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Clinical Sonography & Telecytology
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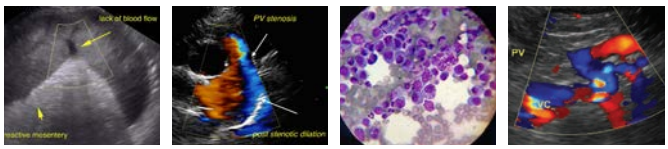


SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Mcgregor Appleton

SPECIES

Canine

BREED

West Highland White Terrier

SEX

Neutered Male

AGE

15 Years

WEIGHT

7 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Dr. Sarah Barthelemy

HOSPITAL NAME

Glamorgan Animal Clinic

REFERRING VET

Dr. Mcauley

INVOICE

46594

DATE

4/12/23

PRESENTING CLINICAL SIGNS

Presented for hyporexia and weight loss.

Abnormal PE/Chem/CBC/UA Results: Marked ALT elevation 2449, Moderate ALP elevation, mild bilirubin elevation 5.7. Lipase elevation 853, mild hypoalbuminemia 26. U/A shows minimally concentrated urine USG 1.028, pyuria, hematuria, proteinuria, and 1+ glucosuria without hyperglycemia.

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 normal in size (0.96 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.

The left kidney is borderline large (4.29 cm) but normal in shape, with pyelectasia at 0.31 cm. Overall echogenicity is slightly hyperechoic with poor 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 nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney is borderline large (4.36 cm) but normal in shape, with pyelectasia at 0.32 cm. Overall echogenicity is slightly hyperechoic with poor 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 nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is large, measuring 1.15 cm at the cranial pole, 1.05 cm at the caudal pole, and 2.3 cm in length. It is observed in its normal position cranial to the left renal artery. It is abnormal in appearance in that it is large and rounded in appearance. There is no evidence of vascular invasion visualized.

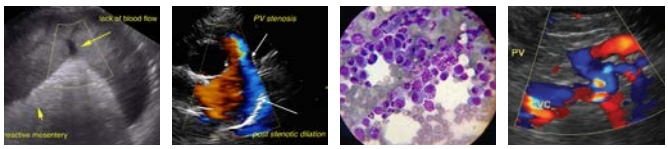
The right adrenal gland is normal in size measuring 0.41 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

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. There is a small hypoechoic nodule visualized near the head of the spleen measuring 0.67 cm in diameter.

Liver

The liver is normal/borderline small, and normal in 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.



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The gallbladder lumen is significantly 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.

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 uniform diameter with minimal fluid distension. Wall appears subjectively, mildly increased. Bowel loops follow a typical curvilinear path with distinct wall layering. Duodenum wall measures 0.53 cm. Jejunum wall measures 0.32 cm. There is mild mucosal speckling visualized. 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

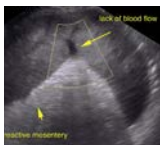
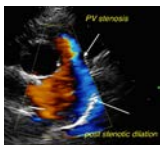
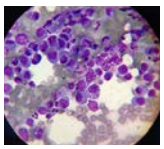
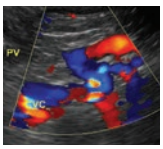
The right limb of the pancreas is prominent and mottled compared to the surrounding isoechoic mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

Free Abdomen

There is a small amount of free abdominal fluid. No lymphadenopathy. The omentum is generally of normal echogenicity.

ULTRASONOGRAPHIC FINDINGS

- Enlarged left adrenal gland – Adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.
- Decreased corticomedullary distinction in both kidneys with bilateral pyelectasia – Mild loss of corticomedullary distinction in both kidneys could be consistent with chronic degenerative disease or interstitial nephrosis. Pyelectasia of the kidney(s)could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.
- Small hypoechoic nodule visualized in the spleen – There is a non-cavitated, hypoechoic splenic nodule visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.
- Hypoechoic, prominent right limb of the pancreas – The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation.
- Borderline small, heterogenous 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.

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- Subjectively thickened small intestine with mild mucosal speckling – Bright mucosal speckling has been postulated to represent dilated lacteals or focal accumulations of mucus, cellular debris, etc.. in the mucosal crypts.

- Small amount of free abdominal fluid.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The liver appears borderline small and mildly heterogeneous. No distinct focal lesions are visualized to explain the elevation in liver enzymes observed. The gallbladder is significantly distended, but there is no evidence of bile duct dilation observed. Unfortunately, there are many causes for elevations in liver enzymes, which cannot be definitively diagnosed by ultrasound alone. Consider the following:

- Consider close evaluation of history for possible toxic changes examine medications, diet, dietary indiscretion etc...

- Consider PCR on urine/serum for leptospirosis (if not on antibiotics)/serology if recent antibiotic history

- If not already done, consider pre and post prandial bile acids to evaluate liver function

- Consider Fine needle aspirate if round cell neoplasia is on your differentia list (25 g needle, normal coags)

- If no response to supportive care (Denamarin, fluids, antibiotics, +/- ursodiol etc.) Consider liver biopsy with samples obtained for histopathology, culture, and copper levels.

The left adrenal gland is large and irregular, most consistent with an adrenal mass. This could represent a benign or neoplastic lesion and could be secreting hormone or be non-secretory. Consider adrenal function testing (adrenal function testing would be difficult to interpret at this time due to concurrent illness). Additionally, recommend a blood pressure evaluation. If hypertension is present, consider measuring catecholamine levels. A contrast CT scan could be considered to further evaluate for vascular invasion and possible surgical removal once this patient is feeling better.

There is a small hypoechoic nodule visualized associated with the spleen. Options moving forward would include a fine needle aspirate or continued monitoring with ultrasound.

There are significant changes observed in both kidneys with bilateral pyelectasia. Recommend a blood pressure evaluation, urinalysis and culture, as well as a urine protein to creatinine ratio.

The small bowel appears subjectively thickened with some mucosal speckling. The significance of this is unclear without a history of underlying gastrointestinal upset. Consider continued monitoring and additional workup if clinically warranted.

The cause of the free fluid observed is unclear. Consider a liver function test. If liver function is normal, then consider evaluation of the urine protein to creatinine ratio, and a GI panel to Texas A&M, looking for evidence of possible albumin loss through the kidneys or GI tract.

Recommend three view thoracic radiographs to evaluate for possible concurrent thoracic disease/involvement.

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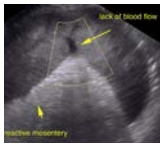
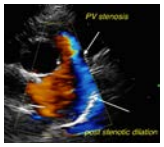
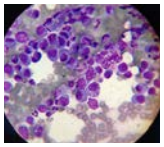
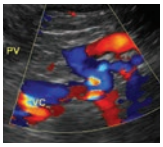

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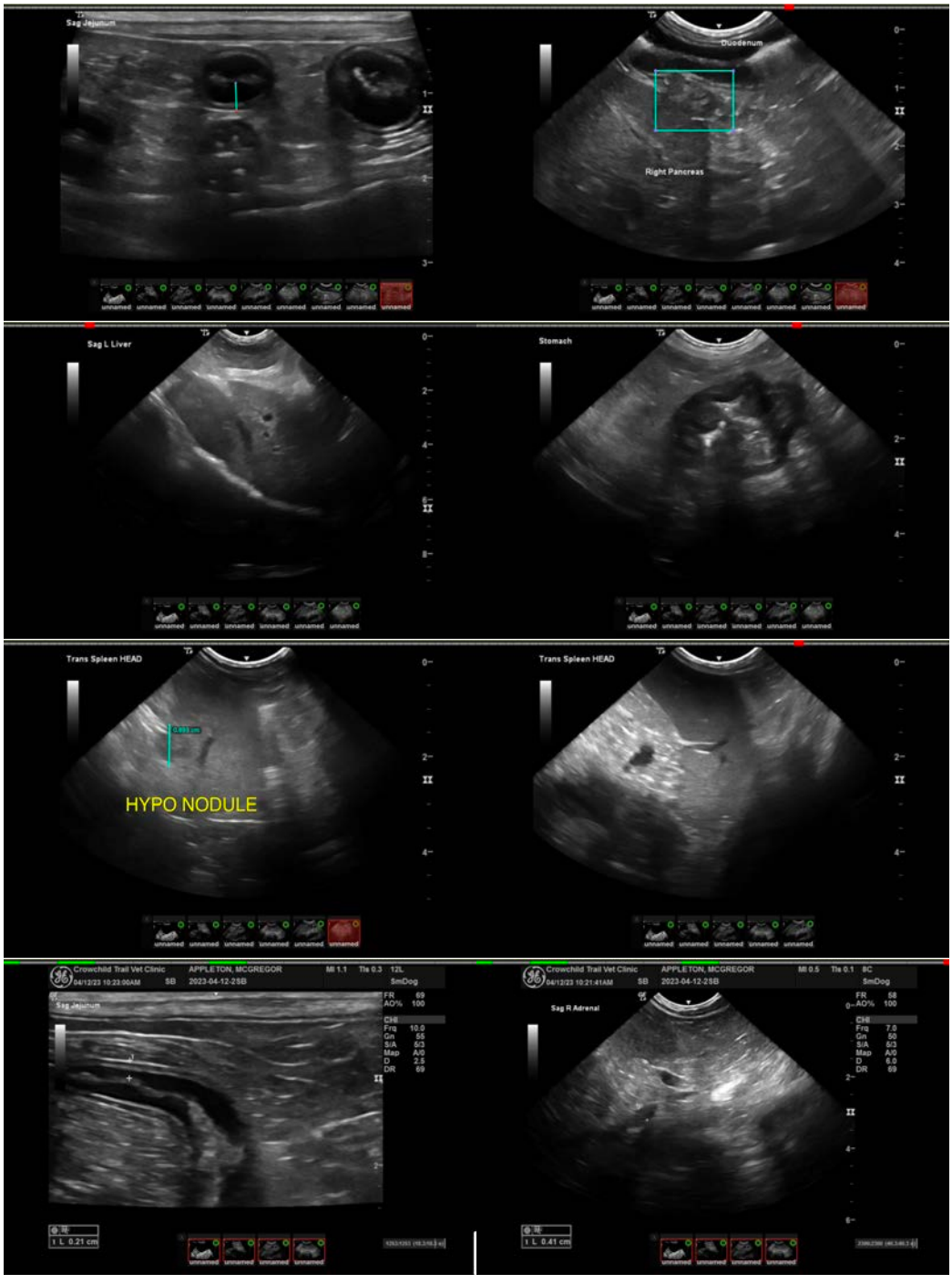

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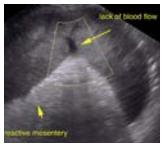
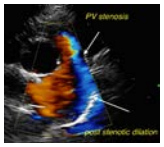
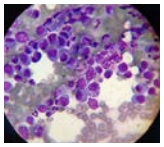
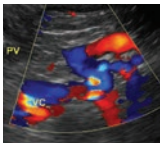

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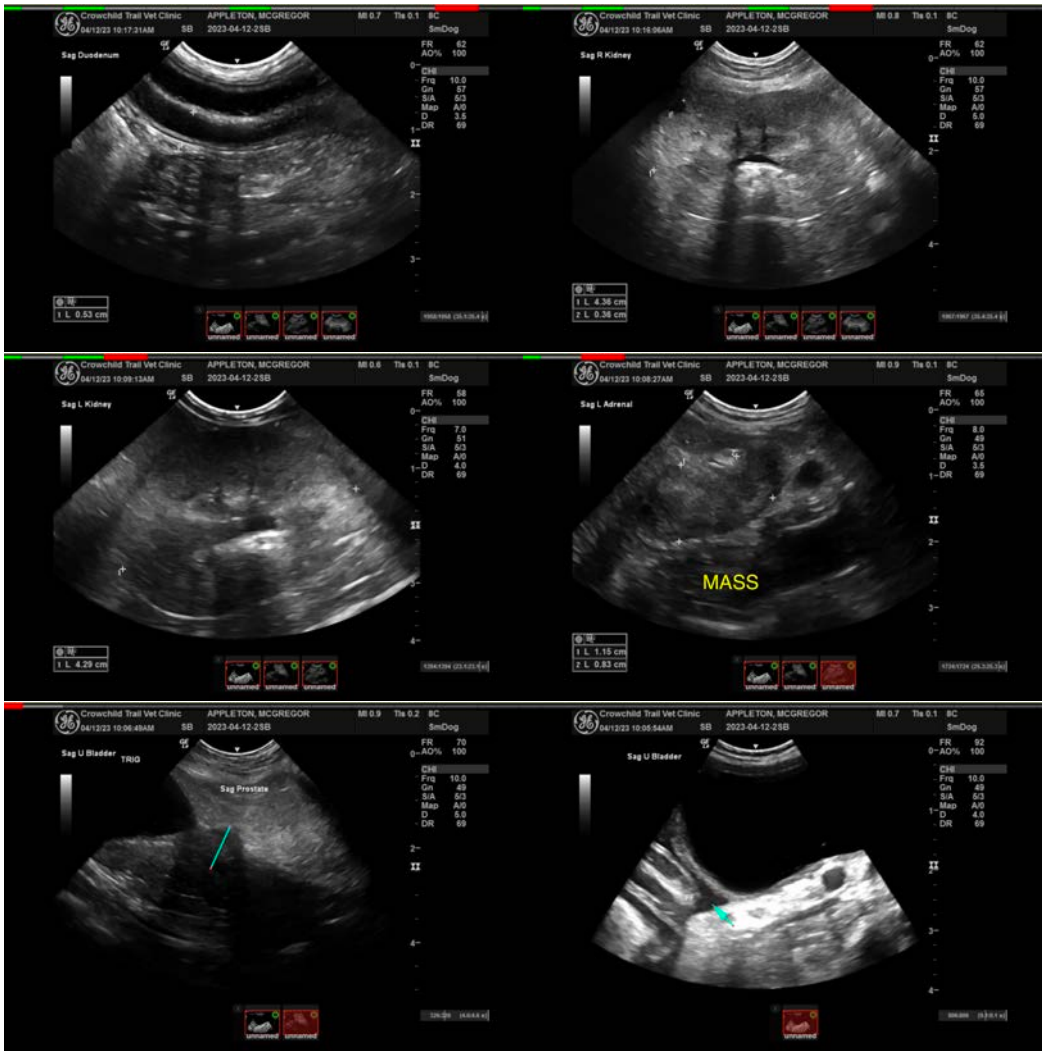

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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