



PATIENT

Teddy Ciongoli

PRESENTING CLINICAL SIGNS

Hair loss, pot bellied
Abnormal PE/Chem/CBC/UA Results: Alt 183, AIP 182, GGT 19, Creat 0.4, phos 6.7, T4 1.3, CBC WNL, USG 1.018, UPC 1.4

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

BREED

Mixed

The urinary bladder is moderately distended with anechoic urine. The Bladder wall appears mildly thickened with very slightly irregular mucosa measuring 0.53 cm. The trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of mucosal irregularities or masses. There are 1-2 small areas of somewhat irregular shaped, hyperechoic, mildly shadowing material most consistent with either two small stones or a small pile of amorphous mineralized material. One of these measures 0.52 cm. The other measures 0.42 cm. Correlate these findings with abdominal radiographs.

SEX

Neutered Male

The prostate is normal in size (0.9 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

11 Years

The left kidney has a normal shape and size (6.07 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.

WEIGHT

30 Pounds

The right kidney has a normal shape and size (6.4 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.

INTERPRETED BY

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

Adrenal Glands

IMAGING PERFORMED BY

Dr. Scott

The left adrenal gland is large in size measuring 0.86 cm at the cranial pole, 1.1 cm at the caudal pole, and 2.6 cm in length. It is observed in its normal position cranial to the left renal artery. It is somewhat abnormal in appearance, in that the caudal pole is large and rounded with a hyperechoic nodule measuring 0.91 cm.

HOSPITAL NAME

Ho-Ho-Kus VH

The right adrenal gland is normal in size measuring 0.94 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

REFERRING VET

Dr. Eisenberg

The spleen is large 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 large hyperechoic nodule in the tail of the spleen measuring 0.65 cm. Additionally, there is a hyperechoic irregular nodule in the head of the spleen, measuring 0.85 cm. A third, less distinct nodule that appeared to disrupt the splenic capsule measuring 0.84 cm.

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Liver

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The liver is large 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 numerous ill-defined hypoechoic nodules. 3 visualized measured 1.1 cm, 0.7 cm, and 0.82 cm.



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The gallbladder lumen is very large and significantly distended with echogenic debris. The wall of the gall bladder appears thickened and somewhat irregular with adherent debris. Debris is starting to organize, and there is evidence of early mucocele formation. There is no surrounding fluid or inflammation noted. The bile duct appears normal.

SPECIES

Canine

Gastrointestinal

The stomach is severely dilated with 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.

BREED

Mixed

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 measured 0.38 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

SEX

Neutered Male

AGE

11 Years

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

WEIGHT

30 Pounds

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

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Medicine)

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.

IMAGING PERFORMED BY

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- Gallbladder mucocele – The gallbladder is very large with an organized mucocele. There is no surrounding inflammation or fluid observed.
- Thickened urinary bladder with two small areas of mineralization – most consistent with small stones, but cannot rule out piles of small, mineralized debris. Correlate with radiographs. Recommend urinalysis and culture.
- Hyperechoic nodule in the caudal pole of the left adrenal gland – Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- Hyperechoic nodules within the spleen – Typically, hyperechoic nodules are less likely to be cancerous, but one of these does deform the splenic capsule. Possible differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, myelolipomas, inflammation, other. Cytology or histopathology would be necessary to obtain a definitive diagnosis.
- Large, heterogeneous liver with ill-defined, hypoechoic nodules – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic



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hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.

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SECONDARY FINDINGS

- Borderline bilateral adrenomegaly – 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. The right adrenal gland is not atrophied, and both adrenal glands are relatively plump in size despite the left-sided adrenal nodules.
- Large amount of ingesta in the stomach – correlate with feeding history. If patient is adequately fasted, consider delayed gastric emptying or partial gastric obstruction (none observed).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

There is a lot going on here, and there could be multiple causes for the mild liver enzyme elevations reported. There is both borderline bilateral adrenomegaly and a left-sided adrenal nodule. This nodule could be benign or malignant and secreting hormone or non-secretory. It can be difficult to differentiate, and it is possible to both pituitary and adrenal dependent Cushing's at the same time. These are my recommended for options to consider when there is a unilateral adrenal nodule:

- 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.
- Recommend 3-view thoracic radiographs.

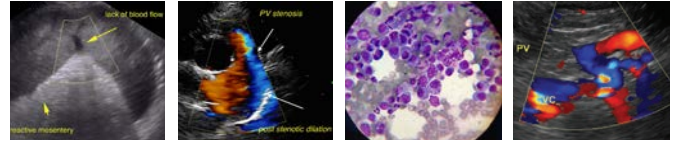
If Cushing's disease is present, you have the option to either surgically remove the left adrenal gland or consider treatment for pituitary dependent disease while monitoring the left adrenal gland with ultrasound for significant change/growth.

Additionally, the liver is irregular and nodular, so primary liver disease is possible. You could consider a fine needle aspirate of the liver.

The gallbladder is also very abnormal, and early mucocele is present. I don't see obvious evidence of inflammation at this time, but consider a course of antibiotics (if not already done) and starting Ursodiol. Monitor this very closely, as there may be the need for surgical removal.

There are numerous nodules in the spleen. The nature of these is currently unknown. Consider fine needle aspirate of the three lesions if possible, or continued monitoring with ultrasound.

This is a lot to consider at one time. In the immediate future, I feel the gallbladder and the possible adrenal dependent disease is most concerning, so if Cushing's is suspected, recommend starting diagnostics and starting medication for the gallbladder.



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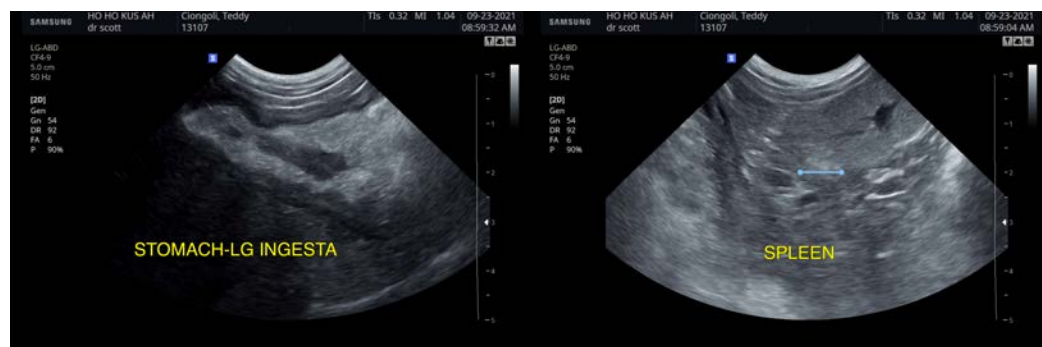
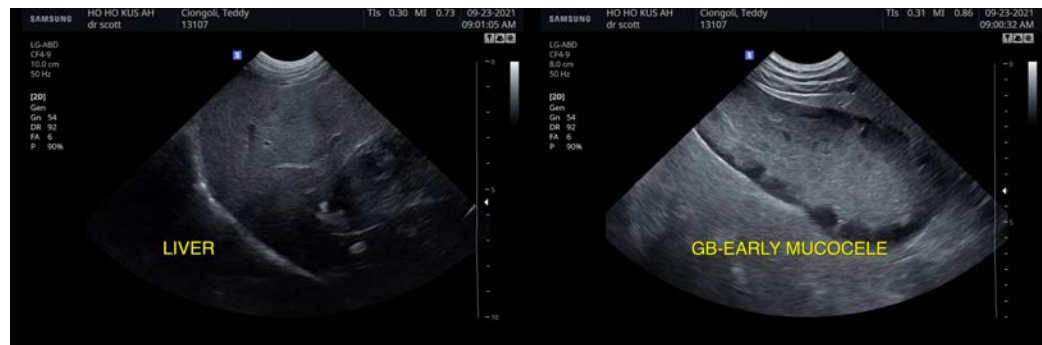
Dr. Eisenberg

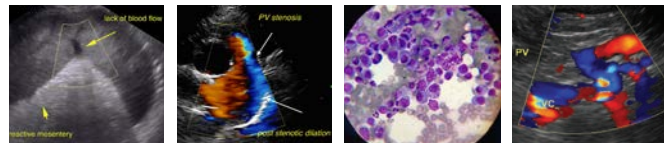
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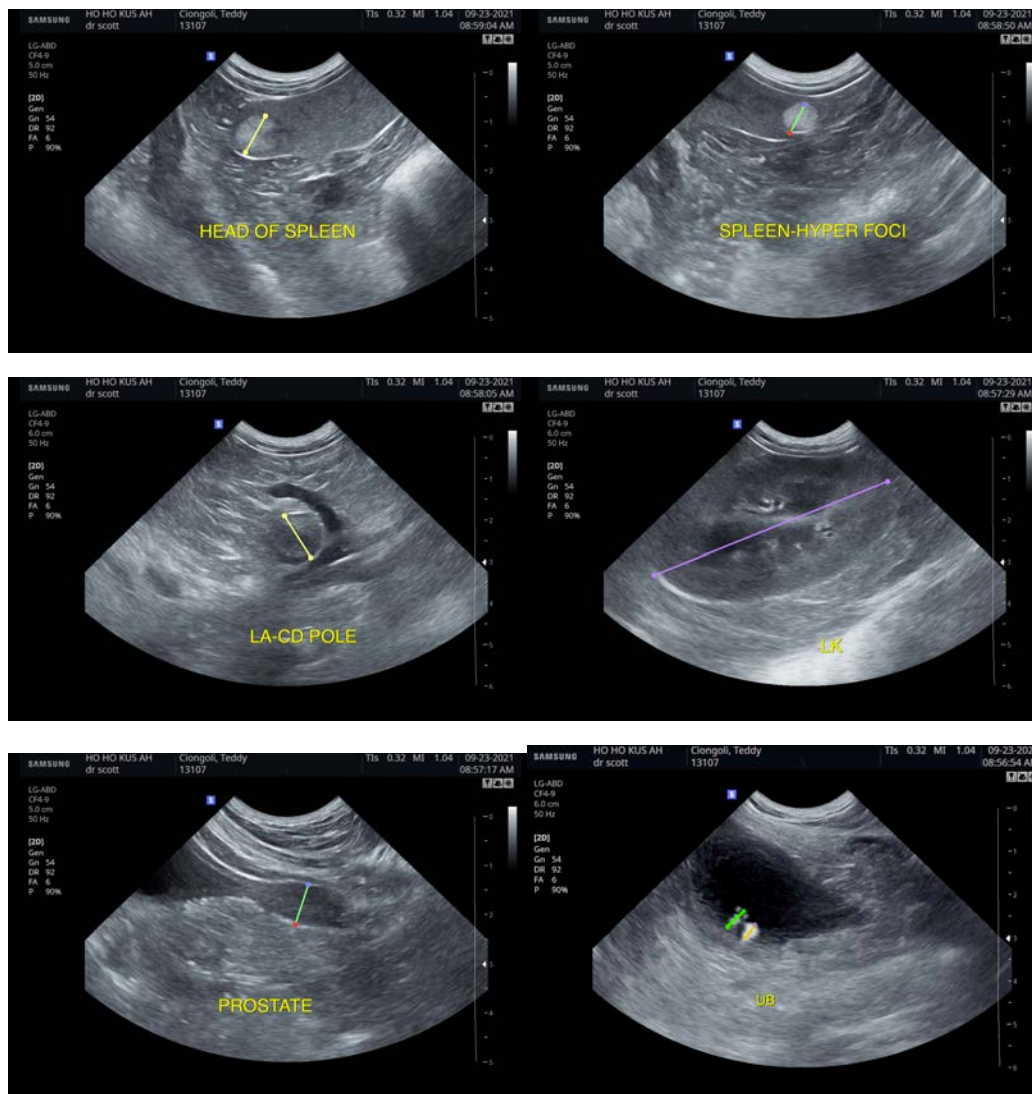
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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