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Clinical Sonography & Telecytology
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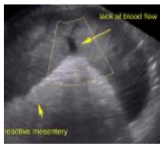
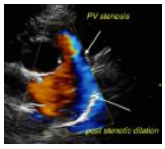
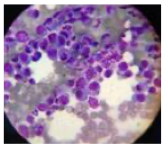
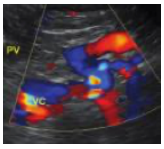





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Hope Mankewich

SPECIES

Canine

BREED

Yorkshire Terrier X

SEX

Intact Female

AGE

12 years

WEIGHT

4.2 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr Belan

HOSPITAL NAME

Beddington Trail AH

REFERRING VET

Dr Banahur

INVOICE

14004

DATE

8.9.23

PRESENTING CLINICAL SIGNS

History: Pre dental work up elevated liver enzymes
Abnormal PE/Chem/CBC/UA Results: ALT moderate elevation bile acids
Pre-prandial 102 (range 0-30) Post-prandial 145 (range 15-40)

37 still images and 20 video clips are available for interpretation.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended. The wall in the region of the apex is slightly thickened with an irregular mucosal surface. The wall tapers to a normal thickness as it extends to the cystourethral junction. Luminal contents are anechoic. No cystic calculi are observed. The region of the trigone is normal.

The left kidney is normal in size (3.52 cm in length) with a normal shape, architecture and smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal to mild loss of corticomedullary distinction. A hyperechoic medullary band is observed in the corticomedullary junction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter.

The right kidney is normal in size (3.64 cm in length) with a normal shape, architecture and smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal to mild loss of corticomedullary distinction. A hyperechoic medullary band is observed in the corticomedullary junction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter.

Adrenal Glands

The left adrenal gland is normal in size (0.31 cm at cranial pole) (0.43 cm at caudal pole) with a normal shape and 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 in normal size (0.45 cm at cranial pole) (0.39 cm at caudal pole with a normal shape and homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

Spleen

The spleen is normal in size (0.58 cm in width at the level of the hilus) with a normal capsular contour. There is appropriate echogenicity and echotexture. No focal lesions are observed. Splenic vasculature is normal.

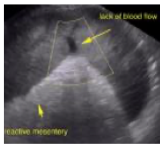
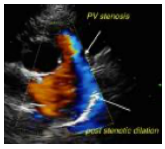
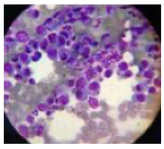
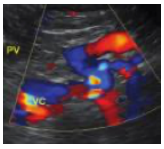
Liver

The liver is subjectively normal in size with normal curvilinear peripheral contours. The parenchyma is isoechoic relative to the spleen and subtly heterogenous in appearance, with one-to-two small, ill-defined hyperechoic and hypoechoic areas. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion. The portal vein to caudal vena cava ratio is approximately 1: 1.

The gall bladder lumen is moderately distended. The wall is thin and smooth. A scant amount of aggregated, echogenic, mostly gravity-dependent debris is observed within the lumen. 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

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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 is normal in thickness with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The ileocecocolic junction and colonic wall are normal. There is no evidence of an obstructive pattern.

Pancreas

The right limb of the pancreas is visible with normal curvilinear peripheral contours. The parenchyma is largely hyperechoic relative to surrounding omental fat and slightly mottled in appearance. The pancreatic duct is visible but not overtly dilated. There is no evidence of peripancreatic inflammation or effusion.

Free Abdomen

The peritoneal cavity is normal. There is no evidence of inflammation or effusion. The abdominal lymph nodes are normal/not visible.

Other

The uterine body is visible and is normal in size (0.42 cm in width). No obvious pathology is seen.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Based on the patient's clinical history and sonographic changes, a diffuse hepatopathy is suspected. Considerations include microvascular dysplasia/portal hypoplasia, inflammatory disease (i.e., bacterial cholangiohepatitis, chronic hepatitis), hepatotoxicosis (i.e., copper), Leptospirosis, infiltrative neoplasia (less likely), other hepatopathy.

Secondary Findings

- 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
- The urinary bladder wall changes could be consistent with cystitis. Correlation with the patient's clinical history is recommended.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- If the liver enzyme elevations are acute in nature, consider Leptospirosis testing (i.e., blood and urine PCR, serology), particularly if clinical suspicion for the disease is elevated.
- Cytologic evaluation of the liver should be considered in this patient if clotting status is appropriate. A fine needle aspirate using a 25-gauge needle is recommended. If cytologic evaluation is inconclusive, consider a surgical liver biopsy with aerobic and anaerobic bile cultures and acquisition of additional hepatic tissue samples for copper quantitation.
- If a more conservative approach is desired, consider empirical treatment for cholangiohepatitis with amoxicillin-clavulanic acid along with hepatic antioxidants. If liver values do not begin to improve within 7-10 days of initiating therapy, antibiotics should be discontinued, and hepatic tissue sampling reconsidered. If values do improve, a 4–6-week course of treatment is recommended.
- It the patient is to undergo anesthesia; benzodiazepines should be avoided and opioids used

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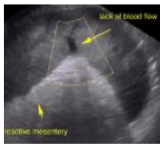
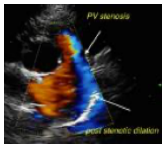
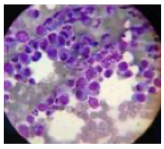
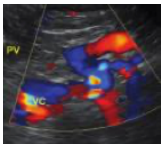

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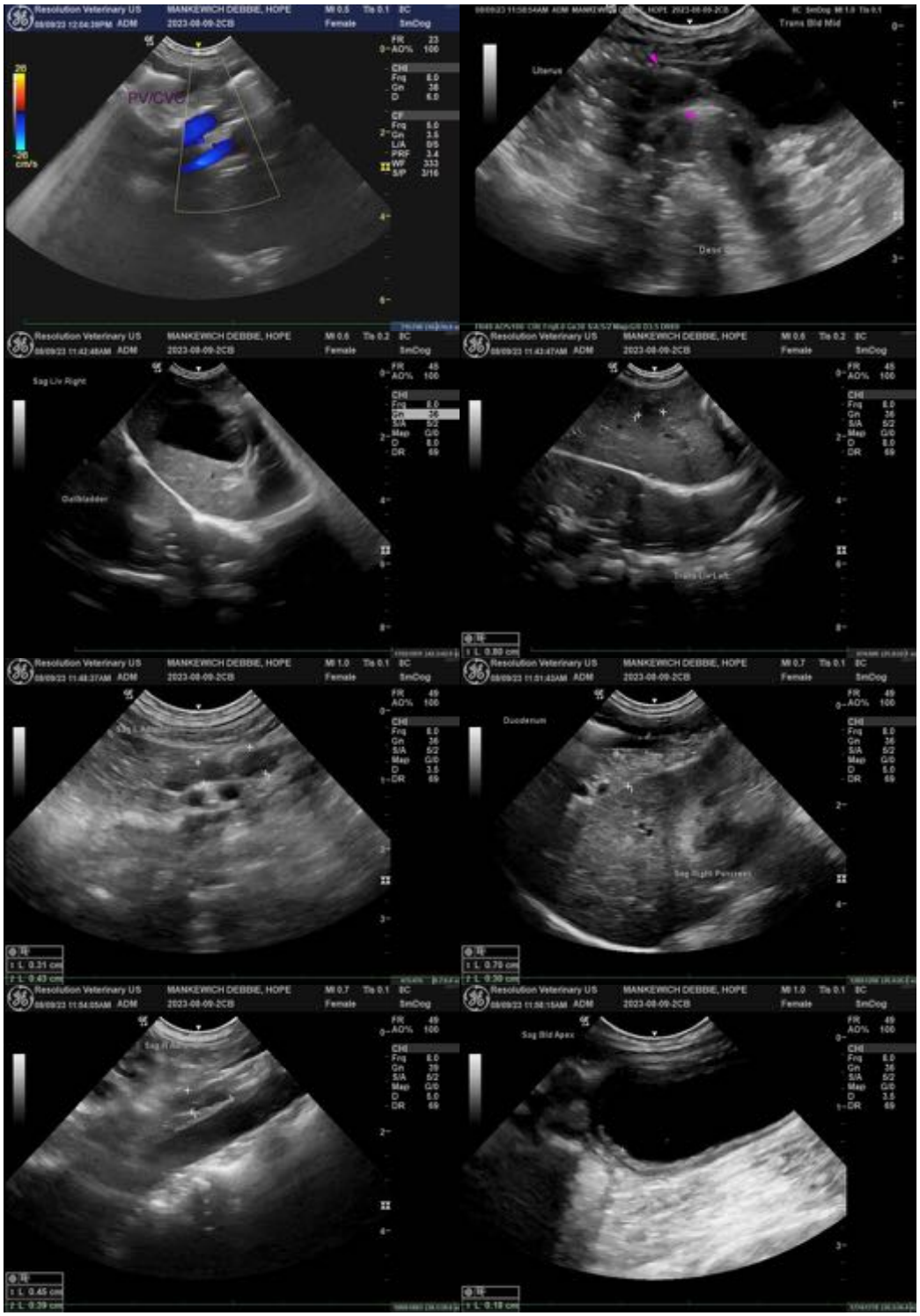

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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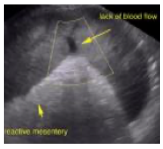
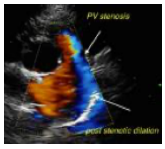
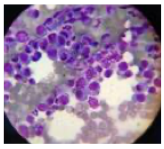
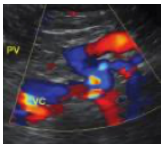

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Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance, please contact me.

Andrea Nicastro, MPH, DVM, Diplomate DACVIM (Small Animal Internal Medicine)
info@SonoPath.com