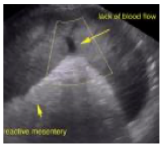
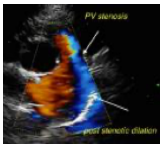
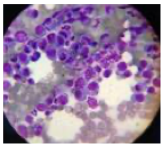
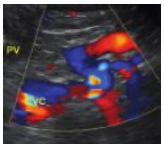
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

SonoPath.com
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PATIENT
Stella Clem

SPECIES
Canine

BREED
Maltese

SEX
Spayed Female

AGE
8 years

WEIGHT
7.5 lb

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

IMAGING PERFORMED BY
Dr. Sheldon

HOSPITAL NAME
Advanced PetCare Oakland

REFERRING VET
Dr. Sheldon

INVOICE
11195

DATE
6.30.22

PRESENTING CLINICAL SIGNS

History: First noticed liver enzyme elevations last year with routine bloodwork. Values have continued to increase. Pet has normal appetite, energy level and no PU/PD noted. Owner opted for screening ultrasound.
Abnormal PE/Chem/CBC/UA Results: ALT 157, ALP 249 : 9/13/21 ALT 222, ALP 167 : 6/30/22

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder and visible portion of the pelvic urethra are normal for the degree of luminal distension. The urine is anechoic with no evidence of debris. Cystic calculi and discrete masses are not observed. The region of the trigone is normal.

The **left kidney** is normal size (xxx 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. A hyper medullary band is observed adjacent to to the corticomedullary junction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The **right kidney** is normal in size (xxx cm in length) with a normal shape, smooth peripheral margins, and normal internal architecture. There is minimal loss of corticomedullary distinction. Several hyperechoic shadowing diverticular foci are observed. There is no evidence of pyelectasia, infarcts or hydronephrosis. Renal vasculature is normal.

Adrenal Glands

The **left adrenal gland** is enlarged (0.39 cm at cranial pole) (0.79 cm at caudal pole); with an irregular shape/prominent caudal pole. Glandular echogenicity and detail appear normal. The phrenicoabdominal vein and surrounding vasculature are normal.

The **right adrenal gland** is enlarged at the cranial pole and normal in size at the caudal pole (1.06 cm at cranial pole) (0.39 cm at caudal pole) (1.78 cm in length), with a slightly irregular shape. A 0.96 x 0.66 cm irregular hyperechoic to slightly heterogenous 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.

Spleen

The **spleen** is normal in size (0.87 cm in width at the level of the hilus) with a normal capsular contour. The parenchyma is subtly mottled in appearance. No focal lesions are observed. Splenic vasculature is normal.

Liver

The **liver** is normal to slightly prominent in size with subtly swollen peripheral margins. The parenchyma is isoechoic relative to the spleen and exhibits mild heterogeneity. No distinct focal lesions are observed. Hepatic vasculature and biliary tracts are of normal volume with no evidence of congestion.

The **gall bladder** is of normal contours and contains some dependent echogenic debris. The wall is normal in thickness. No choleliths are observed. The cystic and common bile ducts are normal/not seen.

Gastrointestinal

The **gastric lumen** is distended with ingesta. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The pyloric outflow tract appears patent. The small intestinal lumen is segmentally dilated with chyme. 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. The lumen of the descending colon contains shadowing fecal material. There is no evidence of an obstructive pattern.

Pancreas
A portion of the **pancreas** is obscured by the gastric distention. In the visualized portions (base and limbs), the pancreas is prominent in size with minimal deviation from the normal peripheral contours. The parenchyma is largely isoechoic 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
The **peritoneal cavity** is normal. There is no evidence of inflammation or effusion. The abdominal **lymph nodes** are normal/not visible.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Bilateral adrenomegaly. The right adrenal nodule could be consistent with benign nodular hyperplasia or an emerging tumor (i.e., adenoma, adenocarcinoma, pheochromocytoma).

- Nonspecific diffuse hepatopathy. Differentials include inflammatory disease (i.e., bacterial cholangiohepatitis, chronic active hepatitis), hepatotoxicosis (i.e., copper), reactive hepatopathy, Leptospirosis (less likely due to the chronicity of the liver enzyme elevations), regenerative nodular hyperplasia, vacuolar hepatopathy, other.

Secondary Findings

- Gall bladder debris/sludge, non-mucocele

- The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

- Minor, bilateral chronic renal changes with dystrophic mineralization

- 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).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Given the elevated liver values, consider pre-and postprandial serum bile acids, +/- hepatic tissue sampling (i.e., fine-needle aspirate or surgical biopsy). Surgical biopsies are more likely to yield a definitive diagnosis. If pursued, aerobic and anaerobic bile cultures and acquisition of additional hepatic tissue samples for potential copper quantitation are recommended. Thoracic radiographs and clotting times (i.e., PT/PTT) should be performed prior to tissue sampling.

- 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. If liver values improve, continue therapy for at least 4-6 weeks and 1 week beyond normalization of the liver values.

- Consider testing for hyperadrenocorticism with a low-dose dexamethasone suppression test or ACTH stimulation test if clinical signs (i.e., PU/PD) develop in the future. Also consider a recheck ultrasound in 2-3 months to assess for growth of the right adrenal nodule.

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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