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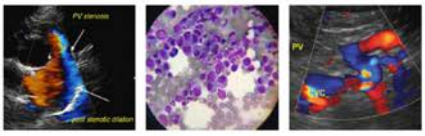

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PATIENT

Chloe Arbuckle

SPECIES

Canine

BREED

Maltese X

SEX

Spayed Female

AGE

12 Years

WEIGHT

16.28 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

Rochester Vet Hospital

INVOICE

38829

DATE

6/17/22

PRESENTING CLINICAL SIGNS

She has a newly elevated GGT and the previously elevated ALP and ALT values are more elevated than they were previously.
Abnormal PE/Chem/CBC/UA Results: Please see attached labs

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 (4.25 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of 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 (4.87 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of 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 somewhat large in size measuring 1.8 cm at the cranial pole, 0.58 cm at the caudal pole and 2.12 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 abnormal in appearance in that there is a hyperechoic mass effect towards the cranial aspect of the cranial pole, measuring approximately 2.0 cm in diameter, which is concerning for a mass originating from the cranial pole of the right adrenal gland. Alternately, this lesion could be arising from the liver in the porta hepatis region.

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. On views of the right adrenal gland, there is a hyperechoic nodule that appears to be arising from the cranial pole of the left adrenal gland, but an alternate possibility is that it is located deep in the hepatic parenchyma, near the porta hepatis, adjacent to the right adrenal gland.

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 primarily non-organized echogenic debris, but there is some early organization and mucosal stranding along the gallbladder wall, consistent with early mucocele formation. The cystic and common bile ducts are normal/not visible.

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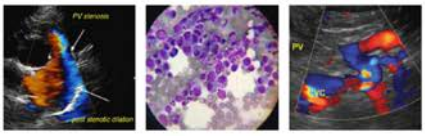

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Gastrointestinal

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 uniform diameter with minimal fluid distension. Wall appears subjectively, mildly increased. Bowel loops follow a typical curvilinear path with distinct wall layering. Duodenum wall measured 0.41 cm. Jejunum wall measured 0.37 cm. Mucosal speckling is present in the duodenum. 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 (0.16 cm). 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 prominent and mottled compared to the surrounding isoechoic mesentery, particularly in the right limb. 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

- Suspect hyperechoic mass lesion on the cranial pole of the right adrenal gland – There is a hyperechoic lesion near the cranial aspect of the right adrenal gland. I suspect this lesion is arising from the right adrenal gland, but an adjacent hepatic lesion cannot be ruled out as a possibility. Right adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

- 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. There is a focal hyperechoic lesion visualized near the cranial aspect of the right adrenal gland, which could possibly be originating from the porta hepatis region of the liver.

- Early gallbladder mucocele – There is a moderate amount of debris within the gallbladder that is starting to organize. Recommend starting Ursodiol therapy and continued monitoring with ultrasound.

- Subjectively thickened small intestine with mucosal speckling of the duodenum – Bright mucosal speckling has been proposed to represent dilated lacteals or focal accumulation of mucus, cellular debris etc.. in the mucosal crypts of the small intestine.

SECONDARY FINDINGS

- Prominent, mottled pancreas (right limb) – The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

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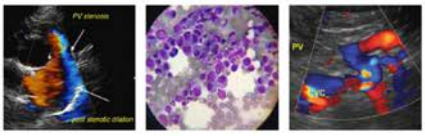

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- Decreased corticomedullary distinction in both kidneys – The bilateral renal findings are consistent with age-related change.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is a hyperechoic lesion that is situated towards the cranial aspect of the cranial pole of the right adrenal gland. I suspect this is arising from the cranial pole, but cannot rule out a hepatic lesion. In either case, I would recommend a contrast CT scan to get a better idea of the exact location of this lesion and to assess the feasibility of surgical removal. Alternately, continued monitoring with ultrasound would be possible. These are my recommendations for an adrenal mass (provided that is the situation in this case):

- 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.

Keep in mind that adrenal lesions can be benign nor malignant and can secrete hormone or be non-active. If signs of Cushing's are present, this may be more likely to be a true adrenal lesion.

Consider three view thoracic radiographs to rule out concurrent thoracic disease/involvement.

There is early organization of the debris within the gallbladder, creating an early mucocele. Recommend starting Ursodiol and continuing to monitor this lesion, as it does not appear surgical at this time.

The small intestine is subjectively thickened and there is some mucosal speckling. If there are no symptoms associated with gastrointestinal disease, then continue to monitor this lesion. If signs of GI disease are present, consider:

- Novel protein/hydrolyzed protein prescription diet.
- Consider a GI panel with a qualitative PLI, TLI, cobalamin and folate to further evaluate the pancreatic and small intestinal changes observed.
- If symptoms persist, you will likely need to obtain GI biopsies to obtain a diagnosis.

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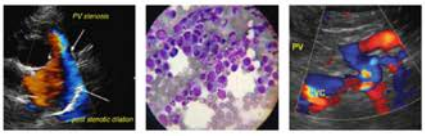

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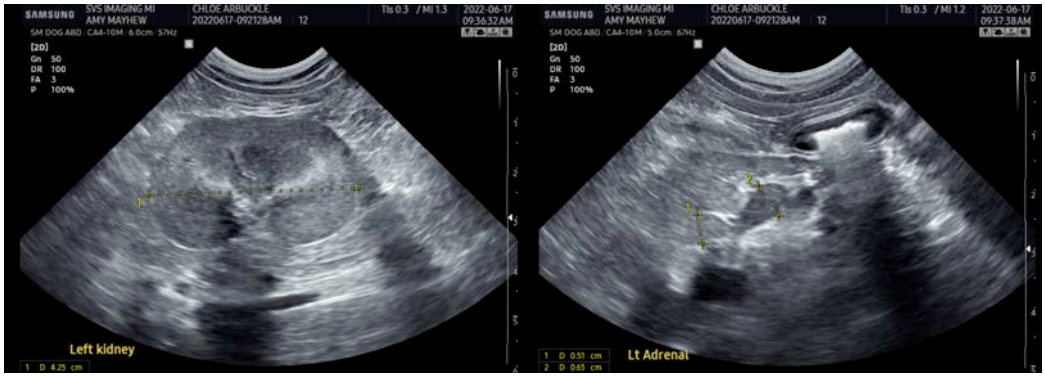

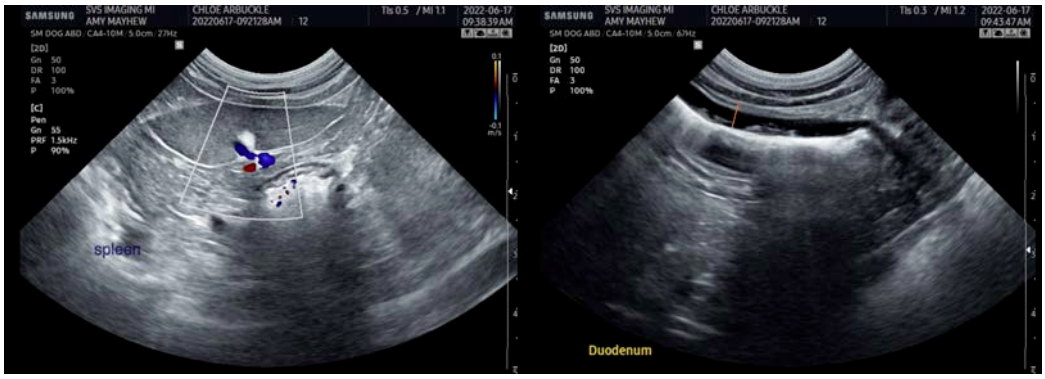

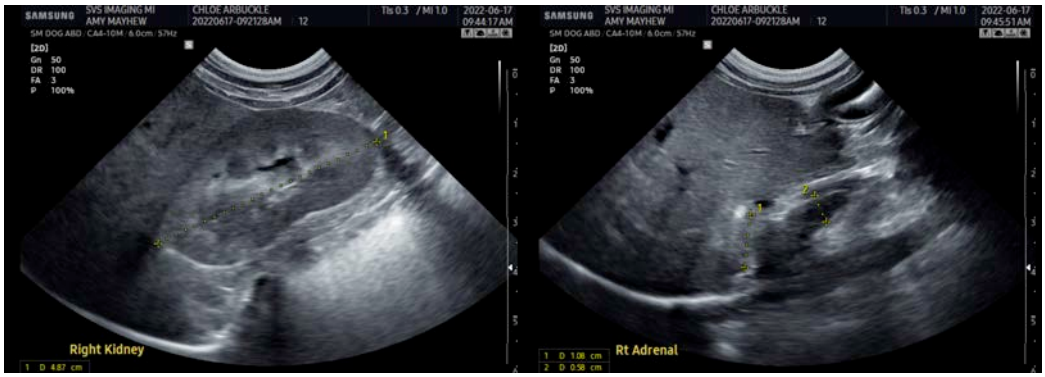

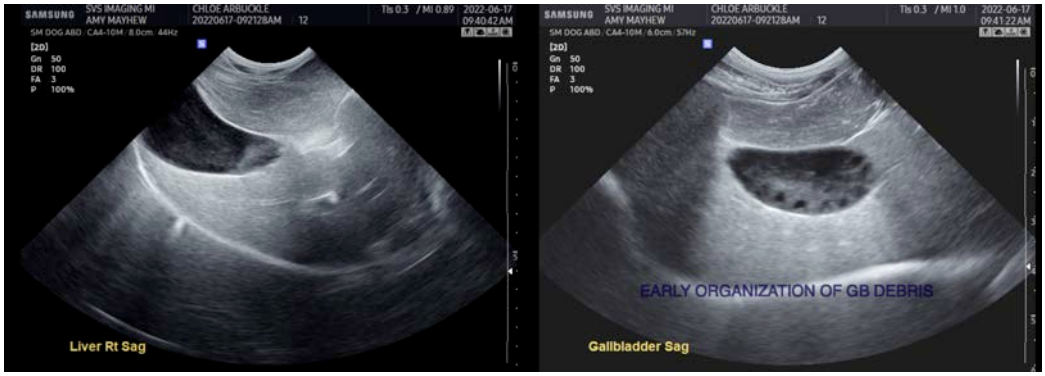

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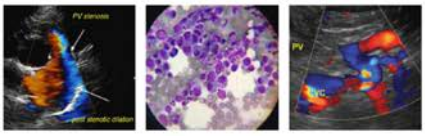

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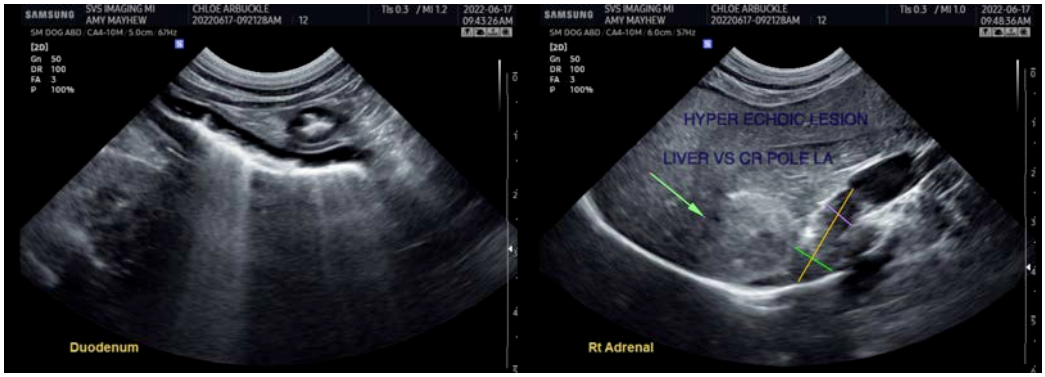

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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