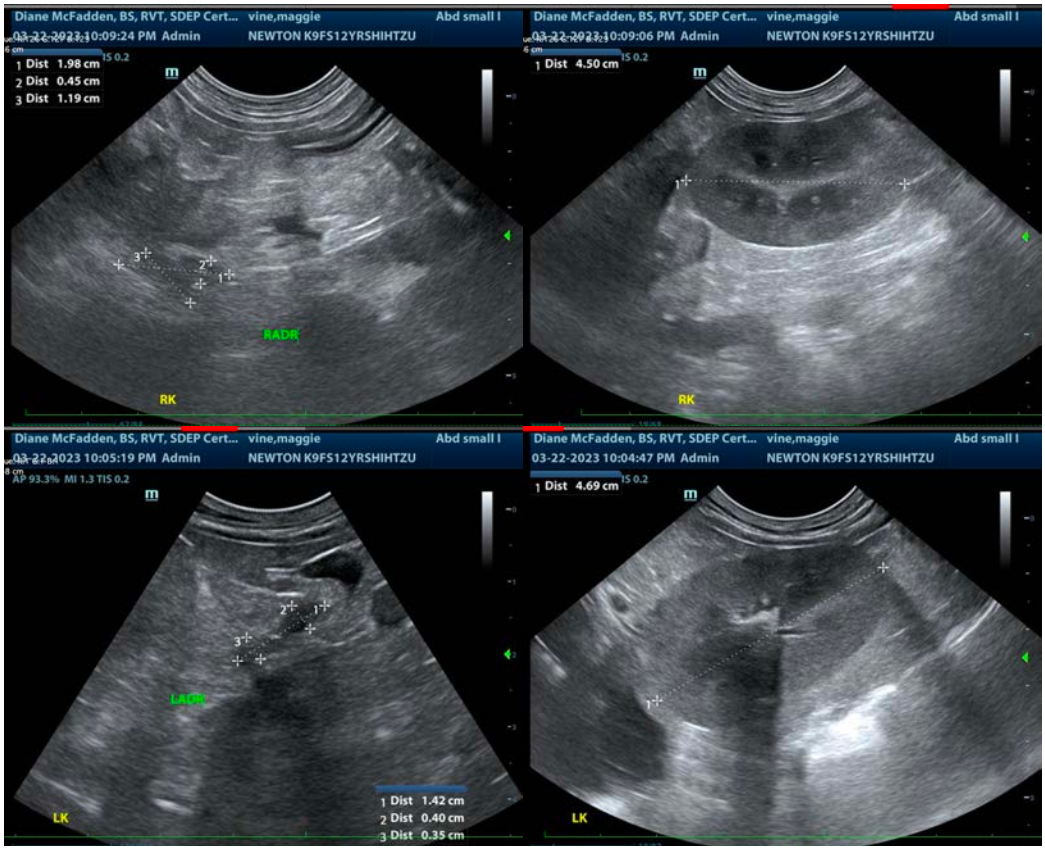

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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