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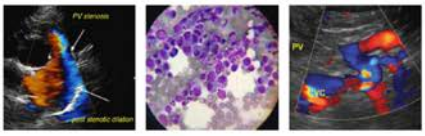

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Clinical Sonography & Telecytology
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PATIENT

Titan Brady

SPECIES

Canine

BREED

Doberman

SEX

Neutered Male

AGE

10 Years

WEIGHT

100 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 VH

INVOICE

41102

DATE

9/7/22

PRESENTING CLINICAL SIGNS

Elevated liver values chronically. Has DCM, being monitored at OVRS for this, dx about 2 years ago. Was seen earlier this year for cardio, and looked stable at that time. Has had the ALP elevated and now the ALT is increasing. Discussed getting an AUS of the liver. Had a xray and thought his liver was enlarged. Was vomiting blood, but now resolved. Does have his gums bleed easily, clean teeth at home once a year or 6 months. Has gingivitis. No v/d/c/s, Is currently on 20 mg famotidine, 10 mg of pimobendan BID, gets glucosamine supplement and fish oil. Hasn't needed lasix, ect. No arrhythmias noted. e/d normal, is on a diet. Has a long hx of GI issues. Had giardia 2016, and since then has a very sensitive stomach. Has always drank a lot of water, not new. Did have a low USG, Not urinating more than normal

Abnormal PE/Chem/CBC/UA Results: Has DCM, managed with cardio

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 prostate is normal/borderline large (2.0 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.

The left kidney has a normal shape and size (7.61 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 (7.6 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 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 normal in size measuring 0.65 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 large. The spleen echotexture is heterogenous and severely mottled, the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. There are numerous discrete hypoechoic nodules visualized within the splenic parenchyma. One measures 2.87 cm x 3.52 cm in the body. Two in the tail measure 1.19 cm x 1.65 cm and 2.87 cm x 3.05 cm. There is an ill-defined fourth nodule measuring 1.32 cm x 1.71 cm.

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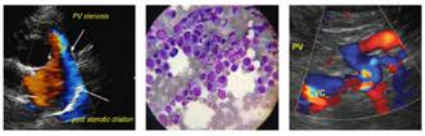

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Liver

The liver is subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is homogenous 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 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.

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 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 measures 0.57 cm. Jejunum wall measures 0.43 cm. 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

- Severely mottled spleen with numerous discrete hypoechoic nodules – The diffuse splenic changes are non-specific and could be consistent with lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis. The mottling appears almost reticulated, which is concerning for an underlying neoplastic process. Differentials for the hypoechoic nodules include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other.

- Borderline large prostate – The prostate measures as enlarged but appears relatively normal. I suspect this is within normal limits for such a large dog.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The spleen is very abnormal in that it is severely mottled (possibly a reticulated pattern, which is highly suspicious for underlying neoplasia), and has multiple hypoechoic nodules. Recommend a fine needle aspirate of both the parenchyma and a hypoechoic nodule (I believe a fine needle aspirate was already performed). Additionally, consider 3-view thoracic radiographs.

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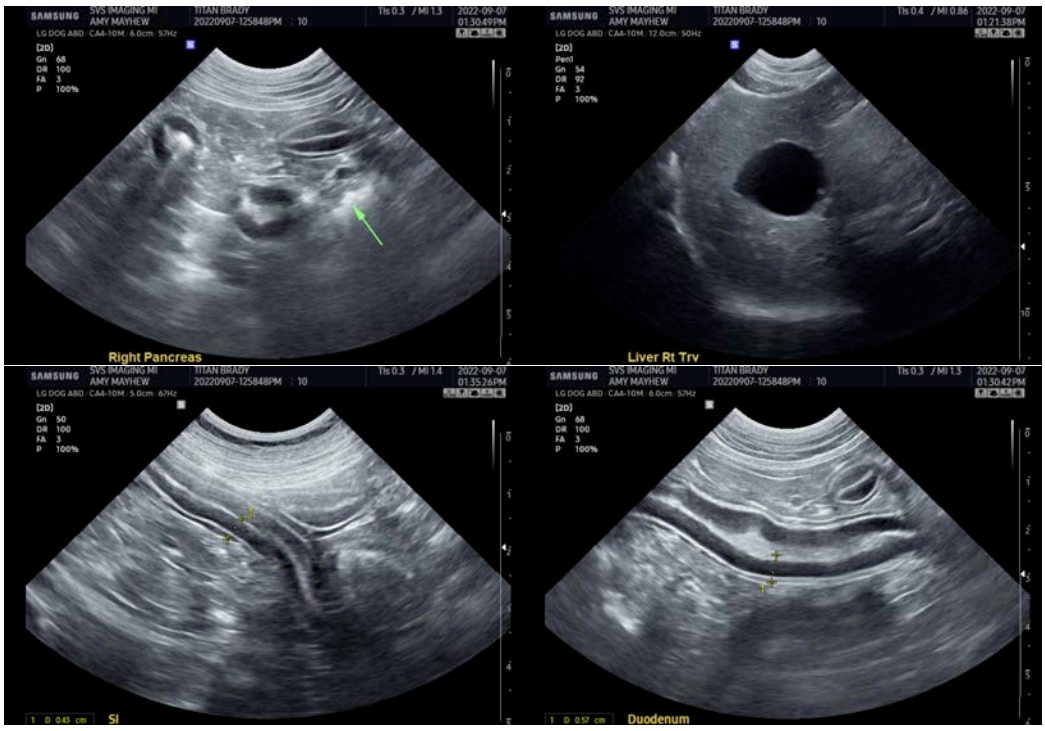
No focal lesions were visualized associated with the liver or biliary tract. Depending on the severity of the liver enzyme elevations and the ratio of ALT to ALP, I would consider the following:

- Induction phenomena are the most common cause for an elevation in ALP. These are systemic illnesses that 'turn on' the liver enzyme. Causes of this include Cushing's disease, dental disease, arthritis, and numerous others. In many cases the exact cause is unclear but as long as ultrasound and bile acids tests are normal most patients do not have progressive changes in their liver. While liver biopsy is not routinely performed, vacuolar hepatopathy, is noted on most biopsies. This is often non-progressive but in rare cases can be more severe and lead to liver failure.
- If signs of cushings disease are present recommend endocrine function testing to evaluate for cushings disease.
- Consider fine needle aspirate to rule out round cell neoplasia -if this is a concern.
- If a cause for the ALP elevation is not identified: I recommend recheck general blood work every 6 months, ultrasound once per year, and bile acids test every 1-2 years based on other results. If the ALP continues to climb a biopsy could be considered.
- Consider long term use of denamarin, and monitoring for the signs of cushings developing.
- A primary vacuolar hepatopathy can be breed related and is seen in Scottish Terriers, Schnauzers, Cocker spaniels etc..

I would recommend the splenic cytology first to try to plan. If additional information about the liver is needed, then consider the recommendations above. I tend to be more aggressive with diagnostics in Dobermans because of their risk for chronic active hepatitis.



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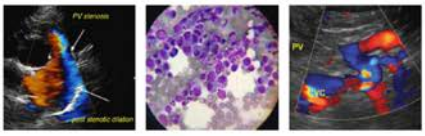

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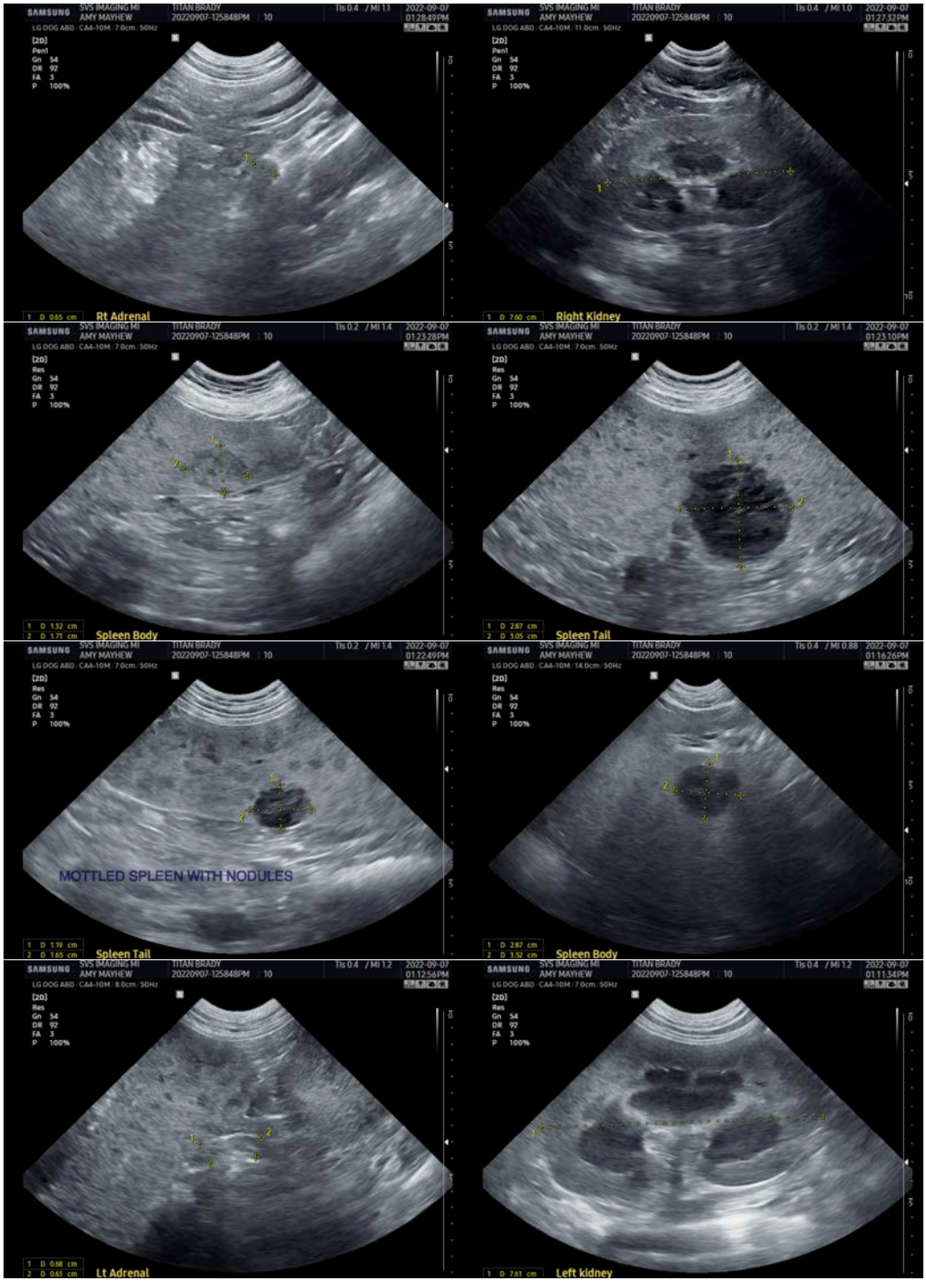

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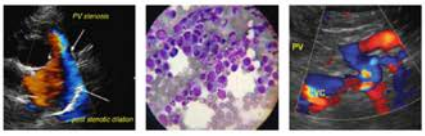

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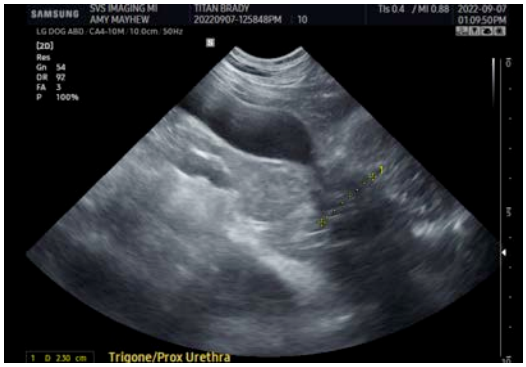

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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