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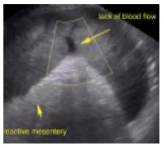
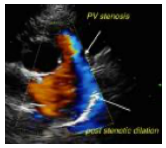
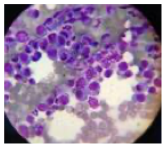
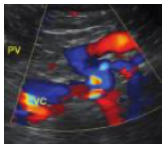
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™

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PATIENT

Pepper Marie Martinez

SPECIES

Canine

BREED

Mini Schnauzer

SEX

Spayed Female

AGE

13 years

WEIGHT

18.8 lbs

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Ferrer DVM

HOSPITAL NAME

Paseos VC

REFERRING VET

Dr Maricarmen Vega

INVOICE

12548

DATE

3.28

PRESENTING CLINICAL SIGNS

History: Presented as a referral for an abdominal ultrasound to evaluate elevated liver enzymes. Pt was recently hospitalized at rDVM due to vomiting and diarrhea. The patient stabilized after 2 days and was given Pantoprazole and metronidazole. The patient was also sent home with Denamarin. Recheck CBC in 2 weeks but hepatic values were elevated, much worse than the last bloodwork.

Abnormal PE/Chem/CBC/UA Results: PE: heart murmur (previous echocardiogram was done) BW: CHEM: BUN 30 (7-27), ALT 428 U/L , ALKP 1150 U/L CBC : wnl

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder wall is normal in thickness and the mucosal surface is smooth. The bladder is moderately distended. Luminal contents are mostly anechoic. No cystic calculi are observed. The region of the trigone is normal.

The left kidney is normal in size (5.01 cm in length) with a slightly irregular shape. The cortex is isoechoic relative to the spleen and mildly thickened with moderate loss of corticomedullary distinction. A 2.34 cm cortical cyst is observed at the medial aspect. The cyst causes slight capsular expansion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter.

The right kidney is normal in size (5.18 cm in length) with a normal shape and architecture with smooth peripheral margins. The cortex is isoechoic relative to the spleen, mildly thickened with mild to moderate loss of corticomedullary distinction. A few small cortical cysts are seen. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter.

Adrenal Glands

The left adrenal gland is borderline enlarged (0.41 cm at cranial pole) (0.56 cm at caudal pole) (1.59 cm in length) 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 (1.03 cm at cranial pole) (0.52 cm at caudal pole) (2.22 cm in length) 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 to slightly prominent in size (1.28 cm in width at the level of the hilus) with normal curvilinear peripheral contours. Numerous, ill-defined coalescing hyperechoic nodules/areas are observed throughout the organ. Splenic vasculature appears normal with no evidence of thrombosis.

Liver

The liver is subjectively prominent in size with slightly swollen peripheral contours. The parenchyma is isoechoic relative to the spleen and subtly heterogenous in appearance. No distinct focal lesions are observed. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion.

The gall bladder is distended. The wall is normal in thickness. A large amount of aggregated echogenic-to-mineralized, partially dependent sludge 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 minimally distended with fluid. 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. The colonic lumen contains granular-appearing fecal material. There is no evidence of an obstructive pattern.

Pancreas

The pancreas is normal in size with normal peripheral contours. The pancreatic duct is normal. The base and limbs of the pancreas are isoechoic to surrounding omental fat. No focal lesions are observed. There is no evidence of peripancreatic inflammation or effusion.

Free Abdomen

There is no obvious evidence of free fluid. Two to three prominent lymph nodes are observed aortic trifurcation (the largest measuring 1.40 cm in length). The nodes are normal in shape and echogenicity.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- The gall bladder changes could be consistent with cholestasis or an emerging mucocele.
- The hepatic parenchymal changes, in conjunction with the liver enzyme pattern, could be consistent with regenerative nodular hyperplasia, vacuolar hepatopathy, inflammatory disease (i.e., bacterial cholangiohepatitis, chronic hepatitis), hepatotoxicosis (i.e., copper), Leptospirosis, and/or other hepatopathy.

Secondary Findings

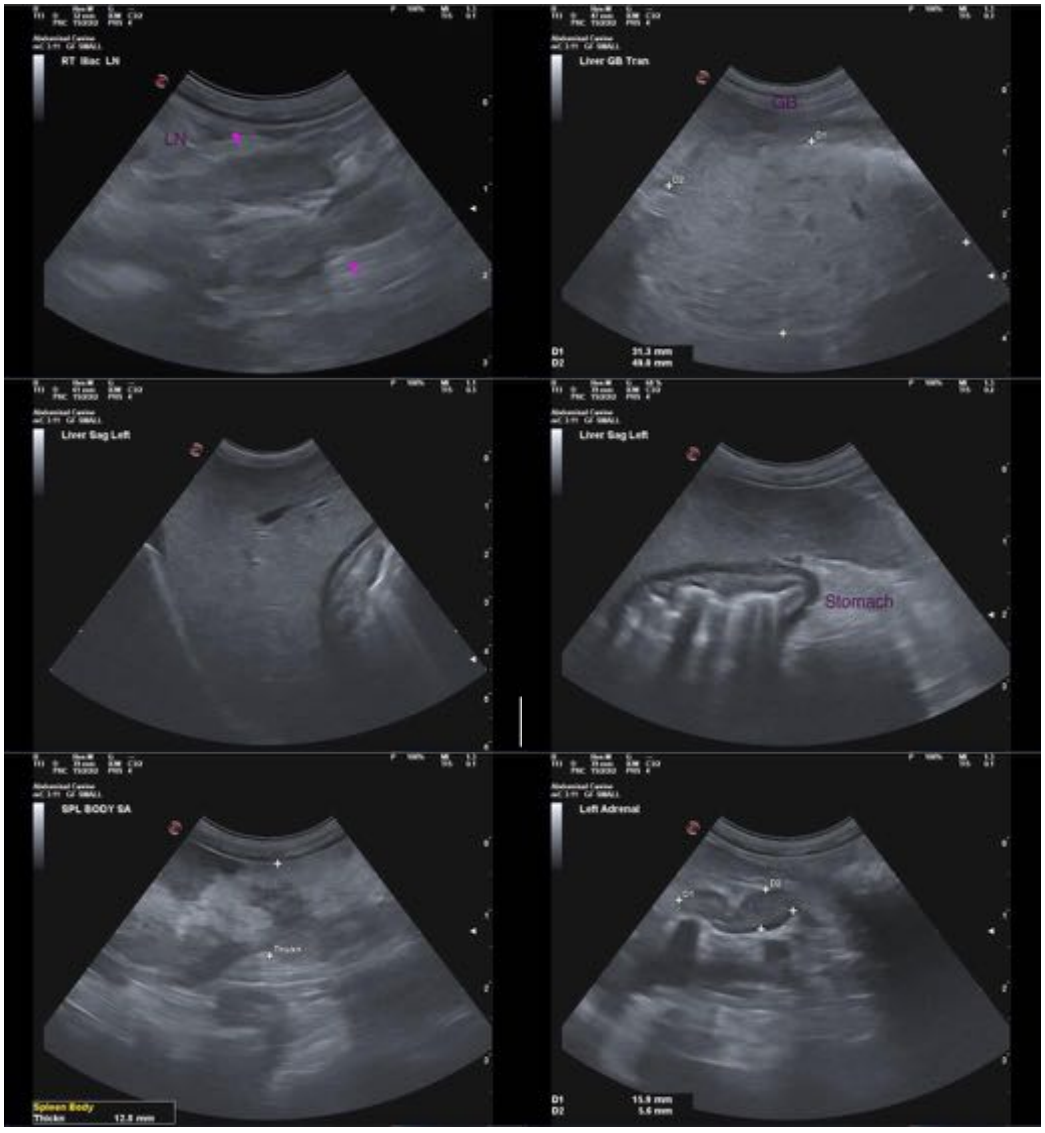
- The bilateral renal changes are most consistent with chronic interstitial nephrosis/nephritis.
- Borderline left adrenomegaly
- The hyperechoic splenic lesions trend toward the benign (i.e., myelolipomas). However, emerging neoplasia (i.e., mast cell disease) cannot be completely excluded.
- The caudal abdominal lymphadenopathy is most consistent with reactive change with a lower possibility of infiltrative neoplasia.

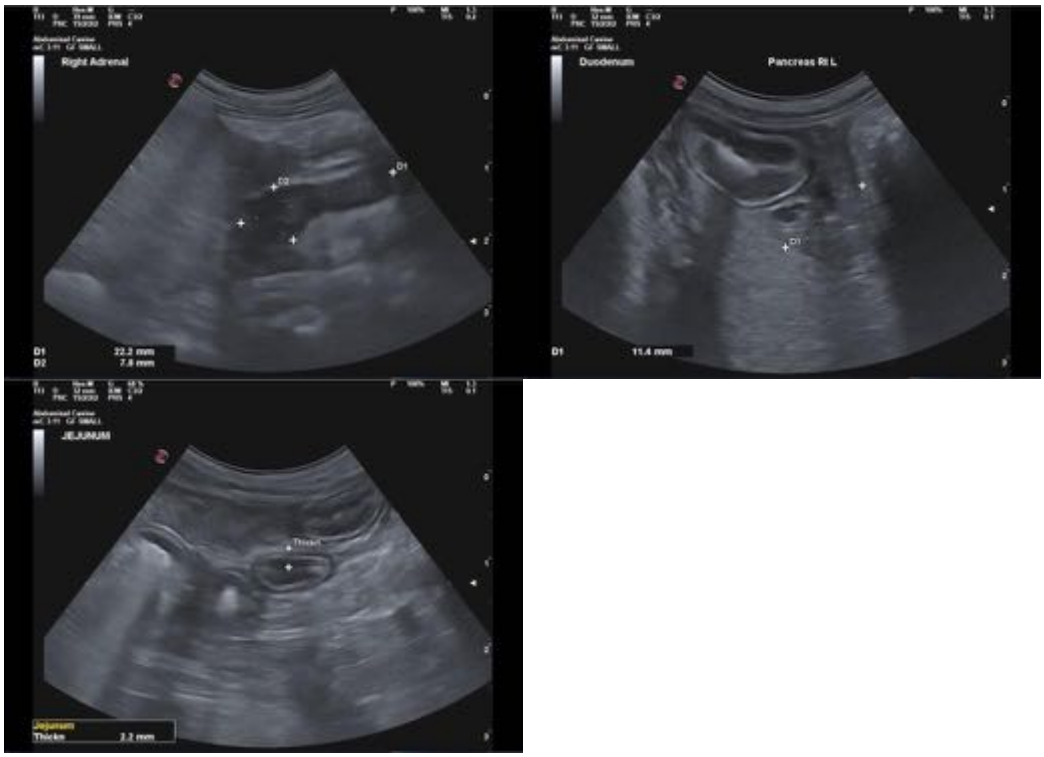
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- With regard to the liver, if an aggressive approach is desired, pre-and postprandial serum bile acids and Leptospirosis testing (i.e., blood and urine PCR, serology) is recommended. Also consider hepatic tissue sampling (i.e., fine-needle aspirate or biopsies (i.e., laparoscopic, or surgical)). If biopsies are pursued, the gall bladder should be assessed +/- removed (if a mucocele is present). Aerobic and anaerobic bile cultures should be obtained along with acquisition of additional hepatic tissue samples for potential copper quantitation.
- If a more conservative approach is desired, consider empirical treatment for cholangiohepatitis/cholecystitis/Leptospirosis 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.

- Given the gall bladder changes, Ursodeoxycholic acid (Ursodiol) is recommended. Serial sonographic monitoring (e.g., every 6-8 weeks) of the gall bladder is recommended to assess for progression to a fully formed mucocele. If progression occurs, a cholecystectomy may be warranted.





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, MPH, DVM, Diplomate DACVIM (Small Animal Internal Medicine)
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