



**PATIENT PRESENTING CLINICAL SIGNS**

Hope Rich Polyuria. Rads- no stones seen. Current meds: carprofen, amoxi

**SPECIES** Abnormal PE/Chem/CBC/UA Results: Ca<sup>2+</sup> 12.1, ALT 127, ALP 317, GGT 15 UA: 3+ blood, 4+ epithelial cells w/ atypic SG: 1.011

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**BREED** *Urinary System*

Pit

The urinary bladder is adequately distended with the lumen almost entirely taken up by an approximately 2.0 cm x 5.0 cm heterogeneous, mineralized, vascular mass that appears to originate from the apex on the ventral wall. The mass does not appear to affect the trigone.

**SEX**

Spayed Female

The right kidney is normal in size (6.35 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia or infarcts observed. Non-obstructive areas of mineralization/nephroliths are noted.

**AGE**

12 Years

The left kidney is normal in size (6.07 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia or infarcts observed. Non-obstructive areas of mineralization/nephroliths are noted. A chronic infarct is noted in the left kidney.

**WEIGHT**

45 Pounds

**Adrenal Glands**

The right adrenal gland is normal in size (2.36 cm long x 1.7 cm at the cranial pole and 1.0 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**INTERPRETED BY**

Beth Johnson, DVM  
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The left adrenal gland is normal in size (2.8 cm long x 0.73 cm at the cranial pole and 0.75 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**IMAGING PERFORMED BY**

Jessica Miller

**Spleen**

The spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). An approximately 1.0 cm round, hypoechoic nodule is noted in the mid body, non-capsule disrupting. Splenic vasculature appears normal.

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**Liver**

Liver is subjectively enlarged with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Visible vasculature and biliary tree appear normal without distension or congestion.

**REFERRING VET**

Dr. Summens

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Gallbladder is moderately distended with anechoic bile as well as suspended and gravity dependent echogenic debris. The wall is smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion or inflammation.

**Gastrointestinal**

**DATE**

10/19/22

The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.



**PATIENT**

Hope Rich

The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

**SPECIES**

Canine

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

**Pancreas**

**BREED**

Pit

The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

**SEX**

Spayed Female

**Free Abdomen**

There is no evidence of free peritoneal effusion noted in these images.

There is no apparent lymphadenopathy noted in these images.

**AGE**

12 Years

**PRIMARY FINDINGS**

**WEIGHT**

45 Pounds

- **Urinary bladder mass** – Urinary bladder wall changes are most concerning for infiltrative neoplasia such as transitional cell carcinoma vs other. Benign inflammatory disease (cystitis) cannot be ruled out but is considered less likely. Given this patient’s reported hypercalcemia, an uncommon/atypical bladder mass such as a leiomyoma or leiomyosarcoma that more commonly causes hypercalcemia could also be considered.
- **Heterogenous Liver** – These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.
- **Hypo to anechoic splenic nodule** – likely represents a benign lesion such as a cyst, hematoma, nodular hyperplasia, extramedullary hematopoiesis, etc., however while considered less likely, infiltrative neoplasia can mimic benign lesions, and cannot be ruled out.

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**SECONDARY FINDINGS**

- **Gallbladder debris** - Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness. Cholecystic debris is not necessarily related to hepatobiliary disease. Echogenic bile is most commonly an incidental finding in dogs and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.
- Non-obstructive nephrolithiasis bilaterally in the kidneys, as well as an infarct in the left kidney

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

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Further evaluation of this patient’s hypercalcemia is recommended in the form of a malignancy panel to include PTH, PTHrP, and ionized calcium.

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Urinalysis and urine culture, if indicated based on urinalysis results, are recommended. Submission of urine to look for BRAF gene mutation, which is associated with urinary bladder cancer, could be considered. Other diagnostic options include traumatic catheterization, fine needle aspirate (with small risk of tumor seeding/trailing) or cystoscopy for further sampling. If the BRAF is negative, especially if



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the malignancy panel is suggestive of hypercalcemia of malignancy, a fine needle aspirate of the bladder mass would be warranted.

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Three view thoracic radiographs are recommended for further assessment of cardio-pulmonary status as well as to further evaluate for any evidence of metastatic disease, if not recently evaluated.

**BREED**

Pit

Additionally, especially if the malignancy panel is suggestive of hypercalcemia of malignancy, while the spleen and liver lesions both trend towards the benign, fine needle aspirates of those nodules could also be considered.

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Spayed Female

Additionally, a rectal exam and peripheral lymph node exam, if not already evaluated, is recommended to look for other sources of possible hypercalcemia of malignancy.

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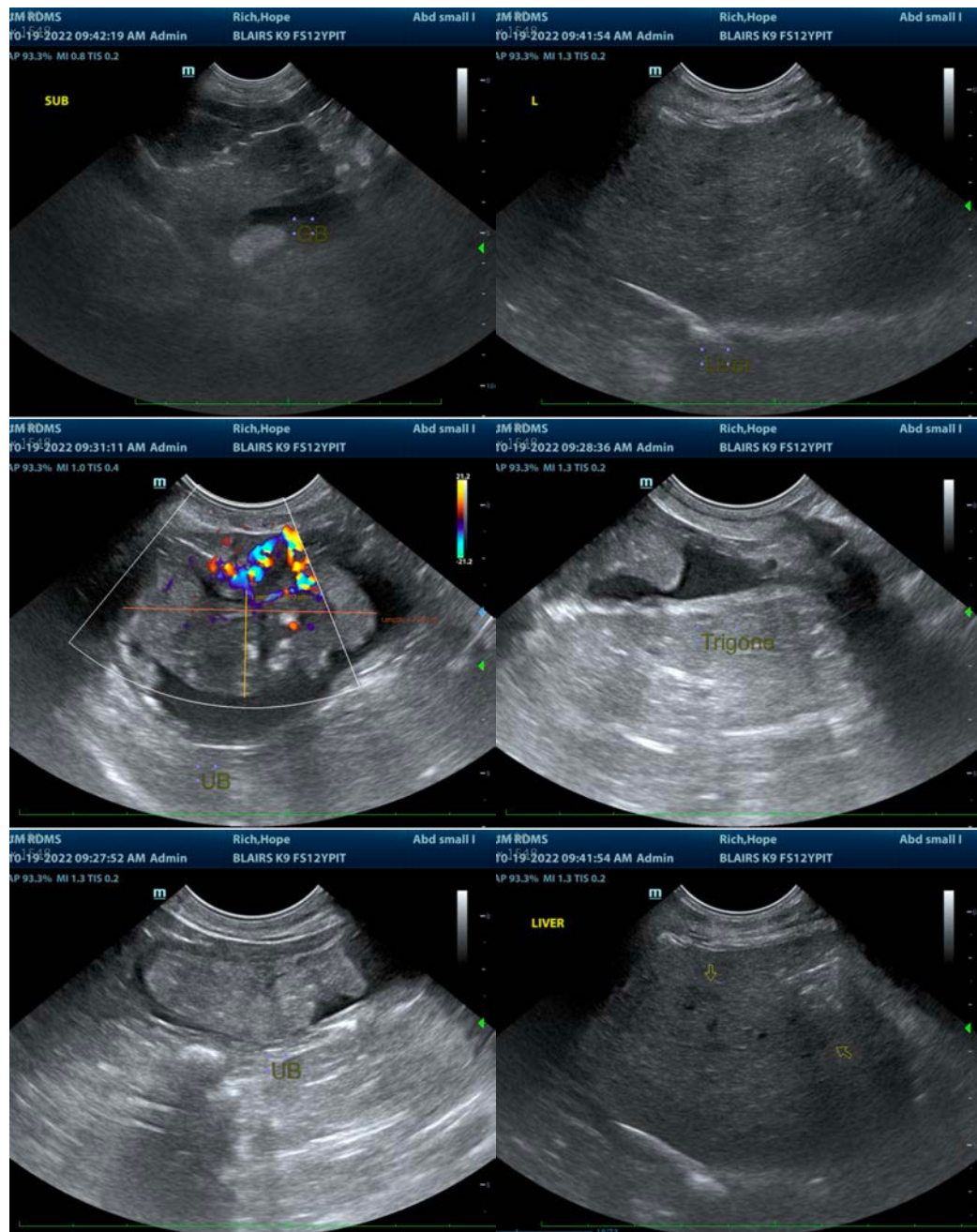
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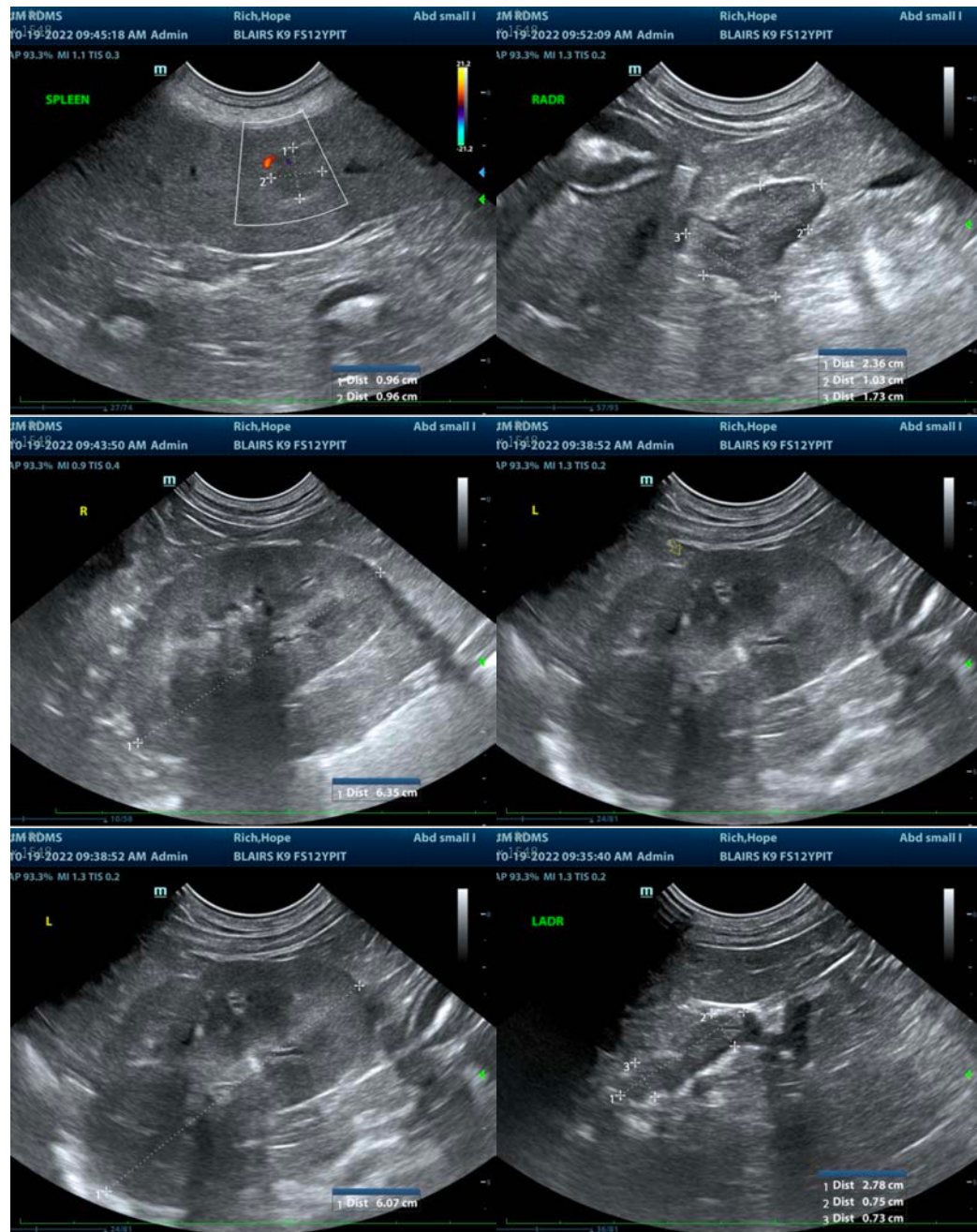
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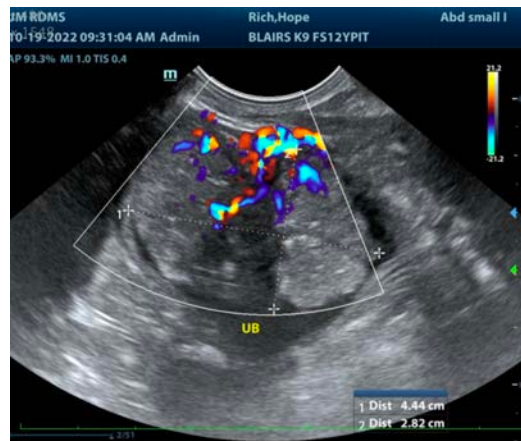
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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