



PATIENT PRESENTING CLINICAL SIGNS

Mika Eguia

History: Elevated liver enzymes.
Abnormal PE/Chem/CBC/UA Results: AP 443, ALT 505, AST 70.

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

BREED

Puggle

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 mostly 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.

SEX

Spayed Female

The left kidney is normal size (4.46 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

AGE

13 years

One still image of the right kidney is available for interpretation. The right kidney is normal size (5.44 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal loss of corticomedullary distinction. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter.

WEIGHT

27 lbs

Adrenal Glands

The left adrenal gland is normal size (0.65 cm at cranial pole) (0.67 cm at caudal pole) (1.82 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 enlarged (1.99 cm at cranial pole) (1.14 cm at caudal pole) (2.71 cm in length); with an irregular shape; homogenous parenchyma. A 1.91 x 1.76 cm ill-defined hyperechoic to heterogenous mass effect is observed at the cranial to mid aspect. The lesion causes capsular expansion. The parenchyma is also heterogenous at the caudal pole, with loss of glandular detail. There is no obvious evidence of vascular invasion.

INTERPRETED BY

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

IMAGING PERFORMED BY

Kelly Vazequez

HOSPITAL NAME

Animal General on the
Hudson

REFERRING VET

Dr. Zelinski

Spleen

The spleen is subjectively prominent in size (1.26 cm in width at the level of the hilus) with irregular peripheral contours. A 2.60 x 2.22 cm heterogenous mass with hyperechoic areas is observed at the medial aspect, just proximal to the hilus. The lesion causes capsular expansion. In addition, a 1.31 x 1.00 hyperechoic nodule is observed at the caudal lateral aspect. This lesion also causes capsular expansion. In the remainder of the spleen, ill-defined hyper- and hypoechoic areas are noted. Splenic vasculature is normal with no evidence of thrombosis.

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Liver

The liver is subjectively prominent in size with slightly swollen peripheral contours. The parenchyma is isoechoic relative to the spleen and diffusely mottled in appearance with numerous varying sized ill-defined hypoechoic nodules throughout the organ. The parenchyma is also subtly heterogenous in

DATE

2/16/22



PATIENT

appearance. Hepatic vasculature and intrahepatic biliary tracts are of normal volume with no evidence of congestion.

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The gall bladder lumen is moderately distended. The wall is thin and smooth. A small to moderate amount of aggregated echogenic partially dependent debris/sludge is observed within the lumen. The cystic and common bile ducts are normal.

Canine

BREED

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 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 or overt infiltrative disease is noted.

Puggle

SEX

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.

Spayed Female

AGE

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WEIGHT

Free Abdomen

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

27 lbs

Other

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

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ULTRASONOGRAPHIC FINDINGS

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Primary Findings

Kelly Vazequez

- Non-specific diffuse hepatopathy. Differentials include inflammatory disease (i.e., bacterial cholangiohepatitis, chronic hepatitis), hepatic toxicosis (i.e, copper), Leptospirosis, infiltrative neoplasia (i.e., lymphoma), +/- concurrent age-related change (i.e., regenerative nodular hyperplasia and/or vacuolar hepatopathy).
- Gall bladder debris, non-mucocele.
- Right adrenal mass effect. Differentials include a benign process such as nodular hyperplasia, versus neoplasia (i.e., adenoma, adenocarcinoma, pheochromocytoma).
- The splenic mass could be consistent with a benign process (i.e., myelolipoma). Alternatively, a more pathologic process such as a sarcoma, may be present. The diffuse splenic changes trend toward the benign with a lower possibility of emerging neoplasia

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Secondary Findings

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

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- Minor age-related renal changes

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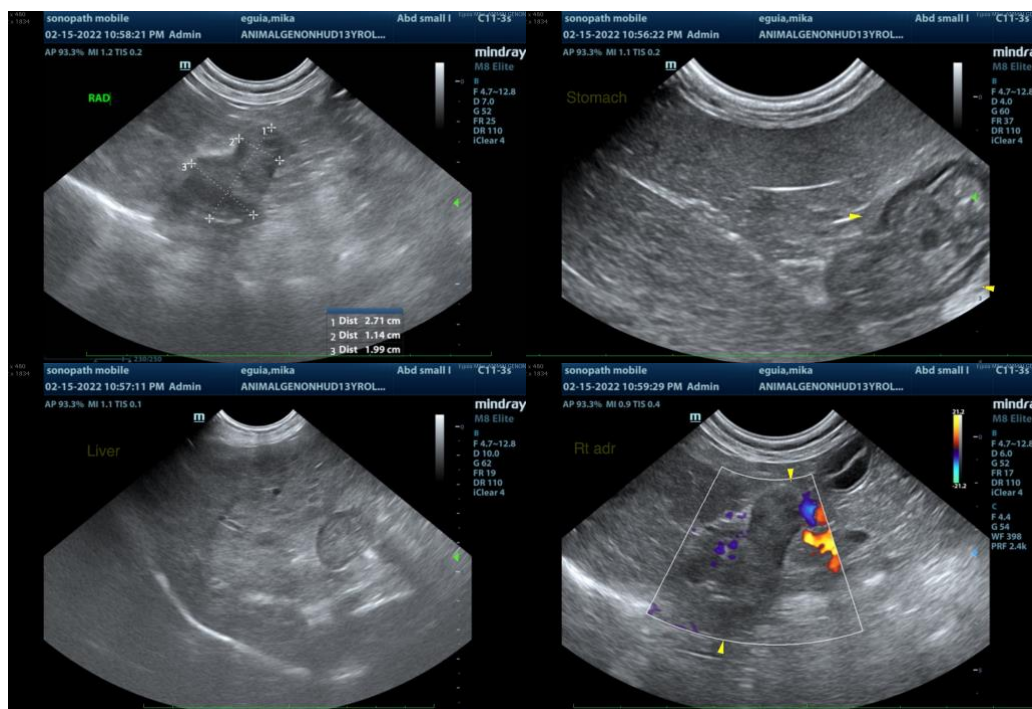
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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Three-view thoracic radiographs are recommended to assess for pulmonary metastases.
- To further investigate the hepatic pathology, hepatic tissue sampling (i.e., fine-needle aspirate or surgical biopsy) would be necessary). Surgical biopsy would be ideal, as fine-needle aspirates may not be representative of global organ pathology. If surgery is pursued, aerobic and anaerobic bile cultures and acquisition of additional hepatic tissue sampling for possible copper quantitation should be obtained.
- If a more conservative approach is desired, consider empirical treatment for bacterial cholangiohepatitis (i.e., broad-spectrum antibiotic, hepatic antioxidants). If no improvement in the liver values is seen within 5-7 days of initiating therapy, antibiotics should be discontinued, and hepatic tissue sampling revisited.
- Also consider Leptospirosis testing (i.e., blood and urine PCR, serology)
- To further investigate the right adrenal mass, consider the following:
 1. Baseline blood pressure measurement
 2. Further testing to assess for a functional tumor (i.e., low-dose dexamethasone suppression test, urine/blood catecholamine levels).
 3. Three-view thoracic radiographs are also recommended to assess for pulmonary metastatic disease.





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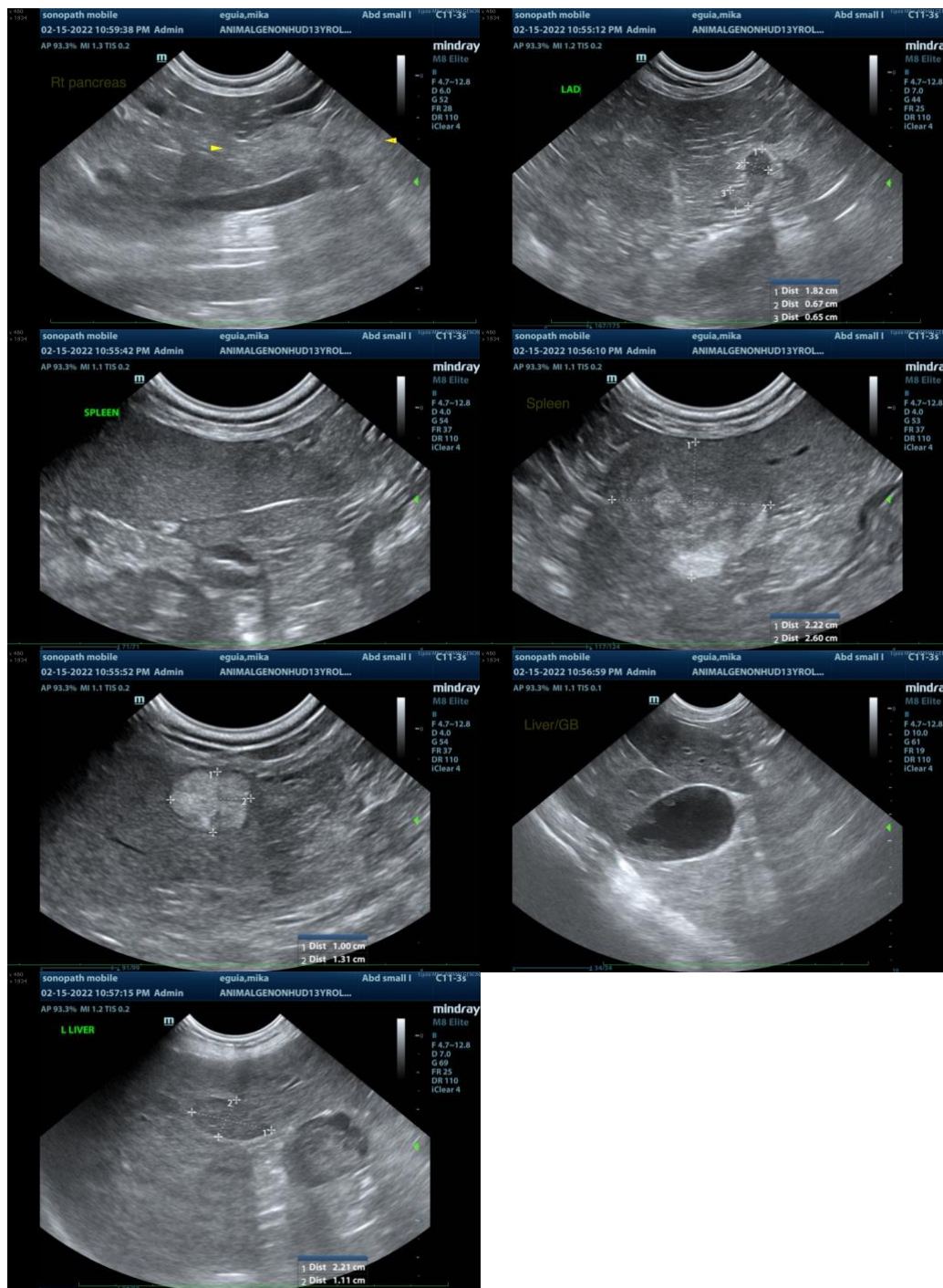
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.



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