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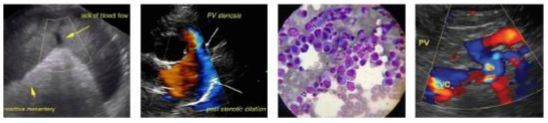

IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8340

PATIENT

Lucky Emerson

SPECIES

Canine

BREED

Bichon Frise

SEX

Neutered Male

AGE

14 years

WEIGHT

27.5 lbs

INTERPRETED BY

Andrea Nicastro, DVM, Diplomate ACVIM (Small Animal Internal Medicine)

IMAGING PERFORMED BY

Loetitia Saint-Jacques, RVT LVT

HOSPITAL NAME

Pine Creek VC

REFERRING VET

Dr. Denny Nolet

INVOICE

10967

DATE

5/26/22

PRESENTING CLINICAL SIGNS

History: Pt's bloodwork had a high ALT and ALK PHOS. Lucky's diet consists of 1/3 cup dry and 2 TBSP canned Hill's Prescription i/d + 2 TBSP of chicken or turkey + bone broth to moisten + 1 tsp cooked yam or veggie mix for breakfast and dinner. 5/11/22 TTO about blood work, the ALT and ALK PHOS are in the low 300's, everything else is ok, but we are planning a dental ear check, anal glands all under anesthesia because the dog is resistant to handling. Discussed that we should ensure the liver is OK on U/S prior to anesthesia. Pt had pancreatitis a year ago, has been on RX low fat (wet & dry) diet since. receives a tablespoon of baked yams, 1-2 tablespoons cooked meat daily

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder, trigone, and pelvic urethra are normal in thickness and the mucosal surface is smooth. The bladder lumen is moderately distended with anechoic urine. No masses, inflammatory changes or calculi are observed. Ureteral papillae and visualized portion of the proximal urethra, visible to a depth of 2 cm, are normal.

The prostate is normal in size (0.73 cm in width) and shape. Parenchyma is homogenous. The prostatic urethra appears normal without evidence of dilation or obstruction.

The left kidney is normal size (5.19 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with mild loss of corticomedullary distinction. Hyperechoic shadowing diverticular foci are visualized. Mild pyelectasia is present (0.32 cm in the longitudinal plane). There is no evidence of infarcts or hydroureter. Renal vasculature is normal.

The right kidney is not visualized in its entirety. In the visualized portions, it is normal in size (5.30 cm in length); with a normal shape and smooth peripheral contours. There is a normal 1:3 cortex to medulla ratio with mild loss of corticomedullary distinction. Hyperechoic shadowing diverticular foci are visualized. There is no obvious evidence of pyelectasia, infarcts or hydroureter.

Adrenal Glands

The left adrenal gland is normal size (0.61 cm at cranial pole) (0.62 cm at caudal pole) (1.89 cm in length); normal shape; homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

The right adrenal gland is normal size (0.80 cm at cranial pole) (0.47 cm at caudal pole) (2.62 cm in length); and is normal in size with a normal shape and smooth peripheral contours. A 0.58 x 0.53 cm hyperechoic nodule is observed at the cranial pole. Glandular echogenicity and detail at the caudal pole are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

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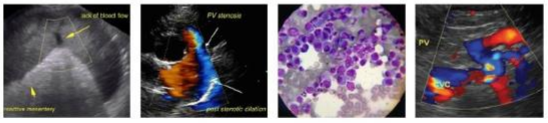

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Spleen

The spleen is subjectively normal in size (1.97 cm in width at the level of the hilus) with normal curvilinear peripheral contours. The parenchyma is subtly mottled in appearance, with one to two, small, ill-defined hypoechoic nodules, the largest measuring 1.03 cm in diameter. Splenic vasculature is normal with no evidence of thrombosis.

Liver

The liver is subjectively prominent in size with slightly rounded peripheral contours. The parenchyma is isoechoic relative to the spleen and mildly heterogenous in appearance with a few, small, ill-defined hypoechoic nodules. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion.

The gall bladder lumen is moderately distended. The wall is thin and smooth. A moderate amount of echogenic debris is observed within the lumen, some of which is gravity dependent and some of which is suspended. The cystic and common bile ducts are normal/not seen.

Gastrointestinal

The stomach and intestine are free of stasis and exhibit normal peristaltic activity. The gastric lumen is not distended. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The pyloric outflow tract is patent. The small intestinal lumen is not dilated. The small intestinal wall thickness is normal with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The colonic wall is normal. No obstructive disease is noted.

Pancreas

The right limb is prominent to enlarged, with slightly irregular peripheral contours. The parenchyma is hyperechoic relative to surrounding omental fat and subtly mottled in appearance. No distinct focal lesions are observed. The pancreatic duct is not overtly dilated.

Free Abdomen

There is no evidence of free fluid. The abdominal lymph nodes are normal/not visible.

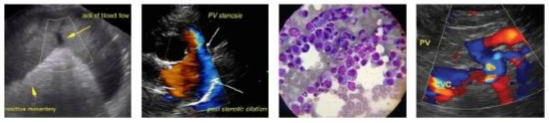
Other

A brief echocardiogram reveals no evidence of pericardial effusion or obvious right atrial/auricular mass.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- The hepatic parenchymal changes are nonspecific and may be secondary to an inflammatory hepatopathy (i.e., bacterial cholangiohepatitis, chronic active hepatitis), hepatotoxicosis (i.e., copper), or other hepatopathy. Concurrent benign age-related change (i.e., regenerative nodular hyperplasia and or vacuolar hepatopathy) may also be present. Leptospirosis is a



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possibility. However, if the liver enzyme elevations are chronic, this differential is considered less likely.

Secondary Findings

- Bilateral, age-related renal changes with dystrophic mineralization and left pyelectasia
- The right adrenal nodule trends toward the benign (i.e., nodular hyperplasia). However, there is some potential for emerging neoplasia.
- The splenic parenchymal changes are most consistent with a benign process such as lymphoid hyperplasia, extramedullary hematopoiesis, splenitis or antigenic stimulation, with a low possibility of infiltrative neoplasia (i.e., lymphoma, mast cell neoplasia).
- The pancreatic changes are most consistent with age-related remodeling and fibrosis. Chronic pancreatitis can also be present, particularly if the patient exhibits pain on cranial abdominal palpation.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- To get a definitive diagnosis, a surgical liver biopsy would be necessary. Surgical biopsies are superior to cytological evaluations in that biopsies are more likely to be representative of global organ pathology. If pursued, aerobic and anaerobic bile cultures and acquisition of additional hepatic tissue samples for potential copper quantitation are recommended.
- Leptospirosis testing can also be considered. However, this may be of low yield if liver enzyme elevations are chronic.
- If a conservative approach is desired, consider empirical treatment for bacterial cholangiohepatitis (amoxicillin-clavulanic acid, +/-metronidazole, Denamarin). If no improvement in the liver values is seen within 7-10 days of initiating therapy, antibiotics should be discontinued, and hepatic tissue sampling reconsidered. Thoracic radiographs should be performed prior to any anesthetic event, particularly given the patient's age. If liver values improve, continue therapy for at least 4-6 weeks and 1 week beyond normalization of the liver values.
- If the patient is to undergo anesthesia, benzodiazepine should be avoided, and opioids should be used judiciously.

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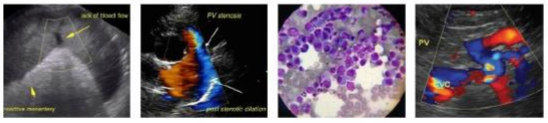

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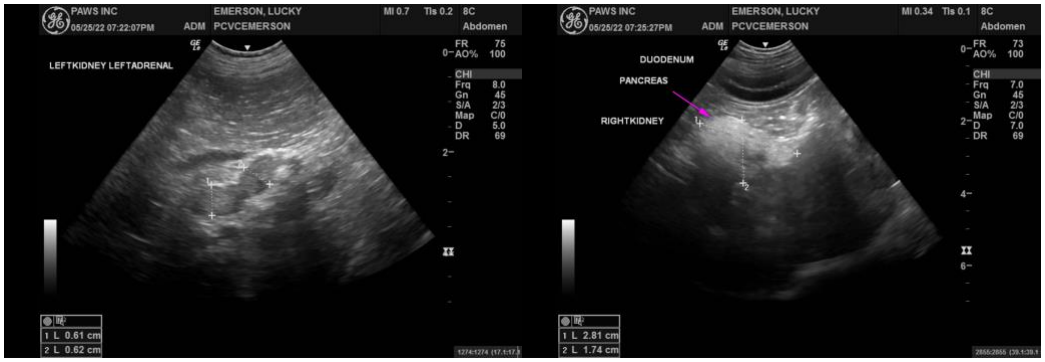

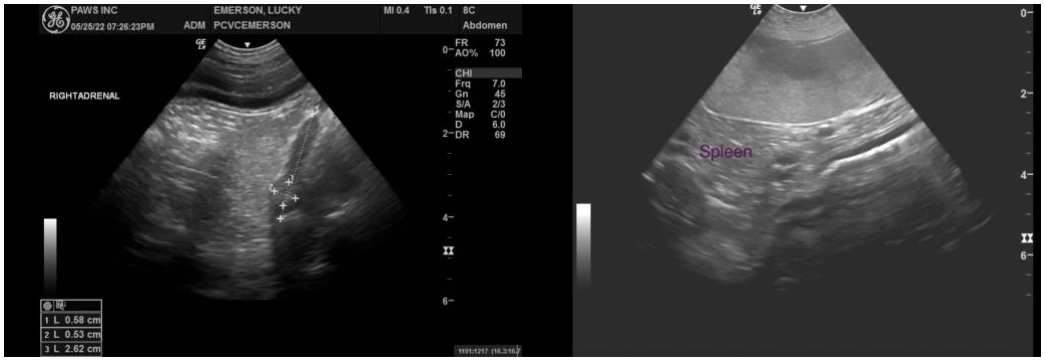

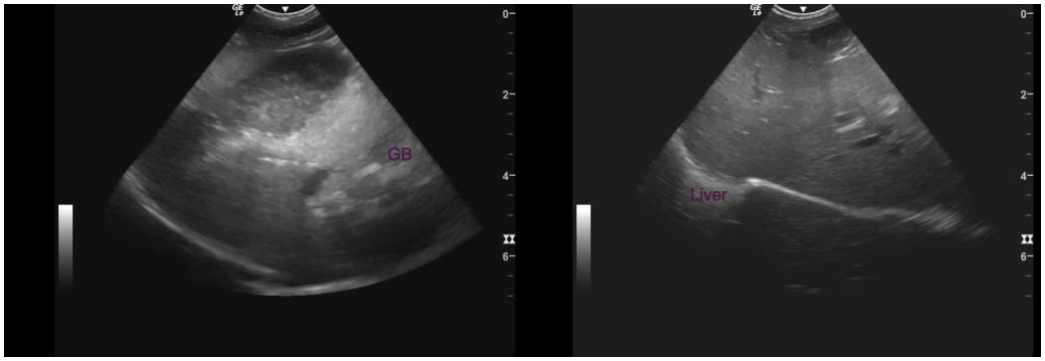

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Andrea Nicastro, DVM, Diplomate DACVIM (Small Animal Internal Medicine)
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