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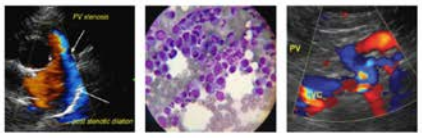

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PATIENT

Buttons Bowles

SPECIES

Canine

BREED

Chihuahua

SEX

Spayed Female

AGE

10 Years 8 Months

WEIGHT

9.9 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Rachel Runnells, RVT

HOSPITAL NAME

SVS Imaging KC

REFERRING VET

Dr. Elizabeth Wilcox

INVOICE

41499

DATE

9/21/22

PRESENTING CLINICAL SIGNS

Bloated abdomen with elevated liver values.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall appears mildly thickened and irregular, measuring at 0.32 cm. In some areas there are very small mineralizations/calculi that appear non-mobile and could be consistent with embedded calculi. Two of these lesions measure at 0.19 cm and 0.11 cm. The area of the trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear free of any mass lesions.

The left kidney has a normal shape and size (4.44 cm) with mild pyelectasia at 0.20 cm and small renal mineralizations. 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 (4.39 cm) with mild pyelectasia at 0.16 cm and small pinpoint mineralizations. 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.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.59 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

The right adrenal gland is large and irregular in shape, measuring 0.56 cm at the cranial pole, 0.49 cm at the caudal pole, and approximately 1.5 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 there is a mass lesion extending off the caudal pole, measuring approximately 1.55 cm x 0.76 cm. No evidence of vascular invasion is seen.

Spleen

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. No focal parenchymal abnormalities are visualized.

Liver

The liver is large in size, and normal in 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. There is an isoechoic bulging mass lesion/nodule visualized near the gallbladder.

The gall bladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. There is a moderate amount of non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

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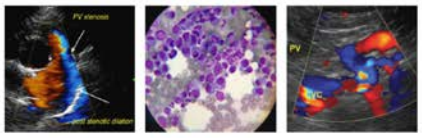

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Gastrointestinal

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. The duodenum measured as normal (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.) 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.

ULTRASONOGRAPHIC FINDINGS

- Irregular urinary bladder wall with mineralizations – Recommend urinalysis and culture and continued monitoring.
- Decreased corticomedullary distinction in both kidneys with mineralizations and mild pyelectasia – The bilateral renal findings are consistent with age-related change. Pyelectasia of the kidney(s)could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.
- Large, heterogeneous liver with ill-defined isoechoic nodule – 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. The significance of the isoechoic bulging area adjacent to the gallbladder is uncertain. Recommend continued monitoring.
- The significance of the aggregated gallbladder debris is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting but seems unlikely to be causing a current issue. Recommend continued monitoring.
- Mass effect extending from the caudal pole of the right adrenal gland – Right adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is an irregular mass effect extending off the caudal pole of the right adrenal gland. These lesions can be benign or malignant and can secrete hormones or be non-active. These are recommendations for

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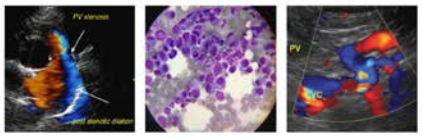

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further evaluation of the adrenal lesion:

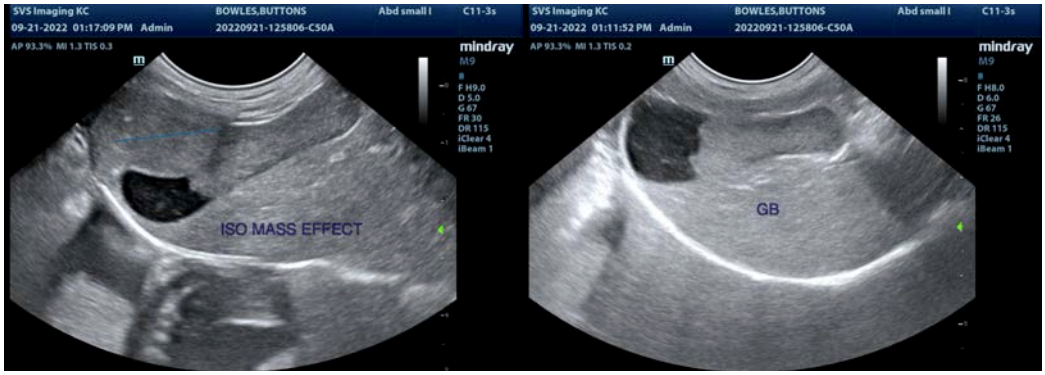
- If signs of cushings are present, consider adrenal function testing. I prefer an ACTH stimulation test combined with an adrenal panel to the University of Tennessee's endocrine lab to look for atypical adrenal hormones as well as cortisol. (other testing can suffice)
- If adrenal dependent cushings is suspected and supported by adrenal function testing consider medical therapy with lysodren or trilostane and/or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)-This can be a challenging surgery with significant risk for complication
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma
- Due to the invasive nature of these masses a CT scan is recommended to evaluate for metastasis and vascular invasion.
- If no symptoms of cushings are present, consider either referral for surgery or if surgery is not an option consultation with a veterinary oncologist regarding chemotherapeutic options and continued monitoring with ultrasound (in 4-6 weeks) can be considered.
- Some aggressive adrenal tumors can grow quickly and there is risk for acute hemorrhage from vascular invasion.

The liver is large and heterogeneous. This could be a vacuolar hepatopathy due to excess cortisol. Depending on the liver enzyme elevations present, you could also consider a liver function test and a fine needle aspirate of the liver.

The urinary bladder appears slightly irregular with some hyperechoic mineralizations. Recommend a urinalysis and culture and continued monitoring of the mineralizations and urinary bladder wall.

The changes observed in the kidneys are likely age related. Recommend blood pressure evaluation and urinalysis and culture to establish a baseline and evaluate for secondary infection (you are likely already doing this based on the above recommendations).

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.



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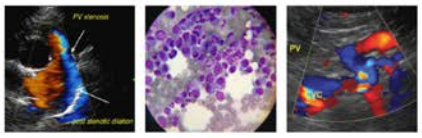

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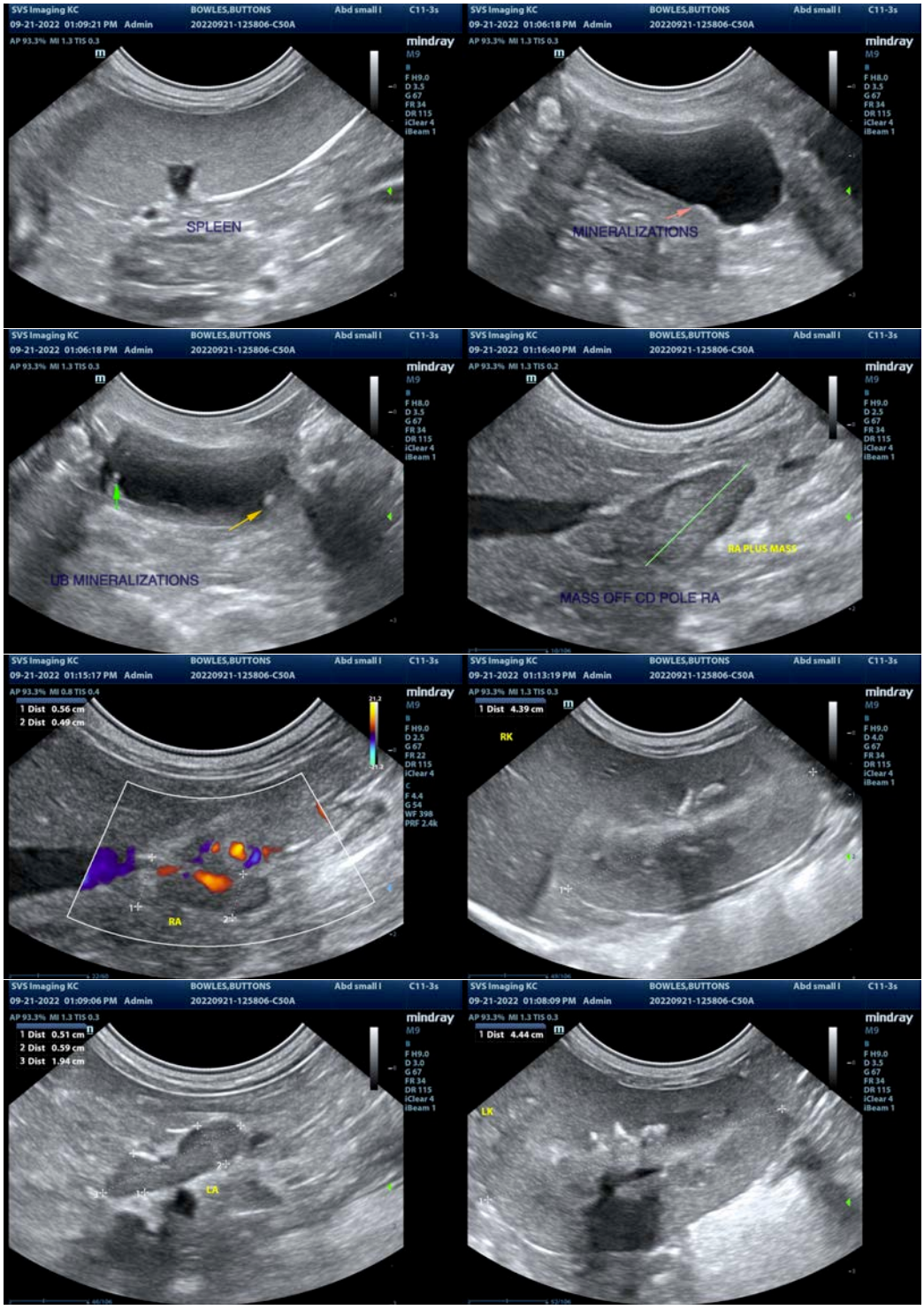

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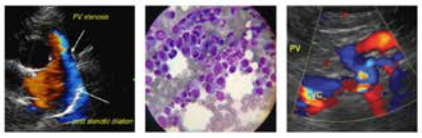

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

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