

PATIENT PRESENTING CLINICAL SIGNS

Thor Cook Reason for Ultrasound: Elevated liver values
Abnormal PE/Chem/CBC/UA Results: Abnormal CBC values: WNL Abnormal Chemistry
Values: Alk Phosphatase =825 / POTASSIUM=5.6 / HGB=21.7 / HCT=62 /

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

BREED *Urinary System*

West Highland Terrier X 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 (0.76 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. There is a hypoechoic, somewhat linear appearing region on the dorsal aspect of the prostate measuring approximately 0.24 cm x 0.95 cm. The significance of this region is unclear.

AGE

3 Years 10 Months

The left kidney has a normal shape and size (4.5 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.

WEIGHT

23 Pounds

The right kidney has a normal shape and size (4.42 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.

INTERPRETED BY

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

Adrenal Glands

The left adrenal gland is normal in size measuring 0.60 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 BY

Loetitia Saint-Jacques,
LVT

The right adrenal gland is normal in size measuring 0.50 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.

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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. Bonnie Yoffe

Liver

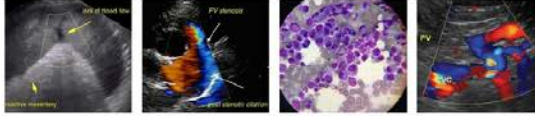
The liver is large in size, and normal in echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible

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PATIENT portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

Thor Cook

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.

SPECIES

Canine

Gastrointestinal

BREED

The stomach is moderately 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.

West Highland
Terrier X

SEX

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with mild 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 (between 0.3-0.5cm in wall thickness) and the jejunum measured as normal (between 0.2-0.47cm.) Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

Neutered Male

AGE

3 Years 10 Months

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.

WEIGHT

23 Pounds

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.

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Kathleen Sennello DVM,
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Medicine)

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.

IMAGING BY

Loetitia Saint-Jacques,
LVT

PRIMARY FINDINGS

- Large, 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.
- Moderate fluid/ingesta within the gastric lumen and mild fluid dilation of the small intestine – Findings are most consistent with lack of fasting.

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SECONDARY FINDINGS

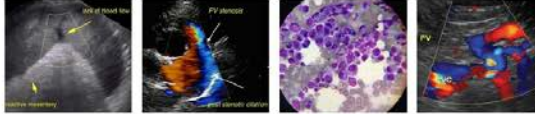
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- Linear hypoechoic area of the prostate – The significance of this is unclear. It could represent a distally dilated ureter, a small cystic region, etc. Recommend continued

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PATIENT monitoring.

Thor Cook

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

SPECIES

Canine

A primary ALP elevation is somewhat abnormal in such a young dog. No focal lesions are visualized associated with the gallbladder or liver, although the liver itself appears subjectively large and slightly heterogeneous. This is a non-specific finding. Additionally, the adrenal glands appear relatively normal in size. Consider these recommendations for a primary ALP elevation:

BREED

West Highland Terrier X

An elevation in ALP is a common finding. In general, however, causes of ALP elevation fall into three primary categories:

Induction phenomena, biliary diseases, and primary liver disorders.

SEX

Neutered Male

- 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.

AGE

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23 Pounds

- If signs of cushings disease are present recommend endocrine function testing to evaluate for cushings disease.

INTERPRETED BY

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

- 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.

IMAGING BY

Loetitia Saint-Jacques, LVT

- 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..

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If a cause for this ALP elevation cannot be identified and it is persistent or becoming progressive, I would consider a liver biopsy due to this patient's young age.

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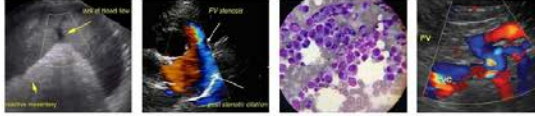
A small linear hypoechoic region is described in the dorsal aspect of the prostate. The significance of this is currently unclear. It is likely incidental at this time, but continued monitoring is warranted for further enlargement, change, etc.

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pawsonography@gmail.com 530-786-8340

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Terrier X

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Neutered Male

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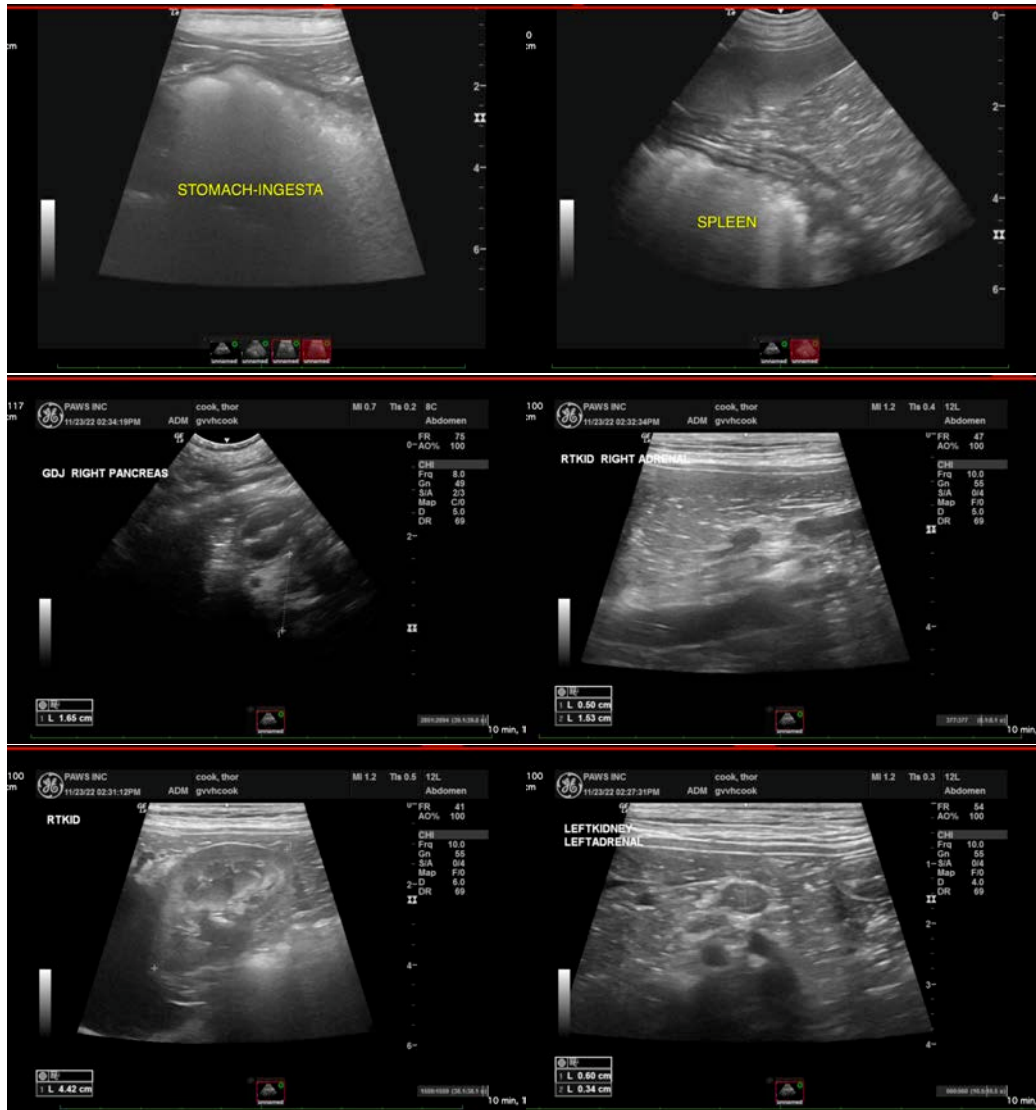
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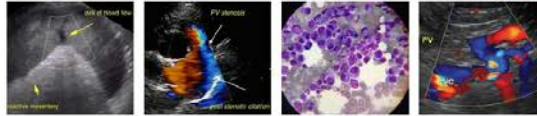
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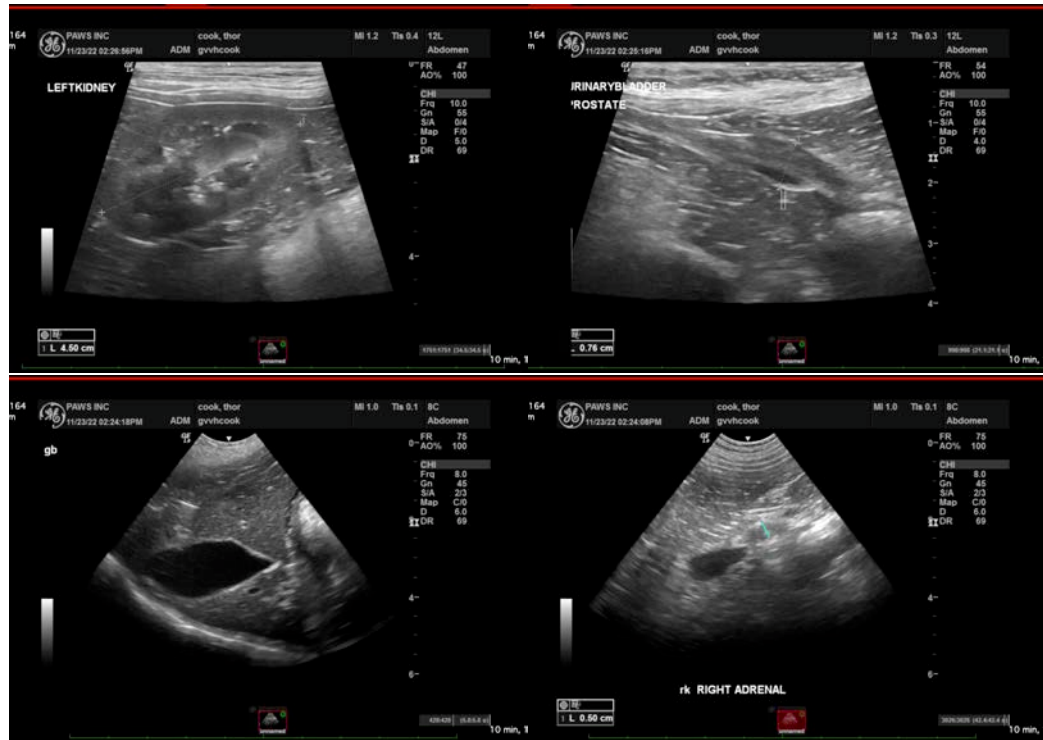
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Kathleen Sennello DVM,MS, Diplomate ACVIM (Small animal Internal Medicine)
kathleen.sennello@sonopath.com