



**PATIENT**

Opie Check

**PRESENTING CLINICAL SIGNS**

Elevated liver enzymes. Current meds: Vetoryl 60mg.  
ALT 163, ALKP 485, GGT 23, Creat 0.4, BUN/Creat ratio 35, Phos 6.4, Gluc 56, K+ 6.0, NA/K ratio 25,

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

**BREED**

Border Collie Mix

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.

**SEX**

Neutered male

The prostate is normal in size (1.38 cm) and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

**AGE**

9 years

The left kidney has a normal shape and size (6.74 cm). Small cortical cysts were noted. 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.

**WEIGHT**

43.3 lbs

The right kidney has a normal shape and size (7.44 cm). Small cortical cysts were noted. 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.

**INTERPRETED BY**

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

**Adrenal Glands**

The left adrenal gland is large in size measuring 1.41 cm at the cranial pole and 1.19 cm at the caudal pole and 3.05 cm in length. It is observed in its normal position cranial to the left renal artery. It is somewhat abnormal in appearance with a large with a hyperechoic nodule in the cranial pole measuring 1.1 x 0.73 cm. This nodule does not deform the shape of the adrenal gland at all. The findings are most consistent with a large adrenal and a left cranial adrenal nodule.

**IMAGING PERFORMED BY**

Shari Reffi, CVT

The right adrenal gland is large in size measuring 1.21 cm at the cranial pole and 1.64 cm at the caudal pole and 2.76 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 normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

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**REFERRING VET**

Dr. Cattiny

**Spleen**

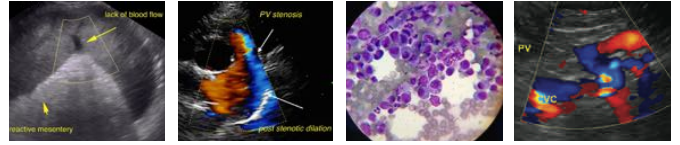
The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. No focal parenchymal abnormalities are visualized.

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94901

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12/23/21



**PATIENT** *Liver*

Opie Check

The liver is subjectively large/normal in size with smooth peripheral margins. The parenchyma is hyperechoic and homogenous in echotexture. 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 gallbladder 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.

**SPECIES**

Canine

**BREED**

Border Collie Mix

**Gastrointestinal**

**SEX**

Neutered male

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.

**AGE**

9 years

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 and the jejunum measured as normal (0.38 cm). Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

**WEIGHT**

43.3 lbs

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.

**INTERPRETED BY**

**Pancreas**

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

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.

**IMAGING PERFORMED BY**

**Free Abdomen**

Shari Reffi, CVT

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.

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**ULTRASONOGRAPHIC FINDINGS**

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**PRIMARY FINDINGS:**

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- Bilateral adrenomegaly with a left-sided adrenal nodule. The bilateral adrenomegaly could be consistent with bilateral hyperplasia (e.g., secondary to pituitary-dependent hyperadrenocorticism), bilateral infiltrative neoplasia, inflammatory adrenal disease, other. Correlation with clinical findings is recommended. Differentials for the left adrenal nodule could be neoplasia (adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

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



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- Hyperechoic liver. The diffuse hepatic changes are non-specific and can be seen with vacuolar hepatopathy, reactive change, nodular hyperplasia or, less likely, inflammatory/immune-mediated disease, infiltrative neoplasia, or other hepatopathy.

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Canine

- Moderate gallbladder debris. The significance of the aggregated gallbladder debris is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting.

**BREED**

Border Collie Mix

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Both adrenal glands appear enlarged. There is a hyperechoic nodule in the cranial pole of the left adrenal. The changes in the liver are relatively non-specific with no focal lesions. Consider the following evaluation:

**SEX**

Neutered male

- Consider close evaluation of history for possible toxic changes examine medications, diet, dietary indiscretion etc...
- Consider PCR on urine/serum for leptospirosis (if not on antibiotics)/serology if recent antibiotic history
- If not already done, consider pre and post prandial bile acids to evaluate liver function
- If the ALP is significantly elevated relative to the ALT and symptoms consistent with Cushing's are present, consider adrenal function testing (ACTH stim)
- Consider Fine needle aspirate if round cell neoplasia is on your differentia list (25 g needle, normal coags)
- If no response to supportive care (Denamarin, fluids, antibiotics,+/- ursodiol etc...) Consider liver biopsy with samples obtained for histopathology, culture, and copper levels.

**AGE**

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**WEIGHT**

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Additionally the gallbladder has a significant amount of debris within it. The wall does not appear thickened or inflamed, but I recommend monitoring the gallbladder and starting Ursodiol. Additionally with the low blood sugar and electrolyte abnormalities it would be nice to ensure that there is normal function.

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Internal Medicine)

In regards to the adrenal nodule:

There is nodule present on the Left/right adrenal gland. This nodule is relatively small and is not deforming the adrenal gland significantly and doesn't appear to have any evidence of vascular invasion.

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Shari Reffi, CVT

These nodules can be benign or malignant and can secrete hormones or be non-active. Options moving forward include:

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- If signs of Cushing's 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 Cushing's is suspected and supported by adrenal function testing consider medical therapy with Lysodren or Trilostane or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma
- If no symptoms of Cushing's are present, consider either referral for surgery or continued monitoring with ultrasound (in 3-4 months).
- Many of these nodules can be benign and incidental in nature, unfortunately that is difficult to determine with a single ultrasound.
- I recommend three view thoracic radiographs.

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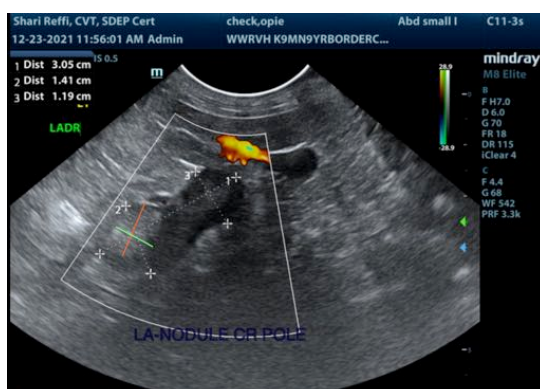
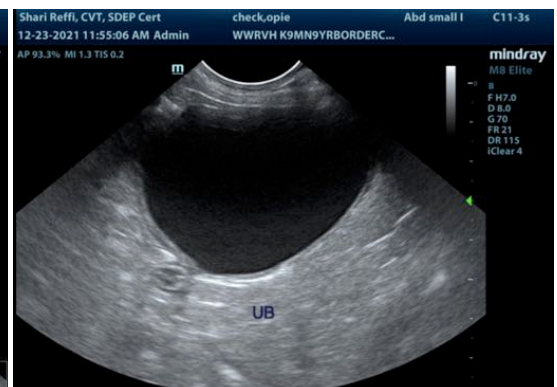
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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