



PATIENT

Nora Lindquist

PRESENTING CLINICAL SIGNS

History: PU/PD; elevated liver enzymes. No other clinical signs
Abnormal PE/Chem/CBC/UA Results: ALT 234, ALKP 985, USPG 1.017

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

BREED

Bull Terrier

Urinary bladder lumen volume is small and walls are diffusely thickened most consistent with pseudohypertrophy. The ureters were not visible which is normal. There was normal wall layering with no masses, uroliths or abnormal thickening visualized. Urine was anechoic. No evidence of inflammatory or neoplastic changes were noted.

SEX

Spayed female

The kidneys have a smooth capsule and with hazing of corticomedullary definition to the point of inability to determine cortical/medullary ratio. Pinpoint areas of cortical mineralization. No evidence of pelvic dilation was present. The left kidney measured 4.71 cm and the right kidney measured 4.85 cm.

AGE

14 years

Adrenal Glands

WEIGHT

44.5 lbs

Both adrenal glands were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The left adrenal gland measured 2.41 cm in length and 0.39 cm at the cranial pole and 0.47 cm at the caudal pole. The right adrenal gland measured 2.36 cm in length x 1.28 cm at the cranial pole and 0.47 cm at the caudal pole.

INTERPRETED BY

Dr Brittany Sinclair,
BVSc(hons), DACVECC

Spleen

IMAGING PERFORMED BY

Diane McFadden, RVT

The spleen was normal with a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma and smooth capsule, with normal splenic vasculature with no signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarct changes were noted.

HOSPITAL NAME

Blairstown AH

Liver

REFERRING VET

Dr. Lovell

The liver is subjectively normal in size with normal contours and structure. There is appropriate echogenicity and echotexture. No overt structural evidence of inflammatory, infiltrative or regenerative pathology is evident. Vascular and biliary tracts are of normal volume with no evidence of congestion. No pathological hepatic lymphadenopathy observed. Gallbladder is moderately distended with normal wall thickness and anechoic contents. Common bile duct is non-distended and tapers normally

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Gastrointestinal

DATE

3/6/23

The stomach contains minimal luminal contents. It measures at a normal thickness of 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



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distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. 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 base and limbs of the pancreas were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour and parenchyma were normal. No overt evidence of active inflammatory or neoplastic disease was noted.

Lymph Nodes

No clinically significant lymphadenopathy or abnormalities noted.

Free Abdomen

No masses or free fluid were noted.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

1. Normal liver
2. Degenerative renal changes
3. Thickened urinary bladder wall - suspect pseudohypertrophy

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The liver parenchyma appears normal and there is no ultrasonographic explanation for the elevated liver enzymes in this patient. There is no significant disruption of architecture noted to suggest significant pathology. Low grade inflammatory hepatopathy/reactive hepatopathy is a likely cause of LE elevations. Fine needle aspirate is recommended to further characterize parenchymal changes and bile acid profile to assess liver function. Ultimately liver biopsy is often required for more definitive diagnosis. Empiric treatments (SAM-E, milk thistle, Vitamin E, ursodiol if bilirubin elevated or gall bladder sludge) could be tried and liver enzymes re-evaluated, especially if liver FNA does not show significant pathology before more invasive liver sampling is pursued.

Renal changes are likely age related degeneration. Correlate clinical significance with blood work/urinalysis findings and clinical signs. Early renal insufficiency is a likely explanation for reported PU/PD.

Urinary bladder wall thickening is likely pseudohypertrophy secondary to low volume of urine and lack of luminal distension, however, true mural thickening cannot be definitively ruled out. Re-examination when urinary bladder lumen volume is increased with time and/or fluid therapy should be considered if clinical suspicion for urinary bladder disease is high.



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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.

Dr Brittany Sinclair, BVSc(hons), DACVECC
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