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Pet Animal Ultrasound Service
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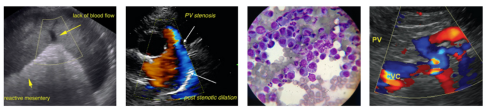


SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Bear Trunzo

SPECIES

Canine

BREED

Greater Swiss Mtn Dog

SEX

Neutered Male

AGE

8 Years

WEIGHT

110.8 Pounds

INTERPRETED BY

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

IMAGING PERFORMED BY

Pamela Harrigan, RDCS

HOSPITAL NAME

Compassionate Care

REFERRING VET

Dr. Richard Coates

INVOICE

35776

DATE

2/18/22

PRESENTING CLINICAL SIGNS

History seizure disorder well managed on Phenobarbital. Presently recently for inappropriate urination x 10 days. Owner observed stranguria/pollakiuria. Received Ciprofloxacin for 10 days prior to presentation without improvement. Patient is profoundly polydispsic, with regurgitation of water due to increased and rapid intake. Chem: creat 1.9; BUN 18; SDMA 14; ALT 144; ALP 1226; GGT 0; Tbil <0.1; USG 1,018. Several pets from the same family line developed splenic neoplasia. AUS to r/o - splenic mass(es), adrenal size in case hyperadrenocorticism. BIle acid stimulation test and LDDST will follow the AUS. *Sedated with torb/dexdomitor

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 borderline large at 1.8 cm in height on the sagittal view.

The left kidney has a normal shape and size (6.63 cm) with pyelectasia at 0.42 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 nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (7.97 cm) with mild pyelectasia at 0.24 cm and two cystic structures measuring 0.9 and 1.7 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 nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.68 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 0.57 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.

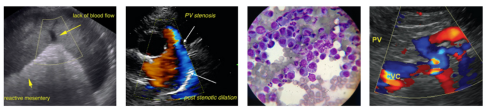
Spleen

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 subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is mildly heterogenous 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.

The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are primarily anechoic. The cystic and common bile ducts are normal/not visible.



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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 0.32 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

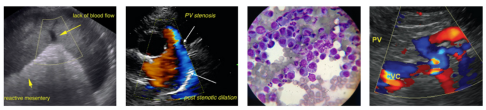
- Borderline large prostate – The prostate has normal contours and appears relatively normal, but is large in size. This could be normal for this pet, particularly if neutering was done after puberty.
- Bilateral renal pyelectasia – Pyelectasia of the left/right kidney could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.
- Mildly heterogeneous – 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.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

An obvious cause for the stranguria reported is not observed. There is a slightly prominent prostate, which is likely normal for this large dog. If lower urinary tract symptoms persist, you could consider a fine needle aspirate of the prostate, but prior to considering that, I would recommend a urinalysis and culture once off antiobitcs for at least a week, and abdominal radiographs to look for distal urethral stones, etc. Additionally, you can have a functional obstruction with dyssynergia.

There is bilateral pyelectasia observed. This could be secondary to the PU/PD, or this could be an indicator of pyelonephritis, Leptospirosis, etc. Recommend urinalysis and culture (as previously recommended), Leptospirosis testing, and blood pressure evaluation.

The liver appears mildly heterogeneous. Part of this is likely secondary to a vacuolar hepatopathy due to the Phenobarbital this dog is on. Consider a liver function test or possibly a fine needle aspirate of the liver. Below I will include a list of differentials for PU/PD, which I use as a check list with dogs to make sure I am not missing a possible differential. In this dog, I would focus on issues with urinary tract and



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liver.

An obvious lesion responsible for the reported increase in thirst and urination was not visualized. Some issues such as early renal disease, cushings disease, behavioral issues, neurologic disease, dietary issues, electrolyte disturbances etc.. are not able to be diagnosed with ultrasound alone. These can be challenging cases. The top 10 differentials can be ruled in/out with routine bloodwork, urinalysis and culture. Several more can be evaluated with a good history and imaging. Unfortunatel, as you work your way down the list the differentials become harder to definitively diagnose. This is the differential list I start with:

(1) Hyperadrenocorticism (may be a mixed primary PU and PD)
(2) Hypoadrenocorticism (either Addison's or hypocortisolism)
(3) Hypercalcemia
(4) Diabetes Mellitus
(5) Liver Disease (hepatic encephalopathy may be a mixed primary PU and PD)
(6) Pyelonephritis
(7) Leptospirosis (can present without azotemia)
(8) Chronic Renal Disease/Renal Failure (can present pre-azotemic, especially in dogs, but expect the BUN & creatinine not to be at the low end of the reference range)
(9) Hyperthyroidism
(10) Hypokalemia
(11) Pyometra (including stump pyometra in spayed dogs)
(12) Renal Tubular Diseases (glycosuria or Fanconi & Fanconi-like syndromes or RTA)
(13) Chronic Partial Urinary Obstruction or Post-Obstructive Diuresis
(14) Iatrogenic Disease due to medications (diuretics, phenobarbital, KBr; diets either high in salt [such as S/D] or very low in protein (such as U/D))
(15) Pheochromocytoma
(16) Polycythemia
(17) Hypertension Acromegaly (expect these patients to have diabetes)
(18) Paraneoplastic Syndromes (particularly splenic hemangiosarcoma?)
(19) Pericardial Effusion
(20) Atypical Cushing's and SARDS Psychogenic Polydipsia (as in a true behavior disorder with a compulsive element)
(21) Primary Non-Medical Polydipsia (aka "I drink a lot because I like it or I engage in activities that promote it, but that doesn't mean I'm sick")
(22) Psychogenic Polydipsia (as in a true behavior disorder with a compulsive element)
(23) Acromegaly (expect these patients to have diabetes)
(24) Primary Nephrogenic Diabetes Insipidus (Congenital Nephrogenic Diabetes Insipidus, other diseases that cause primary PU other than Congenital Diabetes Insipidus would be considered Acquired Nephrogenic Diabetes Insipidus)
(25) Central Diabetes Insipidus

**Keep in mind that diabetes insipidus is a VERY rare disorder and that water deprivation tests are rarely/if ever recommended-if possible consider referral to an internal medicine specialist if reaching that point.

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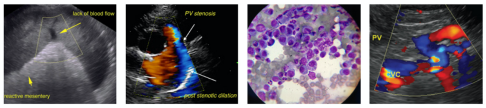

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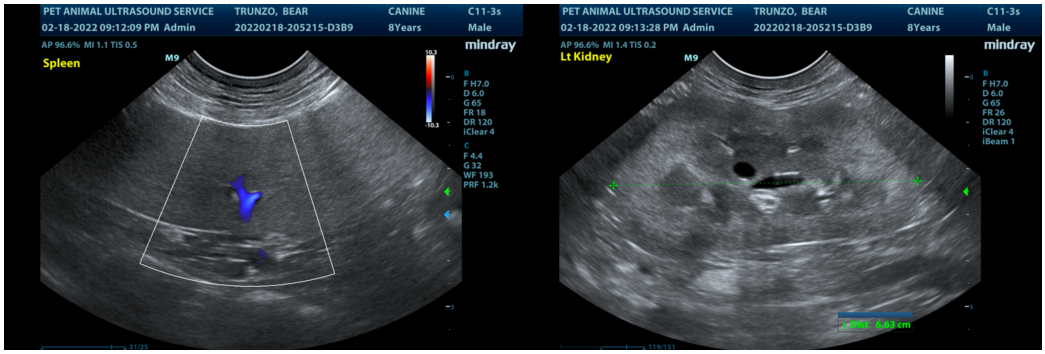

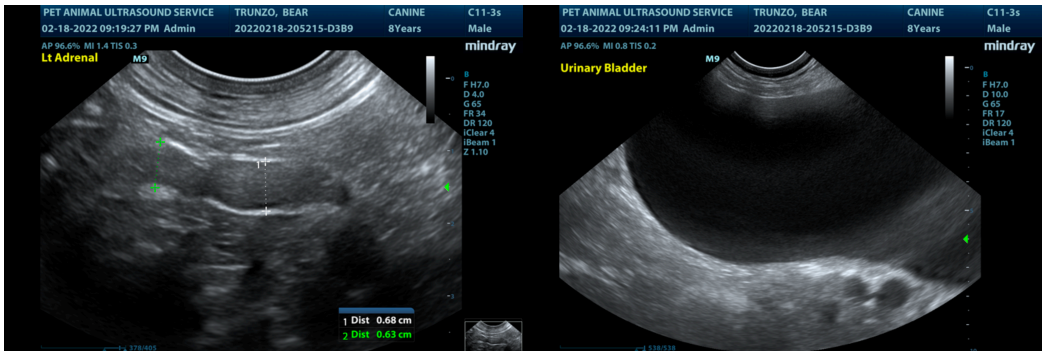

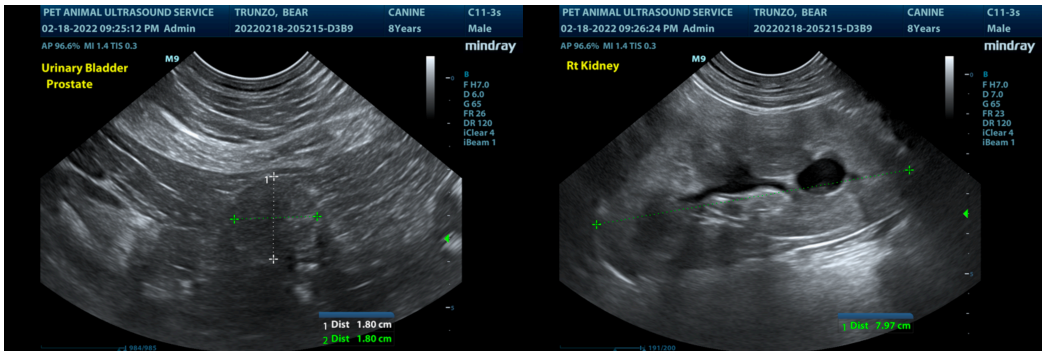

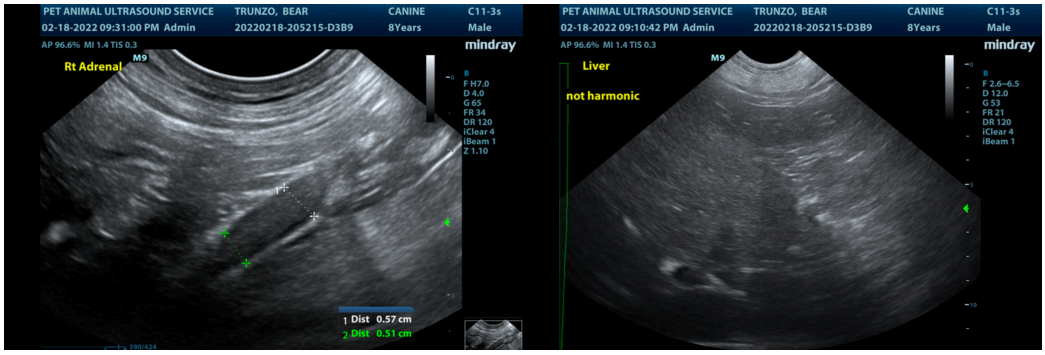

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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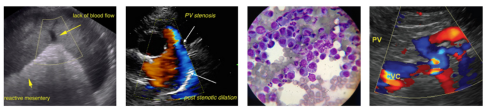

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