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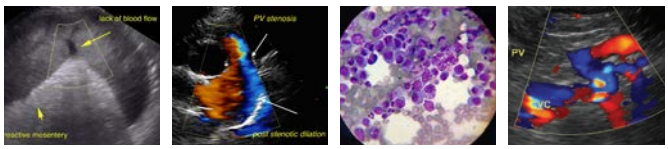

PATIENT

Chloe Kent

SPECIES

Canine

BREED

Shih Tzu

SEX

Spayed Female

AGE

6 Years

WEIGHT

17.8 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Jessica Miller

HOSPITAL NAME

Whippany VH

REFERRING VET

Dr. Cordero

INVOICE

39727

DATE

7/21/22

PRESENTING CLINICAL SIGNS

Continuation of liver elevation despite Denamrin, acting normal at home, needs dental cleaning.
Current meds: Omega 3,6,9 + Denamarin
Abnormal PE/Chem/CBC/UA Results: ALKP 797, ALT 132, Fasted sample +4 lipemia. Bile Acids WNL

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 (4.75 cm). Overall echogenicity is normal with adequate 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 (5.23 cm). Overall echogenicity is normal with adequate 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 0.28 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 in size measuring 1.25 cm at the cranial pole, 0.32 cm at the caudal pole, and 2.3 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 hypoechoic nodule at the cranial pole measuring 1.85 cm x 1.25 cm. There is no obvious evidence of vascular invasion.

Spleen

The spleen is subjectively normal in size, but slightly irregular. The blood flow through the hilus and splenic parenchyma appears normal. There is a hypoechoic, well demarcated, intraparenchymal nodule measuring 1.06 cm x 0.67 cm. On some images, there is some irregularity near the cranial third of the spleen, which I suspect is artifact from local irregular tissue, but in some views appears to look like an isoechoic “bulge” or mass effect. This measures 1.8 cm in diameter.

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. There are occasional hyperechoic nodules visualized within the parenchyma, varying in size from 0.5-1.0 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 primarily anechoic. The cystic and common bile ducts are normal/not visible.

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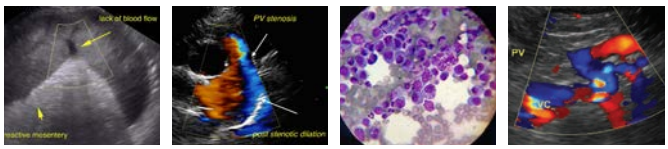

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Gastrointestinal

The stomach is moderately dilated with fluid and irregular shadowing material, most consistent with ingested foreign material/medications, possibly food. 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 measured 0.42 cm. Jejunum wall measured 0.31 cm. Visualized peristalsis appears appropriate. The proximal duodenum appears slightly dilated with fluid and shadowing material, most consistent with the ingested material visualized within the stomach.

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

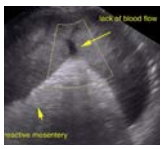
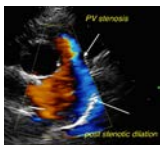
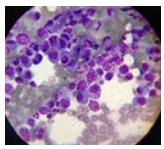
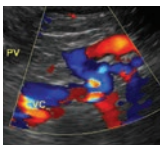
Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

Other

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

PRIMARY FINDINGS

- Single hypoechoic splenic nodule – 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.
- 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.
- Moderate intraluminal gastric material – Some of this material is irregular in shape and shadowing, most consistent with ingested soft foreign material, undigested food, etc.
- Hypoechoic nodule in the cranial pole of the right adrenal gland – Right adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- Mild fluid distention of the proximal duodenum with intraluminal shadowing ingesta

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SECONDARY FINDINGS

- Possible irregularity in the cranial third of the spleen – In some views, there is an isoechoic "bulge" visualized. This appears most consistent with an artifact, but a subtle mass effect cannot be excluded. Consider reevaluation in 4-6 weeks.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is a hypoechoic nodule in the cranial pole of the left adrenal gland. This is relatively small in size. No obvious vascular invasion is visualized. These are my recommendations for evaluation of an adrenal nodule. These masses can be benign or malignant and can secrete hormones or be non-active.

- 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 appears somewhat heterogeneous. My suspicion is that the elevation in liver enzymes is secondary to a steroid hepatopathy and possible adrenal dependent Cushings(?).

There is a discrete hypoechoic nodule within the spleen. This could represent a benign or an early neoplastic process. Recommend a fine needle aspirate. In some views, there are some irregularity to the cranial aspect of the spleen. This is isoechoic and appears as a "bulge". I suspect this is imaging artifact, but continued monitoring is warranted, and a recheck of the spleen in 4-6 weeks could be considered.

There is some focal shadowing material visualized within the gastric lumen as well as some fluid. Correlate with feeding history and abdominal radiographs. This can be food, medication, or ingested foreign material. A complete obstruction is not visualized, and there appears to be shadowing ingesta within the proximal duodenum, as if it is passing through. If this patient should start vomiting, reimaging is recommended.

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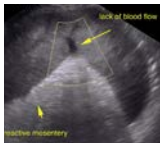
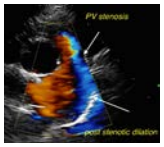
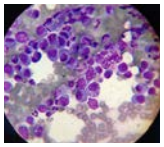
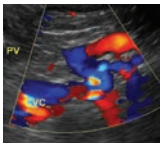

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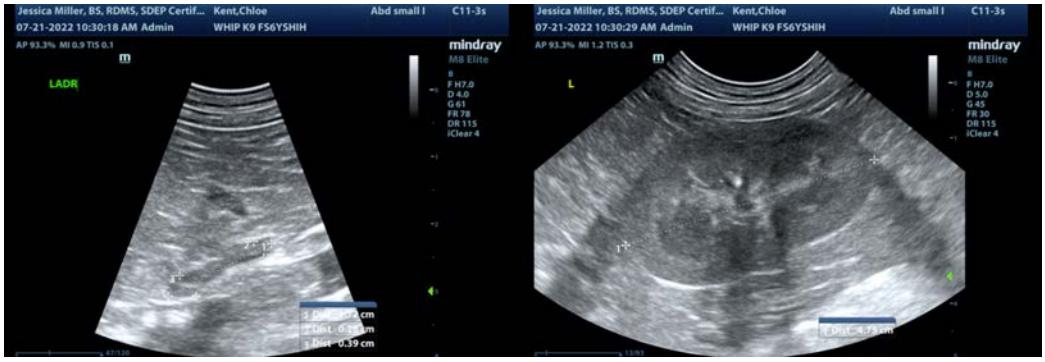

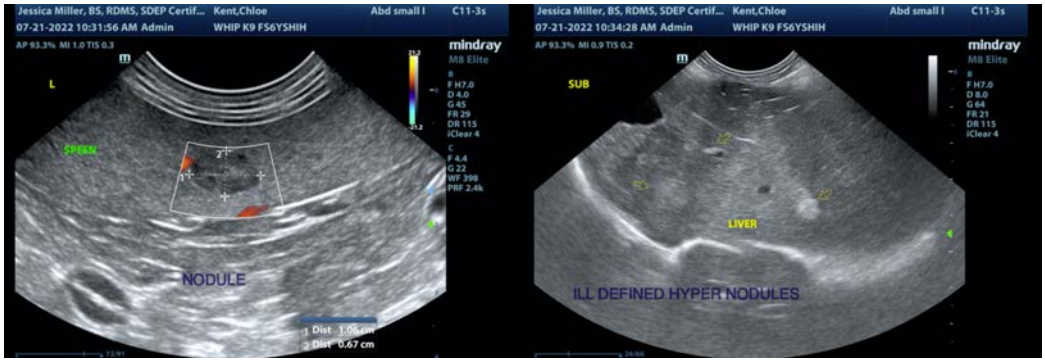

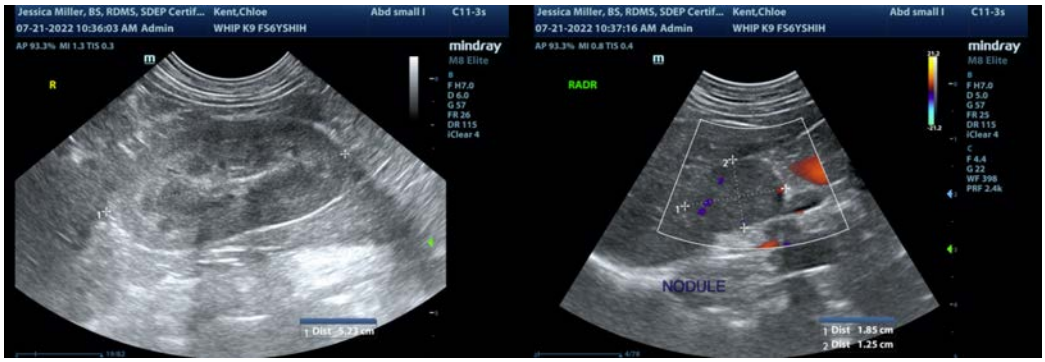

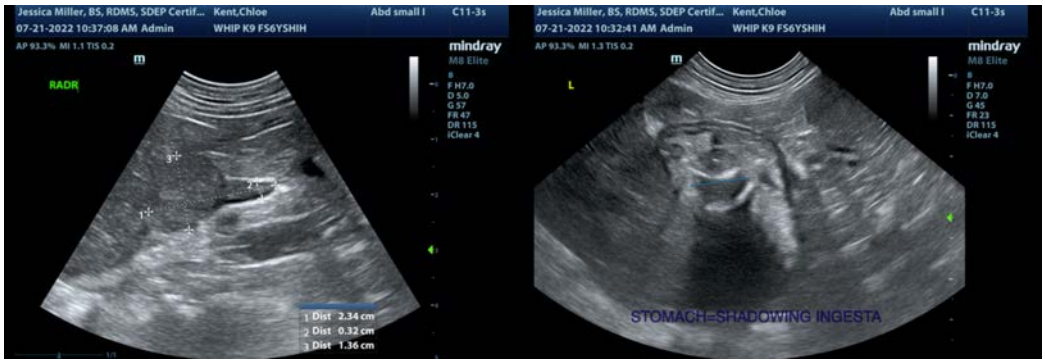

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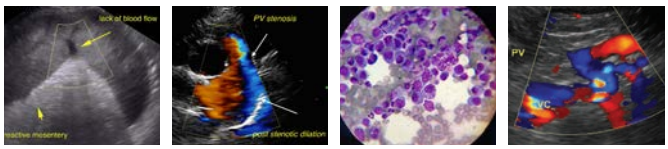

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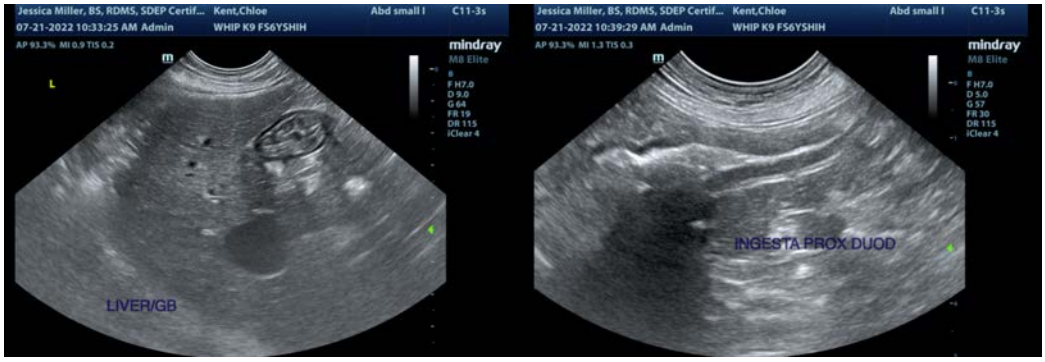

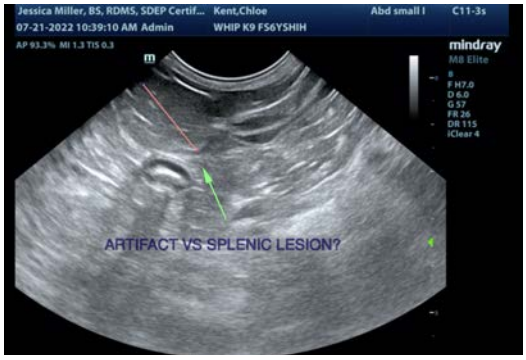

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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