



PATIENT

Rexi Gattolico

PRESENTING CLINICAL SIGNS

History: 13 yo MN Diabetic puggle, losing weight, still PU/PD, on 7 units Novolin N Q12.
Abnormal PE/Chem/CBC/UA Results: Fructosamine >500 ALP elevated at 1,054 nRBCs 4/100 HPF

SPECIES

Canine

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

BREED

Puggle

Urinary System

Urinary bladder lumen volume is small and walls are diffusely thickened most consistent with pseudohypertrophy. There is a 0.54cm projection from the ventral aspect of the bladder wall and a similar appearing 0.72x2.66cm mass on the opposite dorsal bladder wall which is broader and extends caudally along the dorsal bladder wall surface towards the neck of the bladder.

SEX

Neutered male

The kidneys have a slightly irregular capsule and with mild hazing of corticomedullary definition with approximate maintenance of normal ratio (cortex 1/3 of medulla). There is a hyperechoic band between the cortex and medulla bilaterally. No evidence of pelvic dilation present. The left kidney measured 4.97 cm and the right kidney measured 4.88 cm.

AGE

13 years

Adrenal Glands

WEIGHT

23 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 1.58 cm in length and 0.64 cm at the cranial pole and 0.52 cm at the caudal pole. The right adrenal gland measured 1.71 cm in length and 0.68 cm at the cranial pole and 0.53 cm at the caudal pole.

INTERPRETED BY

Dr Brittany Sinclair,
BVSc(hons), DACVECC

Spleen

IMAGING PERFORMED BY

Dr. Petrone

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

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Liver

REFERRING VET

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The liver is subjectively enlarged in size with slight rounding of lobes and homogenous hyperechoic parenchyma with no specific nodules or masses. Vascular and biliary tracts are of normal volume with no evidence of congestion. No pathological hepatic lymphadenopathy observed.

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The gall bladder is moderately distended with anechoic fluid, with hyperechoic non-shadowing gravity dependent debris present. There is no surrounding free fluid or signs of active inflammation.

DATE

2/14/23

Gastrointestinal

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



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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. 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. Diabetic hepatopathy
2. Gall bladder debris
3. Degenerative renal changes with medullary rim sign
4. Urinary bladder wall masses
5. Thickened urinary bladder wall suspect pseudohypertrophy

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Hepatic parenchymal changes are a common finding in the face of diabetes mellitus, though other endocrinopathy (hypothyroidism), infectious or inflammatory hepatitis (bacterial, viral, auto-immune other), and neoplasia among other things remain possibilities. As elevated liver enzymes are present, fine needle aspirate is recommended to further define.

Gall bladder debris may be an incidental finding given lack of surrounding inflammation. The amount of debris appears similar to previous ultrasound in July of 2022. In the face of elevated ALKP ursodiol could be given as a choleretic and empiric treatments (SAM-E, milk thistle, Vitamin E) could be tried. If liver supportive medications do not improve liver enzymes, a course of empiric antibiotics (clavamox, enrofloxacin) could be considered to cover for infectious cholangiohepatitis, though the lack of surrounding inflammation makes this less likely. Imaging should be rechecked on a routine basis for monitoring (q3-6mo) or if further significant increase in liver enzymes and/or new clinical signs are noted. If otherwise clinically indicated, investigation for endocrinopathy such as hyperadrenocorticism



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or hypothyroidism could be considered as an underlying cause predisposing to gall bladder debris accumulation.

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Renal changes are likely age related degenerative changes. Medullary rim sign is non specific and is seen in pets both with and without significant renal disease, and is commonly seen in pets with diabetes. It can be an indication of nephritis and evaluation for proteinuria is recommended. Correlate clinical significance with blood work/urinalysis findings and clinical signs.

BREED

Puggle

Urinary bladder wall masses may represent benign polyps, papillomas or areas of chronic mucosal thickening from chronic cystitis, or neoplasia with transitional cell carcinoma being the most common tumor of the bladder. Urine CADET BRAF test is recommended. Urinalysis and culture is recommended. Diffuse 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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Neutered male

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WEIGHT

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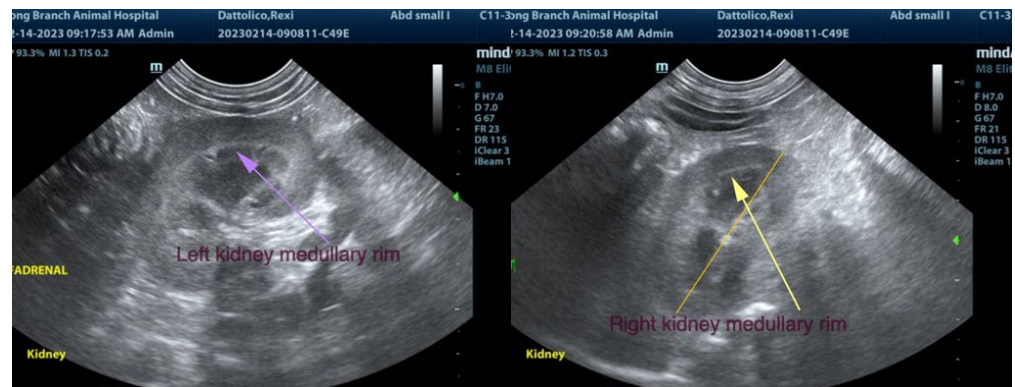
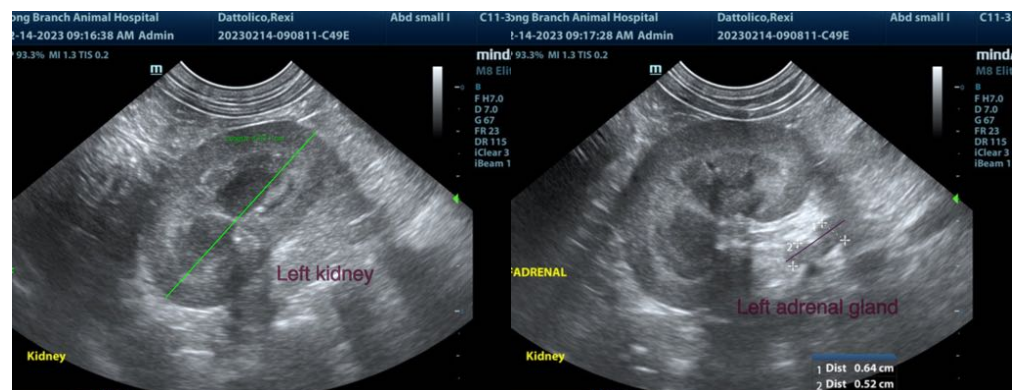
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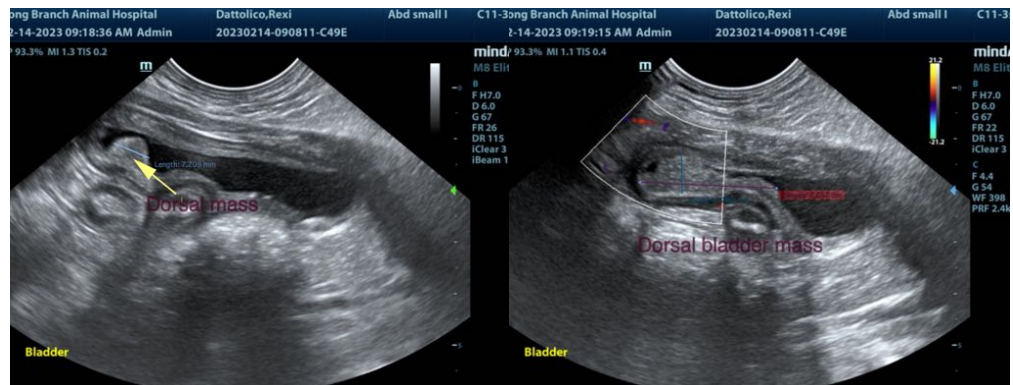
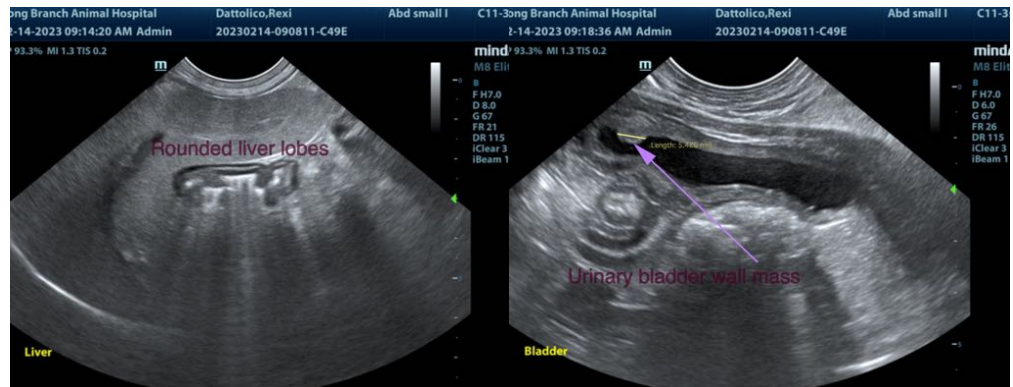
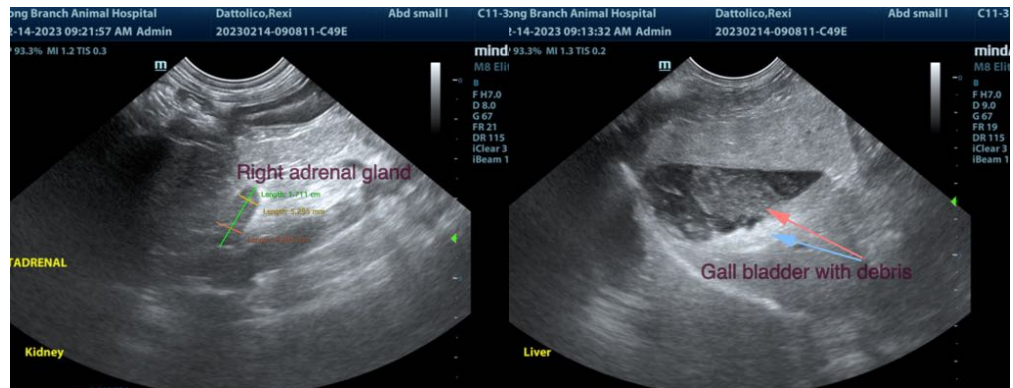
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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