IMAGING PERFORMED BY

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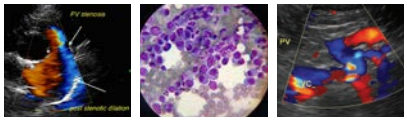

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE

9/15/22

PATIENT

Roxi Means

SPECIES

Canine

BREED

Beagle X

SEX

Spayed Female

AGE

1/1/09

WEIGHT

37 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Stephanie Warga RDCS, RVT

HOSPITAL NAME

Bay Country VH

REFERRING VET

Dr. Smith

INVOICE

41372

PRESENTING CLINICAL SIGNS

PU/PD; suspicion for HAC.

Current Medications: None listed.
Lab Results: See attached.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall largely appears smooth and of normal thickness. There is a focal area in the ventral/apical region of the urinary bladder measuring 1.67 cm x 0.83 cm that exhibits focal thickening, mucosal irregularity, and a somewhat hypoechoic center. This could represent a urachal diverticulum based on the location, but the tissue is slightly irregular, so mass lesion cannot be excluded as a differential. The area of the trigone, ureteral papillae and proximal urethra appear free of any mucosal irregularities, mass effects, or calculi.

The left kidney has a normal shape and size (5.38 cm). Overall echogenicity is normal with adequate 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.

The right kidney has a normal shape and size (5.8 cm). Overall echogenicity is normal with adequate 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 normal in size measuring 0.63 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 normal in size measuring 0.93 cm at the cranial pole and 0.67 cm at the caudal pole, and 2.7 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 somewhat irregular in appearance in that the cranial pole is slightly irregular and hyperechoic. There is no evidence of vascular invasion.

Spleen

The spleen is subjectively normal in size. The spleen echotexture is heterogenous and mottled, the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. There is a hypoechoic/mixed echogenic ill-defined nodule near the hilus measuring 0.83 cm x 1.06 cm.

Liver

The liver is normal in size but irregular in shape. The parenchyma is homogenous echotexture. The visible portions of the vasculature and biliary tract appear normal. There is a slightly hypoechoic solid mass effect visualized deep in the right side of the liver measuring 4.91 cm x 6.67 cm.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are mild and primarily anechoic. The cystic and common bile ducts are normal/not visible.

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. Jejunum wall measures 0.24 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.

Other

A brief view of the heart was submitted. No significant pericardial effusion was seen.

ULTRASONOGRAPHIC FINDINGS

- Focal thickening of the urinary bladder wall in the ventral apical region – This could be consistent with a urachal diverticulum, but a focal mass effect cannot be excluded as a possibility.
- Mildly mottled spleen with mixed echogenic nodule near the hilus – There is a non-cavitated, hypoechoic splenic nodule visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.
- Solid hypoechoic right-sided liver mass – most consistent with a primary hepatic tumor (adenoma, carcinoma, etc.).
- Hyperechoic cranial pole to the right adrenal gland – Left/right adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

I am hopeful that the bladder lesion represents a benign urachal diverticulum, but there is some irregularity noted associated with the mucosa, so a mass lesion cannot be excluded as a possibility. Recommend urinalysis and culture. In this situation, you could consider a urine BRAF test. A negative BRAF test is non-diagnostic, but if the test is positive, my concern for a possible mass lesion would increase, and I would

recommend either cystoscopy or a traumatic catheterization to try to obtain a sample. If this patient has chronic urinary tract infections, it would also be reasonable to investigate this area and consider a biopsy or removal.

There is a hypoechoic splenic nodule in the region of the hilus. This would be a difficult area to sample, so continued monitoring is warranted.

There is a moderate sized solid mass effect visualized deep on the right side of the liver. This has the appearance most consistent with a primary hepatic mass. These lesions can have relatively benign behavior and are slow to metastasize. Prognosis is often good with surgical removal.

Additionally, there is an irregularity in the cranial pole of the right adrenal gland. It appears hyperechoic and slightly irregular, although a definitive mass effect cannot be identified. In an ideal situation, a contrast abdominal CT scan would be performed to further evaluate the right adrenal gland and the hepatic mass lesion, and you would also obtain more information regarding the urinary bladder and the splenic lesion (make sure there is urine in the urinary bladder for the scan), as this additional information may help you prioritize your plan of action. Also, you could consider the following to further work up the changes in the adrenal gland:

- 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

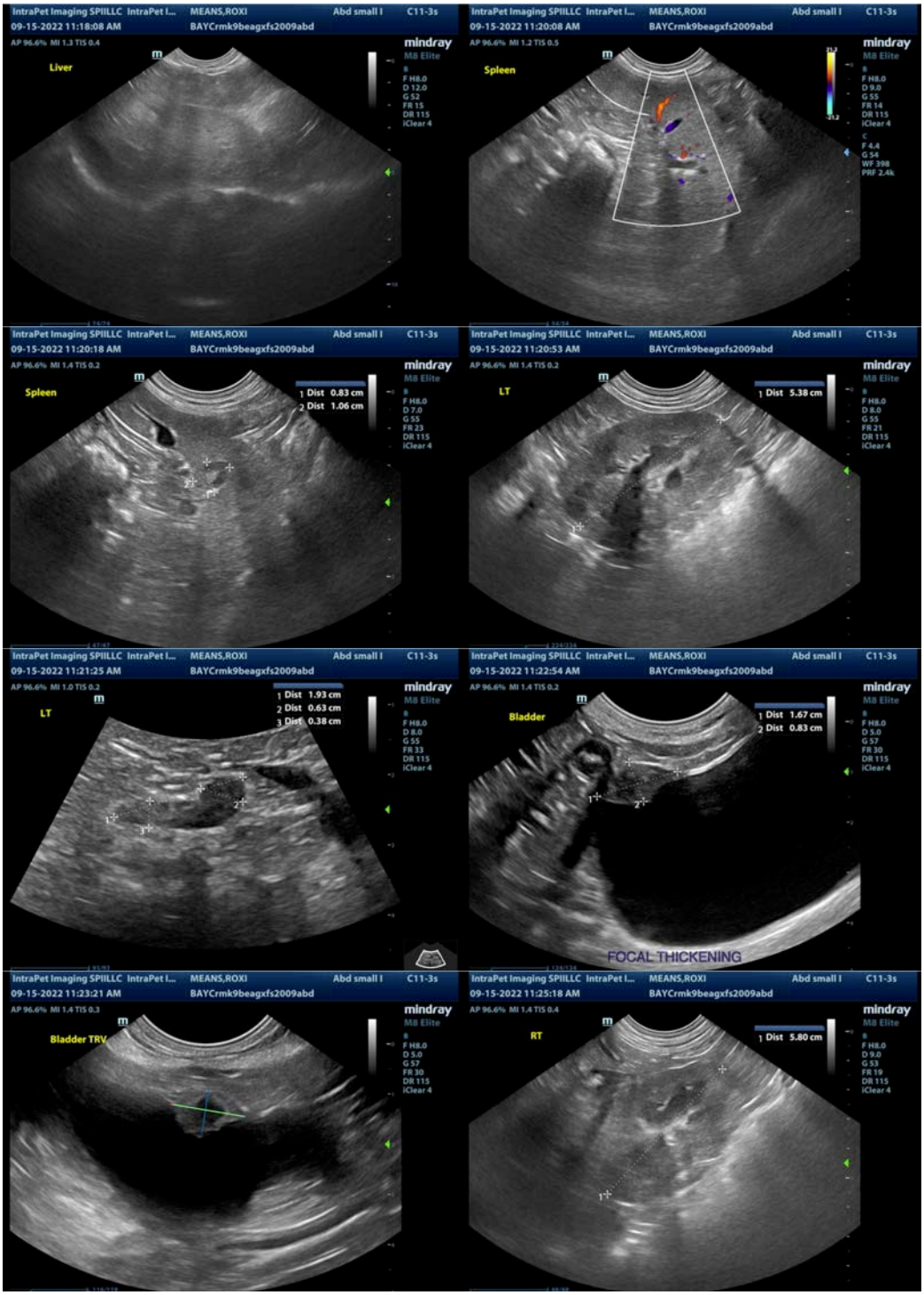
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma

- 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.

If very conservative therapy is desired, then you could monitor the changes in the urinary bladder, spleen, and liver, and consider adrenal function testing, blood pressure evaluation, etc. for the right adrenal changes, and consider medical management if appropriate. Some of the symptoms of possible Cushing's could be attributable to the liver mass observed (liver enzyme changes, potbellied appearance, etc.).

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.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Liver
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Spleen
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Spleen
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2 Dist 1.06 cm
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Bladder
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FOCAL THICKENING
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Bladder TRV
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RT
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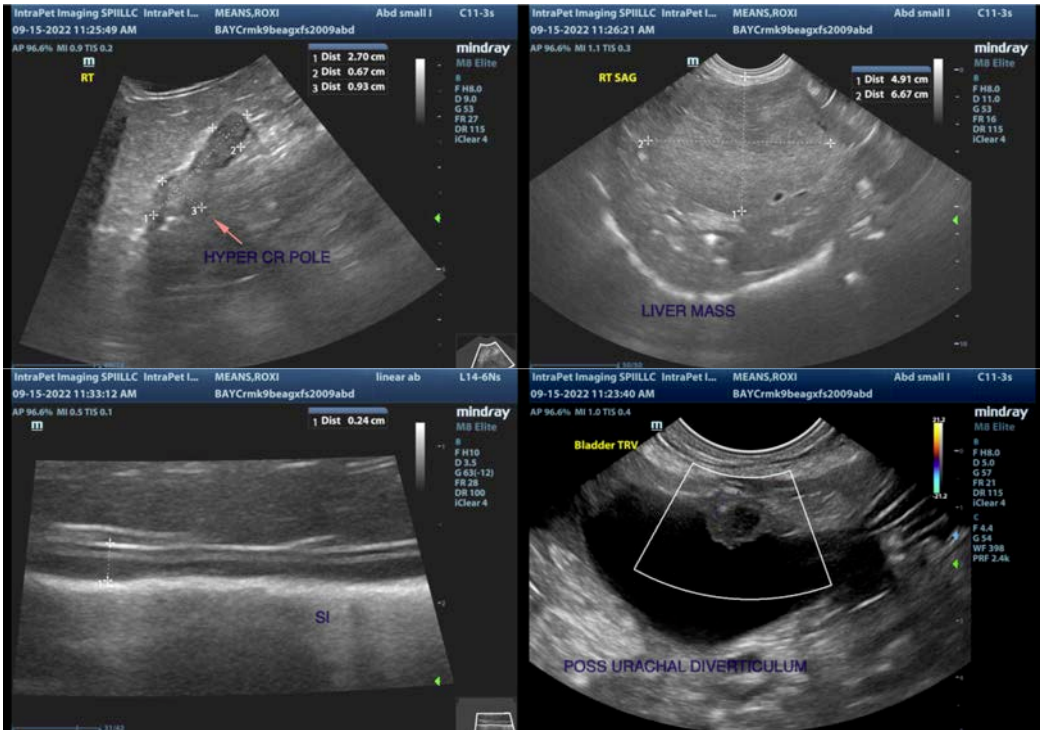

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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