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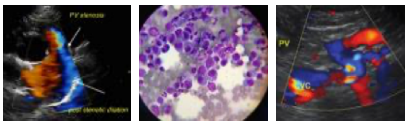
IntraPet.com



SonoPath
Clinical Sonography & Telecytology
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DATE

7/19/22

PATIENT

Rufus Koch

SPECIES

Canine

BREED

Shih Tzu

SEX

Male, neutered

AGE

5/3/2010

WEIGHT

34.5 lbs.

INTERPRETED BY

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

HOSPITAL NAME

Festival VC

REFERRING VET

Dr. Harvey

INVOICE

13750

PRESENTING CLINICAL SIGNS

Presented 7/1/22 for progressive discomfort, night time restlessness, exercise intolerance. Rechecked BW- ALT, AST, ALP further increased since last BW in June of 2021. ALP was 3897 in 6/21, now 5756. Discussed neoplasia vs Cushing's vs other liver disease. Discussed LDDST v recheck AUS. O would like to proceed with rechecking AUS. P does seem more comfortable on gabapentin prescribed at this visit.

Current Medications: Gabapentin 100mg 2 BID.
Lab Results: First AUS on 7/14/21 at previous DVM due to history of "very elevated ALKP". 7/14/21 AUS results: Diagnostic impression:
1) Hyperechoic left sided liver mass with smaller similar appearing nodule nearby. Differentials include primary hepatocellular carcinoma or hepatomas. The size and imaging characteristics are not typical for nodular hyperplasia. 2) Mild, generalized hyperechoic hepatomegaly suspicious for an endocrine hepatopathy. 3) Prior, chronic or impending pancreatitis. 4) Mild chronic renal disease. Recommendations: These sorts of masses in the liver tend to be slow growing. Without biopsies, we cannot determine if the mass is definitively malignant or benign. Options include: going to surgery to remove the masses, rechecking an ultrasound in 3-6 months to assess for change, making an appointment with the oncology service to discuss palliative care, doing nothing but keeping Rufus comfortable and consider liver protective medications. As we discussed, even though his adrenal glands are normal on ultrasound, that does not preclude that he could have some small, very active cells that I cannot see. Given that the rest of his liver does resemble that of a Cushingoid dog, it would be quite reasonable to consider testing him for Cushing's disease. Evaluated at Blue Pearl in Langhorne, PA with recheck AUS on 11/5/21- Rufus' ultrasound today showed that his liver mass is slightly bigger (about 1cm in multiple directions) and the nodule perhaps is about the same but it's always hard to measure a 3D structure on ultrasound by 2 different ultrasonographers and compare the measurements. Overall, there has not been major progression. As we discussed, while these tumors are sizable for Rufus' body size they are probably not big enough to be causing him symptoms at the moment. Which means if you are noticing any issues at home it may be unrelated or from something else.
Date of Previous IntraPet Ultrasound: No previous.

Sedation: IV Butorphanol 10 mg/ml- 0.3 ml.

Stat Report: Not requested.
Imaging Performed By: Rachel Brilhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder wall is 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 (0.75 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 (5.76 cm in length) with a normal shape and smooth peripheral contours. There is a normal 1:3 cortex to medulla ratio and mild to moderate loss of corticomedullary distinction. The cortex itself is mildly heterogeneous. A few small non-obstructive nephroliths are seen. A few small cortical cysts are seen along with pinpoint hyperechoic foci within the cortex. There is no evidence of pyelectasia, infarcts or hydroureter. Renal vasculature is normal.

The right kidney is normal size (5.96 cm in length) with a normal shape and smooth peripheral contours. There is a normal 1:3 cortex to medulla ratio and mild to moderate loss of corticomedullary distinction. The

cortex itself is mildly heterogeneous. Hyperechoic shadowing diverticular foci are visualized. A few small non-obstructive nephroliths are seen. Trace pyelectasia is present. There is no evidence of infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is borderline enlarged (0.70 cm at cranial pole) (0.71 cm at caudal pole) (2.75 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 (0.88 cm at cranial pole) (0.51 cm at caudal pole) (2.87 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.

Spleen

The spleen is normal in size (1.43 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 enlarged with irregular peripheral contours. A >13 cm irregular heterogeneous vascular cavitated mass is arising from the left side. The mass extends into the cranial/mid-abdominal region. The remaining hepatic parenchyma is mottled in appearance. Vascular and biliary tracts are of normal volume with no evidence of congestion. The gall bladder lumen is moderately distended. The wall is thin and smooth. Luminal contents are anechoic. 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 of the pancreas is visible with normal curvilinear peripheral contours. The parenchyma is largely isoechoic 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. The mesentery effacing the serosal surface is mildly hyperechoic.

Free Abdomen

There is no obvious evidence of free fluid.

Lymph Node

See *Other*

Other

A brief echocardiogram reveals no evidence of pericardial effusion.

2 hypoechoic nodules, one measuring 0.77 cm, the other measuring 0.70 cm are observed in the right cranial quadrant.

ULTRASONOGRAPHIC FINDINGS

Primary Findings:

- Large hepatic mass with extension into the mid-abdominal region. Neoplasia (i.e., adenocarcinoma, adenoma) is suspected with a lower possibility of benign pathology. The diffuse hepatic parenchymal changes are non-specific and could be secondary to benign age-related process (i.e., vacuolar hepatopathy, regenerative nodular hyperplasia and/or age-related remodeling). However, metastatic disease cannot be completely excluded.

- The origin of the nodules in the right cranial quadrant is unclear. They may be arising from mesentery, lymph node, pancreas, other. Possible causes include metastatic disease, reactive lymph nodes, benign nodular hyperplasia of the pancreas, other.

Secondary Findings:

- The pancreatic changes are consistent with age-related remodeling +/- low-grade chronic pancreatitis.

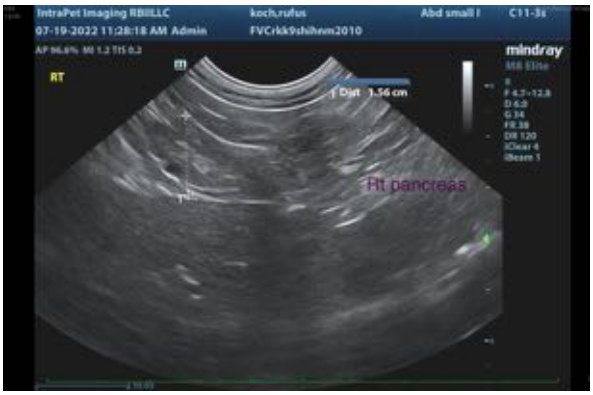
- Bilateral chronic age-related renal changes with dystrophic mineralization and non-obstructive nephrolithiasis.

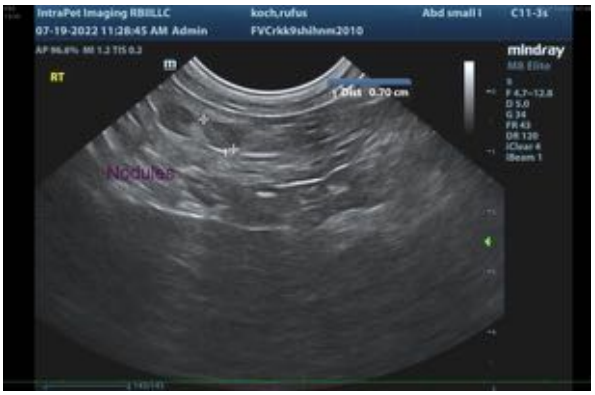
- Borderline left adrenomegaly. This may be a normal variant for this patient or may represent early hyperplastic change.

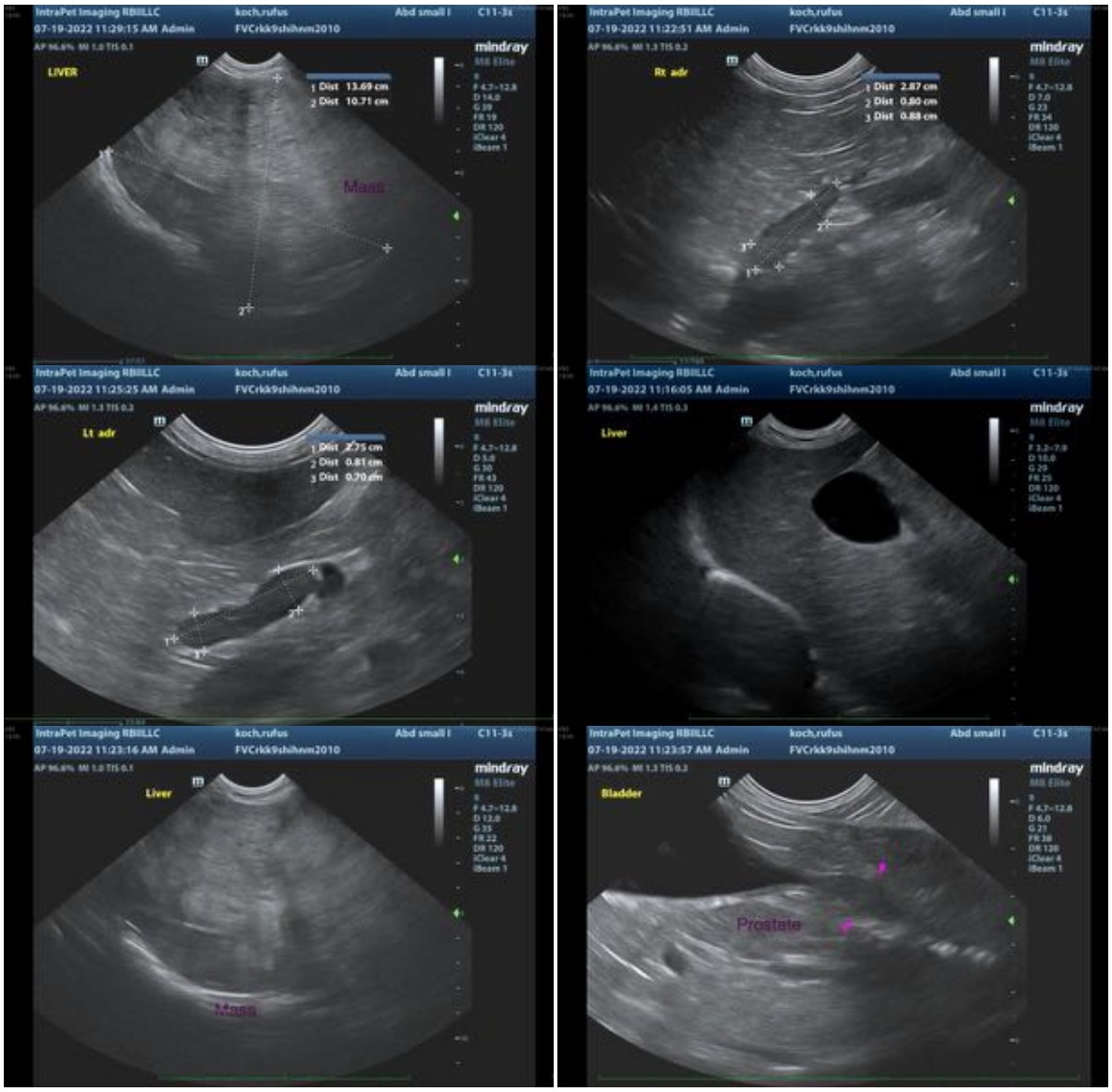
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

- Three-view thoracic radiographs are recommended to assess for pulmonary metastases.

- If an aggressive approach is desired, consider referral to a board-certified surgeon to discuss mass removal or debulking. An abdominal CT scan would be useful in pre-surgical planning. Otherwise, palliative/symptomatic care is recommended.







The information and recommendations provided are based on the images presented by the referring veterinarian. 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 ACVIM (*Small Animal Internal Medicine*)
Andrea.nicastro@sonopath.com