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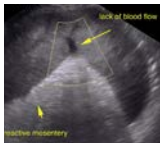
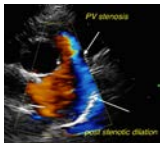
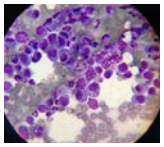
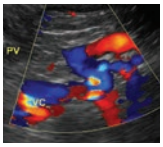

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1-800-838-4268 info@sonopath.com

PATIENT

Toby Rivera

SPECIES

Canine

BREED

Chihuahua

SEX

Neutered Male

AGE

13 Years

WEIGHT

8.2 Pounds

INTERPRETED BY

Kathleen Sennello DVM, MS, Diplomate ACVIM (Small Animal Internal Medicine)

IMAGING PERFORMED BY

Jessica Miller

HOSPITAL NAME

Companion AH

REFERRING VET

Dr. Wolf

INVOICE

44541

DATE

1/26/23

PRESENTING CLINICAL SIGNS

Recheck compared to previous U/S by different company. Cancer of prostate, bladder, adrenal glands.

Abnormal PE/Chem/CBC/UA Results: Alk Phos 347, SDMA 21.4, Na 155, K 5.6, Amylase 1377, PrecPSL 696, Neuts 10800, Mono 1200

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, or masses. There is a large shadowing focal structure in the dependent portion of the urinary bladder measuring 1.99 cm x 1.6 cm, most consistent with a large focal calculus.

The prostate is large (1.4 cm) and slightly cystic with primarily smooth external margins. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

The left kidney has a normal shape and size (4.85 cm) with significant pyelectasia at 0.92 cm and an intrapelvic stone measuring 0.69 cm. Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (3.39 cm) with a large suspected intrapelvic stone measuring 1.4 cm in diameter. Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of focal perinephric inflammation or effusion. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is large and irregular, measuring 2.93 cm at the cranial pole, 1.02 cm at the caudal pole, and 4.59 cm in length. It is observed in its normal position cranial to the left renal artery. It is abnormal in appearance in that it is generally enlarged, and the cranial pole has a focal hyperechoic mass effect measuring 2.93 cm x 3.7 cm. Findings are consistent with a left adrenal mass. There is obvious invasion/mass effect within the caudal vena cava. This could be arising from either adrenal. I suspect this is arising from the right adrenal gland.

The right adrenal gland is large and irregular, measuring 1.92 cm at the cranial pole, 1.84 cm at the caudal pole, and 2.63 cm in length. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is abnormal in appearance in that it is irregular and hypoechoic. Additionally, there is concern for possible vascular invasion, as there is a large space occupying mass effect within the vena cava measuring at least 3.49 cm x 1.17 cm but is suspected to extending more cranially into the liver. This is most consistent with vascular invasion and suspected to be arising from the right adrenal, but the left cannot be excluded as a possibility due to the close proximity.

Spleen

The spleen is subjectively normal in size. The spleen echotexture is heterogenous and mildly mottled, the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. There is a small, ill-defined, slightly hyperechoic “bulge”/nodule near the hilus measuring 0.80 cm. This could be consistent with a myelolipoma or hyperechoic nodule.

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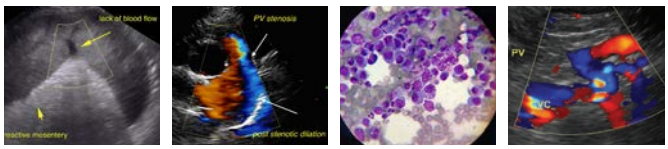

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Liver

The liver is subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

The gall bladder lumen is significantly distended. Some areas of the wall appear mildly thickened with adherent debris. There is a large amount of primarily non-organized echogenic debris. There is no evidence of bile duct dilation.

Gastrointestinal

The stomach contains minimal luminal contents. It measures at a normal thickness of <0.7cm with some variability due to the presence of rugal folds. The distinction of the gastric wall layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Duodenum wall measures 0.44 cm. Jejunum wall measures 0.30 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

Pancreas

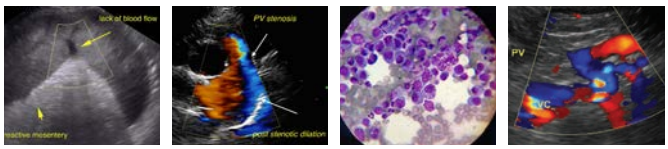
The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

Free Abdomen

Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

PRIMARY FINDINGS

- Large cystic calculus noted in the urinary bladder – Recommend urinalysis and culture, correlate with abdominal radiographs.
- Decreased corticomedullary distinction in both kidneys with significant left-sided pyelectasia and bilateral intrapelvic calculi – The bilateral renal findings are consistent with age-related change. There is concern that these nephroliths could be somewhat obstructive, particularly in the left kidney. Recommend a blood pressure, urinalysis, culture, radiographs, and continued monitoring with ultrasound.
- Large, heterogeneous liver – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.
- Large gallbladder debris – A large amount of debris is evident in the gall bladder with no evidence of a mucocele or associated inflammation at this time. This could represent an early mucocele or cholestasis, with minimal evidence of associated inflammation at this time.



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Continued monitoring of lab work and ultrasound are warranted for progression of this lesion. Ursodiol therapy could be considered.

- Large, slightly cystic prostate – The prostate is large and irregular for a neutered male dog. If this dog was neutered after puberty and had preexisting prostatic disease, this could be a benign finding. If this pet was neutered prior to puberty, then recommend a fine needle aspirate, as prostatic neoplasia cannot be ruled out.

- Bilateral adrenal masses with invasion of the caudal vena cava – Possible differentials would include hyperplasia, carcinoma, pheochromocytoma, other. This could represent bilateral (metastatic) disease, or these could be unrelated mass lesions. It is difficult to determine the source of the vascular invasion, but I suspect it is the right adrenal.

SECONDARY FINDINGS

- Mildly mottled spleen with subtle hyperechoic nodule – The diffuse splenic changes are non-specific and could be consistent with lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis. The hyperechoic nodule near the hilus is most consistent with a myelolipoma, but continued monitoring is warranted.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There are large stones visible in the urinary bladder and both kidneys. The kidneys have decreased corticomedullary distinction, and there is the possibility of some obstructive process going on (partial obstruction). Recommend correlating with abdominal radiographs, urinalysis, culture, blood pressure, etc., and continuing to monitor the kidneys for further evidence of obstructive disease.

The appearance of the adrenals is very concerning. They are both large and irregular. This could represent bilateral disease (metastatic disease) or could represent two separate disease processes. At least one of these lesions is strongly suspected to be aggressive based on the local invasion into the vena cava, which is extensive. I suspect this is arising from the right adrenal, but the proximity of both masses makes it difficult to clearly visualize.

If additional therapy would be considered, then consider a contrast CT scan of the abdomen to better visualize the extent of vascular invasion and mass lesions, as well as looking for evidence of metastatic disease. Surgery in this situation would be very challenging, even in a university setting based on the likely need for bilateral adrenalectomy and surgery to remove the vascular invasion. Recommend a blood pressure evaluation and 3-view thoracic radiographs.

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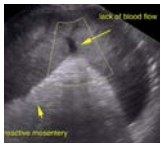
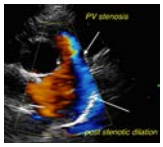
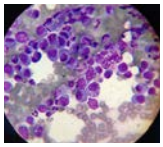
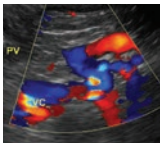

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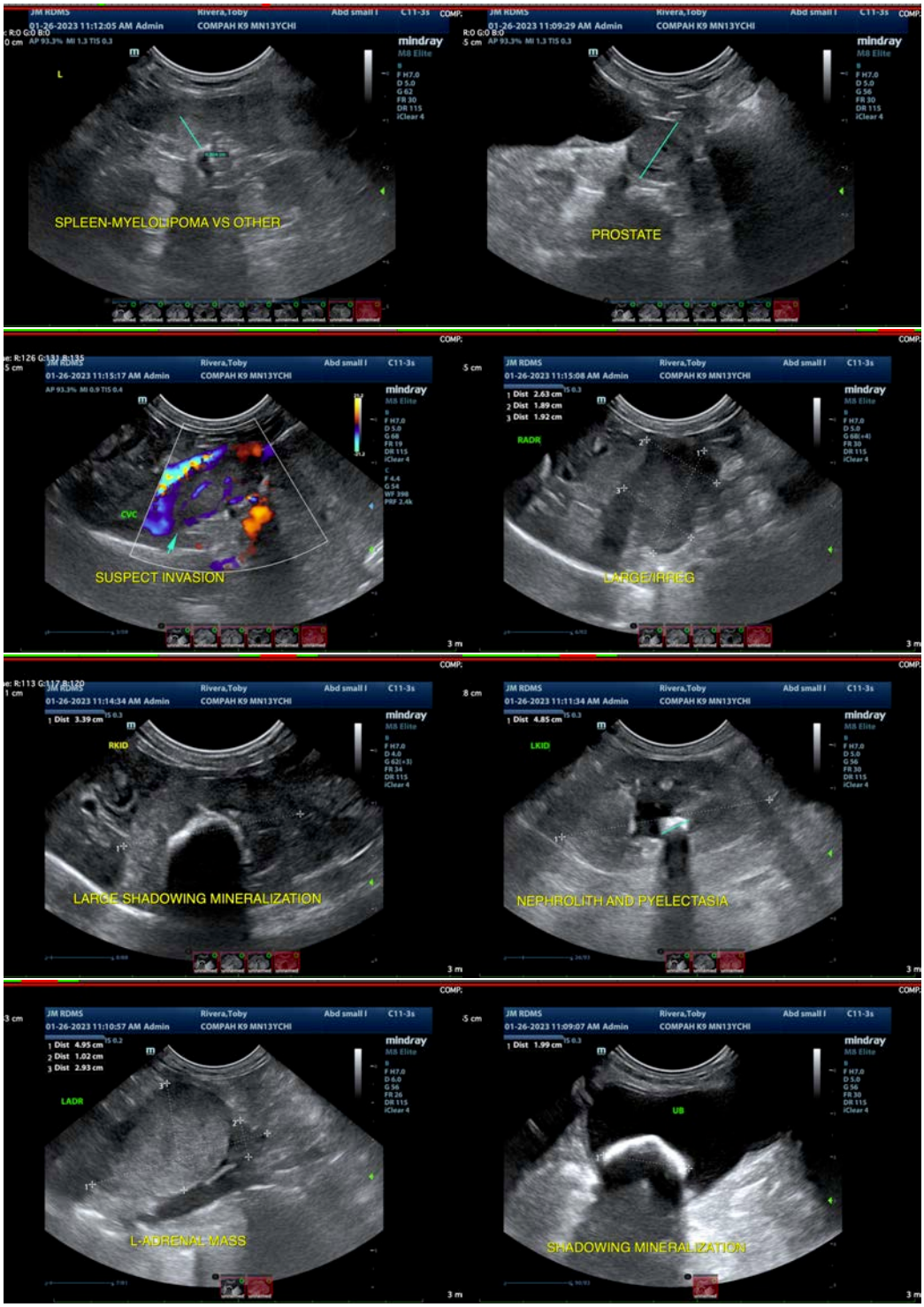

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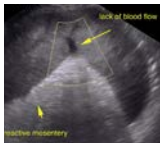
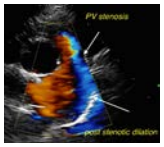
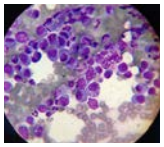
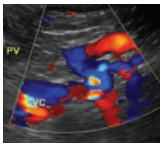

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Kathleen Sennello DVM,MS, Diplomate ACVIM (Small animal Internal Medicine)

kathleen.sennello@sonopath.com