**DATE PRESENTING CLINICAL SIGNS**

8/25/22 Elevated liver values; abnormal lipase; elevated CPL.

**PATIENT** Current Medications: None listed.

Lab Results: See attached.

Brody Bentley Date of Previous IntraPet Ultrasound: No previous.

Sedation: Dexdomitor/Torbugesic.

Stat Report: Not requested.

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN****BREED** *Urinary System*

Poodle X

The urinary bladder is moderately distended with mild primarily suspended echogenic debris present. 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 calculi. Echogenic debris of this type can be associated with small crystals, cellular debris, and proteinaceous debris.

**SEX**

Intact Male

The prostate is large (1.88 cm in height in the sagittal view) but has a regular shape with smooth external margins. The parenchyma is heterogenous, but no discrete focal lesions are present. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

**AGE**

6/15/10

The left kidney has a normal shape and size (4.69 cm). 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**

18 Pounds

The right kidney has a normal shape and size (4.82 cm). 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 normal/borderline "plump", measuring 0.61 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.

**IMAGING PERFORMED BY**

Stephanie Warga  
RDMS, RVT

The right adrenal gland is normal/borderline "plump" measuring 0.60 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.

**HOSPITAL NAME**

Lake Shore Pet  
Hospital

**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.

**REFERRING VET**

Dr. Ashley

**Liver**

The liver is large 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.

**INVOICE**

40768

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.

### ***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. Jejunum wall measured 0.28 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.

### ***Other***

Both testicles are visualized. The right testicle is normal at 2.5 cm. The left testicle appears largely normal at 2.61 cm with a small hyperechoic focus measuring 0.19 cm x 0.31 cm.

## **PRIMARY FINDINGS**

- Echogenic debris in the urinary bladder – The echogenic debris in the bladder lumen could be consistent with cells, crystals, and/or mucus.
- Large, heterogeneous prostate – most consistent with benign prostatic hypertrophy +/- prostatitis.
- 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.
- Large, 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.
- Pinpoint hyperechoic lesion visualized within the right testicle – The significance of this is unclear. It likely represent a benign lesion, but an early neoplastic lesion cannot be excluded as a possibility.

## SECONDARY FINDINGS

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

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

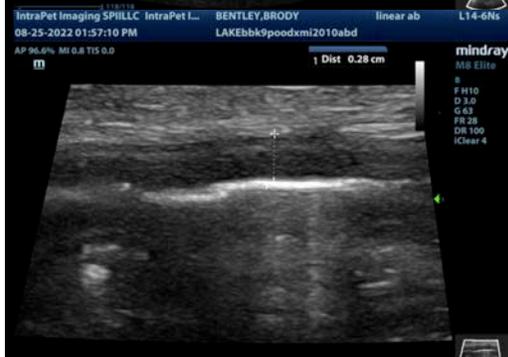
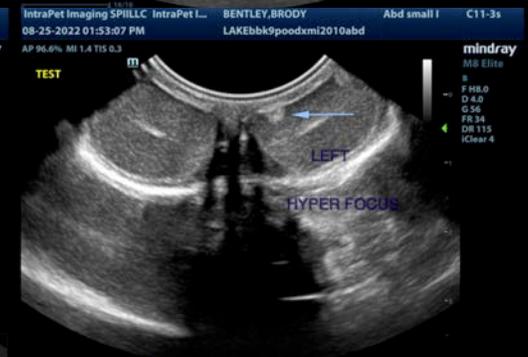
The liver is large and hyperechoic, and both adrenal glands are hypoechoic and somewhat “plump” in appearance. If signs of Cushing’s are present, consider adrenal function testing. These are my general recommendations for an ALP elevation in dogs:

- 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 Cushing’s disease are present recommend endocrine function testing to evaluate for Cushing's 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 Cushing’s developing.
- A primary vacuolar hepatopathy can be breed related and is seen in Scottish Terriers, Schnauzers, Cocker spaniels etc.

The prostate is large and heterogeneous. This could be consistent with benign prostatic hypertrophy or prostatitis. Additionally, there is echogenic debris in the urinary bladder. Recommend urinalysis and culture. If a urinary tract infection is present, then my concern for prostatitis would be much higher, and it is very difficult to clear prostatitis without neutering.

If this patient is neutered, recommend submission of the right testicle for histopathology. If neutering is not pursued, recommend continued monitoring of the hyperechoic nodule in the right testicle.







**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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