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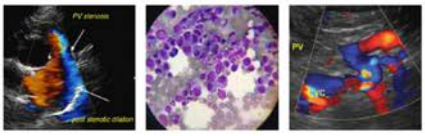

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PATIENT

Ruby Aho

SPECIES

Canine

BREED

Bulldog

SEX

Spayed Female

AGE

5 Years

WEIGHT

45 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Union Lake Vet Hospital

INVOICE

41108

DATE

9/7/22

PRESENTING CLINICAL SIGNS

PU/PD, brittle hair, distended abdomen, chronic UTI's.
Abnormal PE/Chem/CBC/UA Results: PU/PD, coat changes, recurrent UTIs- suspect endocrinopathy (ie hyperadrenocortism). ALP significantly elevated. Recommended LDDST and abdominal ultrasound.

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, masses or cystic calculi.

The left kidney has a normal shape and size (6.28 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 (5.74 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 large and irregular, measuring 2.96 cm at the cranial pole, 1.05 cm at the caudal pole, and 4.29 cm in length. It is observed in its normal position cranial to the left renal artery. It is atypical in appearance in that the entire adrenal is very enlarged, particularly at the cranial pole. There is no obvious evidence of vascular invasion but there is impingement on local vasculature, which could be a concern. Findings are most consistent with a left adrenal mass.

The right adrenal gland is normal in size measuring 0.63 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

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. Near the hilus there is a small “bleb” of tissue that is isoechoic to the spleen and appears very similar in echotexture. I suspect this is a “daughter” spleen or irregular tissue, less likely a lymph node. This lesion measures 0.74 cm.

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. No focal nodules or cystic lesions are observed.

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.

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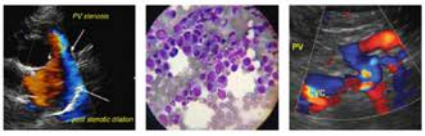

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Gastrointestinal

The stomach is dilated with a large amount of fluid and irregular shadowing material most consistent with normal ingesta and gas. 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 layering 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 uniform diameter with minimal fluid distension. Wall thickness is moderately increased. Duodenum wall measures 0.40 cm. Jejunum wall measures 0.37 cm. Mild mucosal speckling is visualized. Bowel loops follow a typical curvilinear path. Some areas have reduced detail of wall layering. 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

- Large, irregular left adrenal gland – most consistent with an adrenal mass. Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- Small isoechoic tissue adjacent to the spleen – I suspect this is ectopic splenic tissue or a daughter spleen. Recommend continued monitoring.
- 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, shadowing ingesta within the gastric lumen – Correlate with the feeding history and abdominal radiographs. If the patient was adequately fasted consider such differentials as delayed gastric emptying, a partial outflow tract obstruction (none seen) or ingested foreign material.
- Subjectively thickened small intestine with mucosal speckling – Bright mucosal speckling has been postulated to represent dilated lacteals or focal accumulations of mucus, cellular debris, etc.. in the mucosal crypts.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A large mass effect is seen on the left adrenal. The contours of this lesion are fairly regular. No overt vascular invasion is visualized but could be a concern. These lesions can be benign or cancerous and can secrete hormones or be non-active. These are my recommendations for further evaluation of an adrenal mass:

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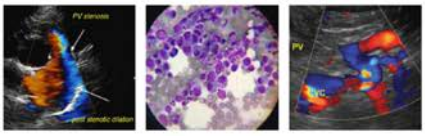

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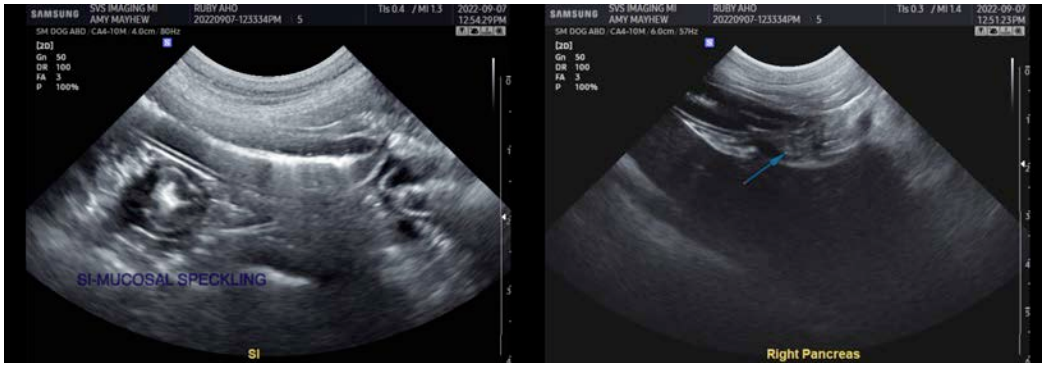
- If signs of cushings are present, consider adrenal function testing. I prefer an ACTH stimulation test combined with an adrenal panel to the University of Tennessee's endocrine lab to look for atypical adrenal hormones as well as cortisol. (other testing can suffice)
- If adrenal dependent cushings 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.

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

The small intestine appears subjectively thickened and there is some mucosal speckling visualized. Correlate this with clinical signs. If this patient has a history of GI disease, then there is the possibility for concurrent gastrointestinal issues. If there are no symptoms associated with these changes, I would recommend continued monitoring.

The heterogeneous liver is likely a vacuolar hepatopathy or possible steroid hepatopathy, and the lesion associated with the spleen should continue to be monitored, but I suspect ectopic splenic tissue.

Provided the contrast CT scan looks good, I feel that this patient is a good candidate for surgical resection of the adrenal gland.



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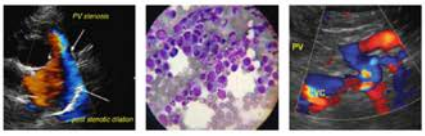

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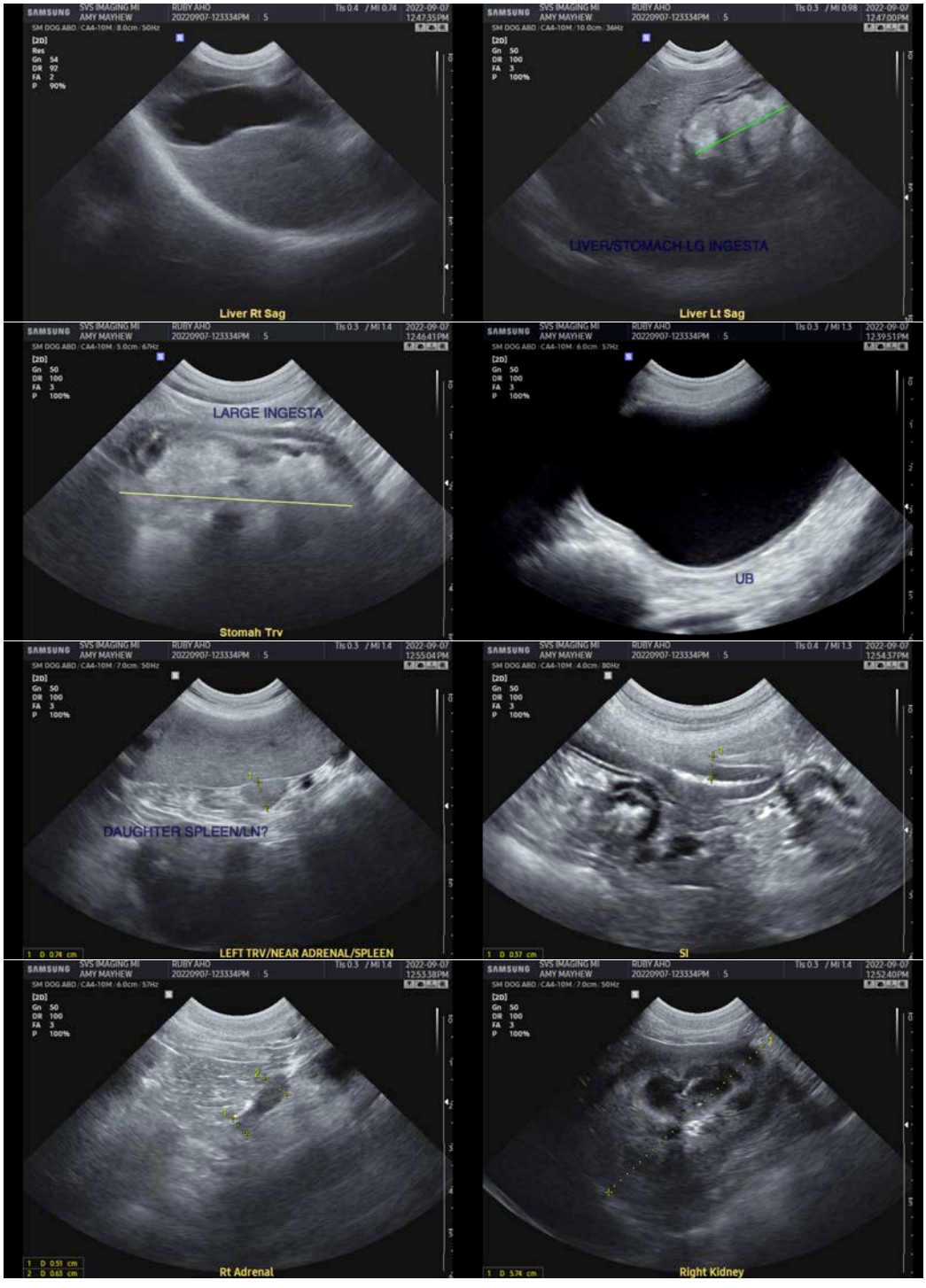

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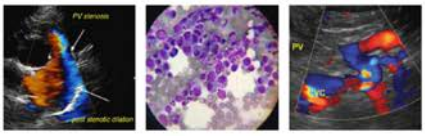

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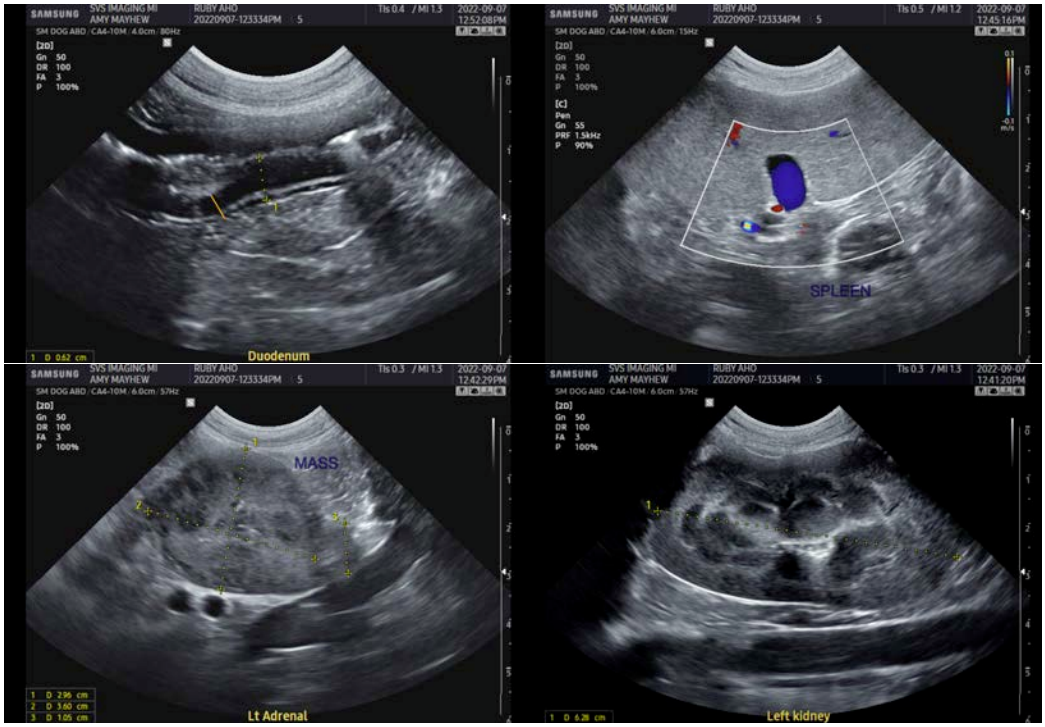

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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