

**PATIENT**

Carmel Brutz

SPECIES

Canine

BREED

Shih Tzu

SEX

Neutered Male

AGE

13 Years

WEIGHT

18 Pounds

INTERPRETED BYKathleen Sennello DVM,
MS, Diplomate ACVIM
(Small Animal Internal
Medicine)**IMAGING
PERFORMED BY**

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VETWixom Family Pet
Practice**INVOICE**

39466

DATE

7/13/22

PRESENTING CLINICAL SIGNS

Current Medications: Pimobendan 5mg: 1/2 tab PO in the morning and 1/4 tab in the evening. Patient History: 6 month echo recheck; previous findings in Jan 2022: • Mild cardiomegaly and left atrial enlargement with no evidence of left-sided congestive heart failure. • Mitral valve leaflets are mild-moderately thickened with mild prolapse of septal leaflet. Tricuspid valve leaflets are mildly thickened with mild prolapse of septal leaflet.

Abnormal PE/Chem/CBC/UA Results: Left-sided systolic heart murmur. Grade 4/6. Mild increase in ALP previously, repeat BW pending. No symptoms of liver disease, owner requests abdominal ultrasound.

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 large, measuring 1.49 cm. It is a regular shape with smooth external margins. The parenchyma is slightly heterogeneous, but no discrete focal lesions are present. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect, or calculi.

The left kidney has a normal shape and size (4.14 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 (5.06 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 0.46 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 0.55 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 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 normal to borderline small in size, and echogenicity with smooth peripheral margins. The parenchyma is mildly heterogeneous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

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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 non-organized echogenic debris. The cystic and common bile ducts are normal/not visible.

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Gastrointestinal

The stomach contains mild fluid 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 layers is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

BREED

Shih Tzu

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 0.37 cm. Jejunum wall measured 0.28 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

SEX

Neutered Male

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.

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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.

WEIGHT

18 Pounds

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.

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ULTRASONOGRAPHIC FINDINGS

- Borderline large prostate – correlate these findings with the age of neutering. If this patient was neutered prior to puberty, this would be considered large, and a fine needle aspirate could be considered. No characteristics of malignancy are present.
- 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. The liver appears subjectively small to normal in size. Correlate with abdominal radiographs.
- Moderate gallbladder debris – The significance of the aggregated gallbladder sludge is unclear. This could represent an early mucocele, cholestasis, or may be secondary to fasting.
- Mild fluid/gas within the gastric lumen – This could be due to panting, a recent drink, etc. Correlate with abdominal radiographs.

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**INVOICE**

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No focal lesions are visualized associated with the liver, and debris in the gallbladder appears relatively mild. Depending on the degree of ALP elevation and other considerations, these are my recommendations for a patient with a primary ALP elevation:

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- 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..

The prostate appears prominent for such a small dog. Correlate with the age of neutering. If the patient was neutered after puberty, this is likely within normal limits. If neutered prior to puberty, then you could consider a fine needle aspirate.

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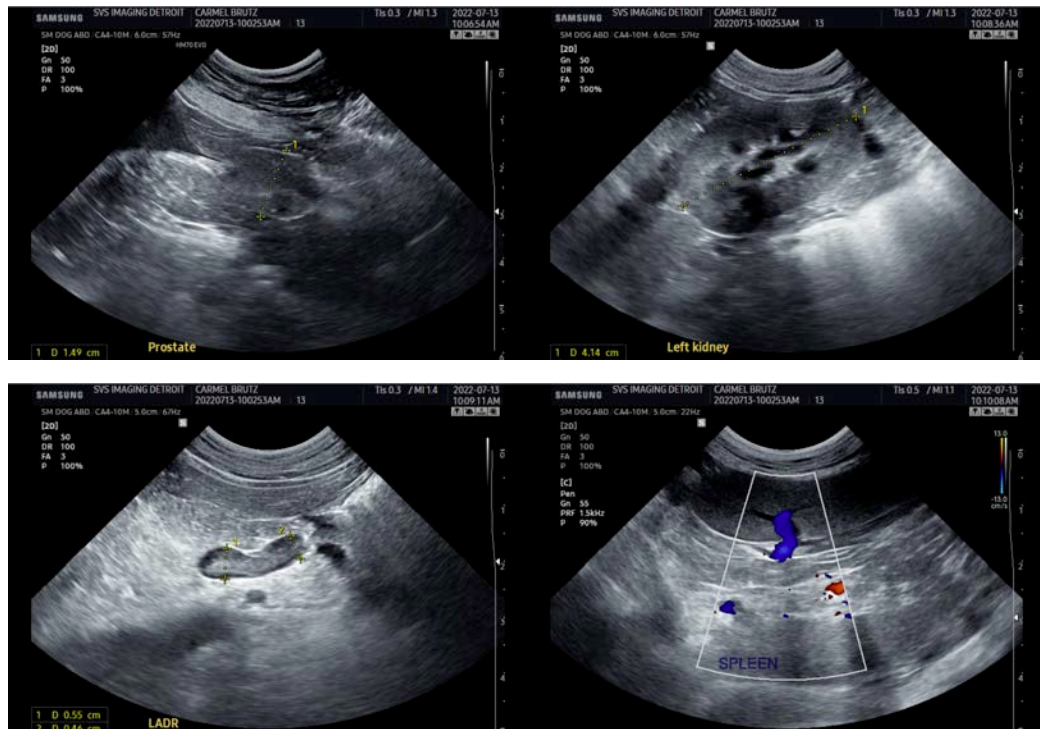
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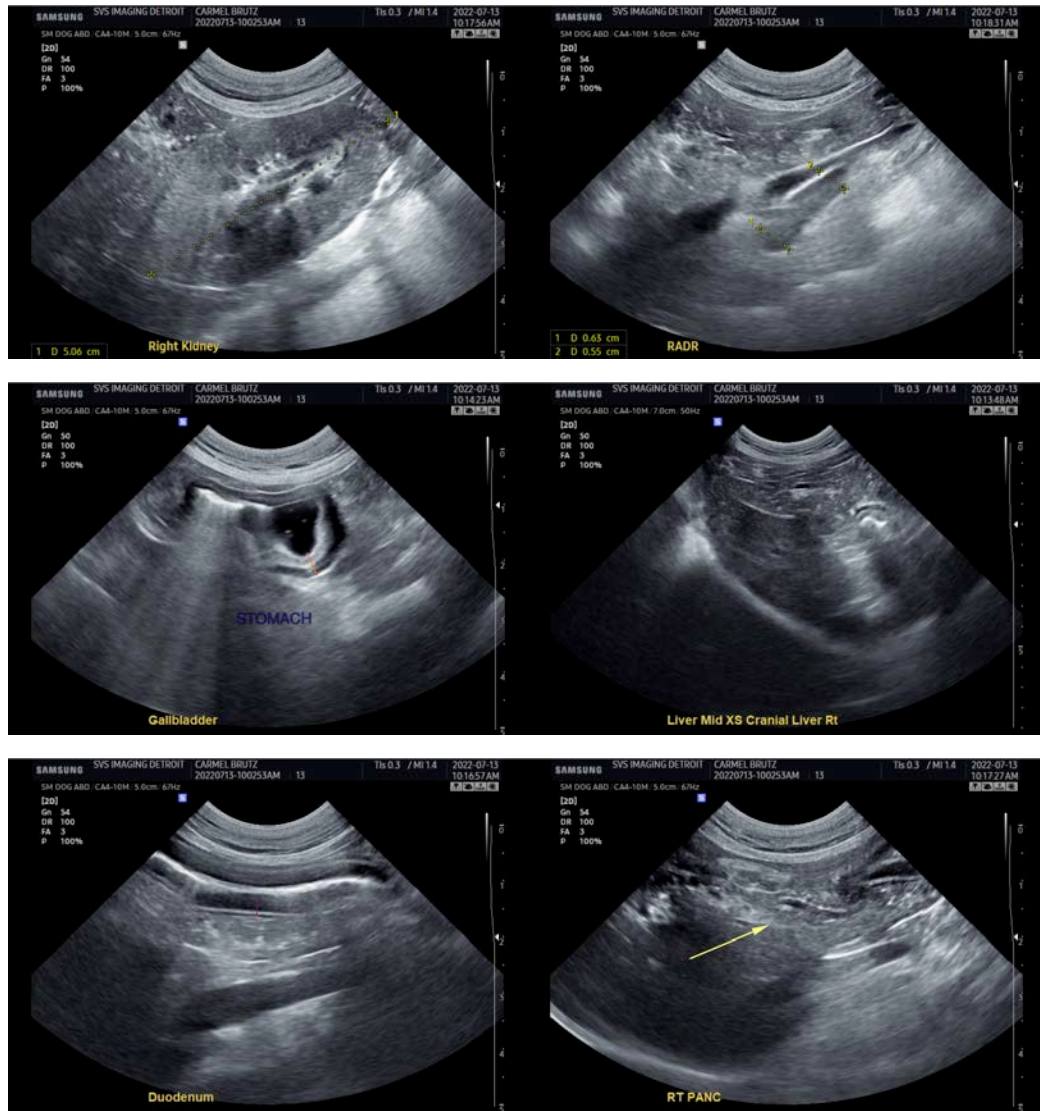
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

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