IMAGING PERFORMED BY

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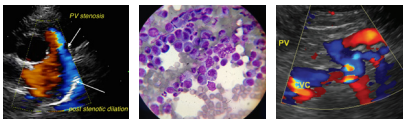

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DATE
1/11/22

PATIENT
Little Man Roden

SPECIES
Canine

BREED
Shetland Sheepdog Mix

SEX
Intact male

AGE
12/31/11

WEIGHT
22.3 lbs

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

HOSPITAL NAME
Bel Air VH

REFERRING VET
Dr. Schmidt

INVOICE
95127

PRESENTING CLINICAL SIGNS

History: Recently adopted - 12/30/21. Rescue from Kentucky; not eating, vomited worms, blood in stool, coughing. BCS 1/5. Harsh cough. L testicle enlarged; prostate enlarged.
Current Medications: Denamarin. Convenia.
Lab Results: inc liver values: AST 341, ALT 1577, ALK 811, GTP 37, Bili 1.8, Alb 2.5, Glob 5.2, BUN 38. Fecal-roundworms, coccidia.
Date of Previous IntraPet Ultrasound: No previous IntraPet scans.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Rachel Brilhart, RDMS.

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 large with fairly regular margins. It measures 4.34 x 3.37 cm. The parenchyma is hyperechoic with too numerous to count, small, intraparenchymal cysts. The largest isolated cyst measures 1.4 cm. The area of the prostatic urethra appears normal with no evidence of cystic calculi or mass invasion. The findings are most consistent with benign prostatic hypertrophy/prostatitis with prostatic cysts.

The left kidney has a normal shape and size (6.41 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. Pyelectasia was noted and measured 0.3 cm. A shadowing mineralization was noted in the cortex that measured 0.52 cm. There is no evidence of infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (6.55 cm). Overall echogenicity is slightly hyperechoic with poor corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. Pyelectasia was noted and measured 0.3 cm. There is no evidence of nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is large in size measuring 1.19 cm at the cranial pole, 0.53 cm at the caudal pole and 2.16 cm in length. It is observed in its normal position cranial to the left renal artery. It is irregular in appearance as there is a hypoechoic mass effect/nodule in the cranial pole measuring 1.19 x 1.1 cm. This is most consistent with a left cranial adrenal nodule.

The right adrenal gland is normal in size measuring 0.82 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 large in size, and echogenicity with smooth peripheral margins. The parenchyma is 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 gallbladder is not thickened and has a smooth mucosal surface. Luminal contents are 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 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. 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.

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 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.

Other
Both testicles were visualized and appear normal with no obvious lesions. The left testicle measured 2.89 cm in length and the right testicle measured 2.74 cm.

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
PRIMARY FINDINGS:

- Large, hyperechoic cystic prostate. The findings are most consistent with benign prostatic hypertrophy/prostatitis with prostatic cysts. Prostatic abscesses cannot be ruled out as a possibility.

- Hypoechoic, nodule at the cranial pole of the left adrenal gland. Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

- Bilaterally decreased corticomedullary distinction with bilateral pyelectasia. Mild loss of corticomedullary distinction in both kidneys could be consistent with chronic degenerative disease or interstitial nephrosis. Pyelectasia of the left/right kidney could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.

- Large 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.

- Prominent mottled pancreas. The pancreatic changes are most consistent with age-related parenchymal remodeling, potentially secondary to a prior inflammatory episode, early fibrosis or chronic pancreatitis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

This older pet has many ultrasonographic abnormalities some of which can be attributed to age and some are likely incidental findings. Of primary importance at this time is that this pet is not feeling well and not eating. This is most likely related to the elevation in ALT reported. No focal lesions are observed in the liver so I would be most concerned about a primary hepatopathy.

- 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
- If the ALP is significantly elevated relative to the ALT and symptoms consistent with Cushing's are present, consider adrenal function testing (ACTH stim)
- 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 prostate is large and cystic. This is not uncommon for an older intact male dog. I recommend urinalysis and culture +/- FNA of the prostate. If an abscess is thought unlikely then consider neutering. If an abscess is thought likely based on a FNA then consider draining the larger cyst and neutering along with appropriate antibiotic treatment based on culture and sensitivity results.

There is a moderate sized nodule in the left cranial pole of the adrenal gland. This could be an incidental finding or this could be a malignancy. Additionally they can secrete hormones or be non-active. Options moving forward include:

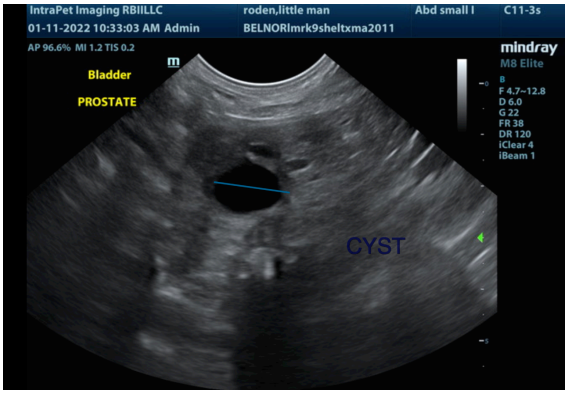
- If signs of Cushing's are present, consider adrenal function testing. I prefer an ACTH stimulation test combined with an adrenal panel to the University of Tennessee's endocrine lab to look for atypical adrenal hormones as well as cortisol. (other testing can suffice)
- If adrenal dependent Cushing's is suspected and supported by adrenal function testing consider medical therapy with Lysodren or Trilostane or consider surgical removal (recommend referral to a board certified veterinary surgeon and possible pre op CT)
- Recommend blood pressure evaluation-if hypertensive consider testing catecholamine levels for a possible pheochromocytoma
- If no symptoms of Cushing's are present, consider either referral for surgery or continued monitoring with ultrasound (in 3-4 months).
- Many of these nodules can be benign and incidental in nature, unfortunately that is difficult to determine with a single ultrasound.

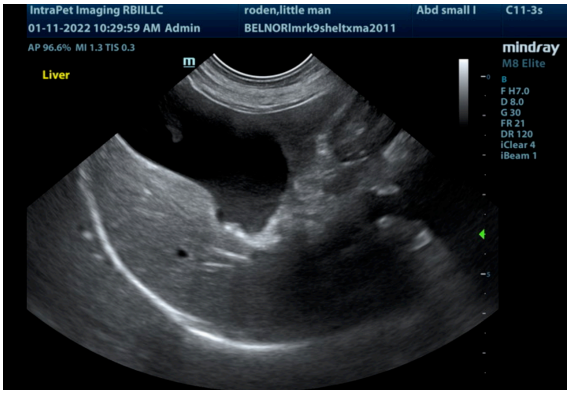
I would not consider addressing the adrenal mass until the dog is feeling better and is stable. A blood pressure evaluation should be done early to rule out hypertension.

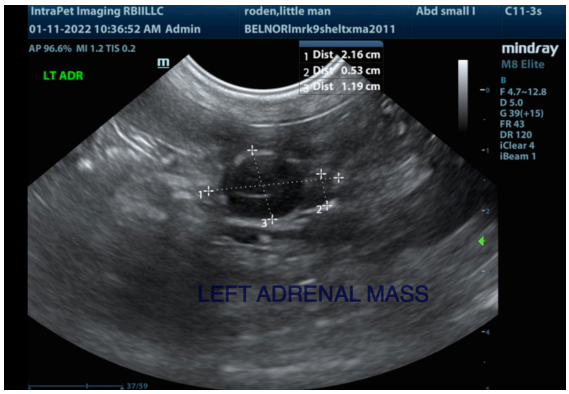
There are changes in both kidneys that could be consistent with chronic progressive kidney disease/age related change, etc. I recommend urinalysis and culture (previously mentioned) to look for evidence of pyelonephritis. I recommend blood pressure evaluation and a urine protein to creatinine ratio to look for proteinuria as a potential differential for the hypoalbuminemia reported.

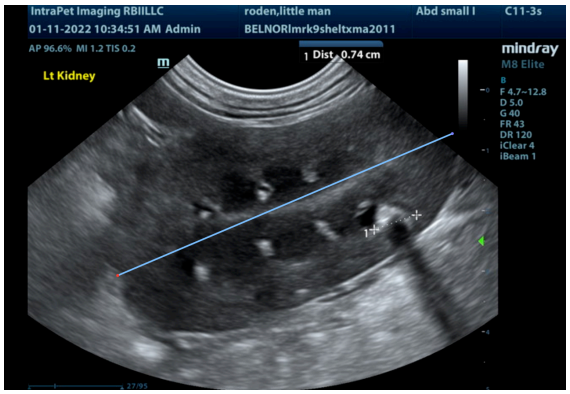
This patient has a low serum albumin level. This could be due to liver disease (recommend liver function testing), GI disease secondary to the GI parasites or due to renal disease (urine protein to creatinine ratio recommended).

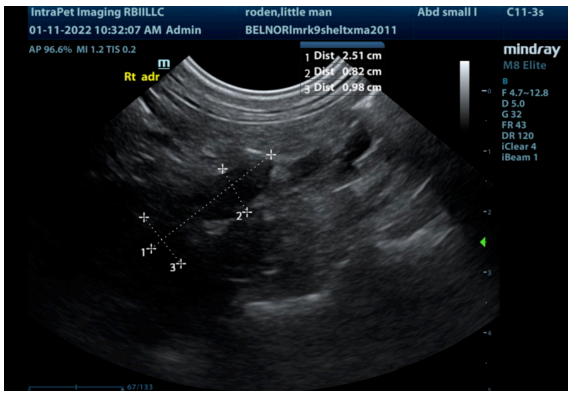
I recommend three view thoracic radiographs to look for evidence of metastatic disease and to further evaluate the cough reported.

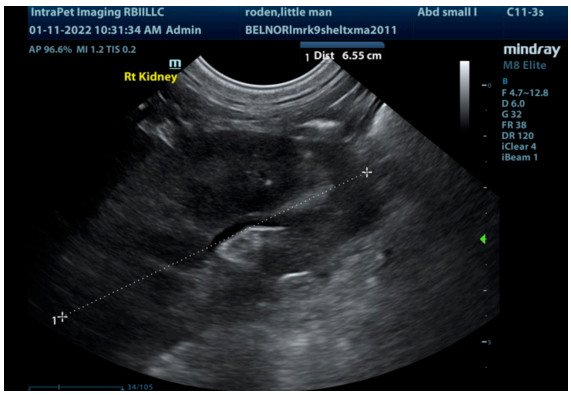


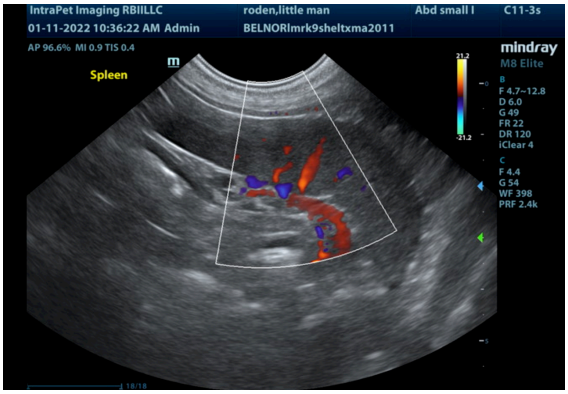


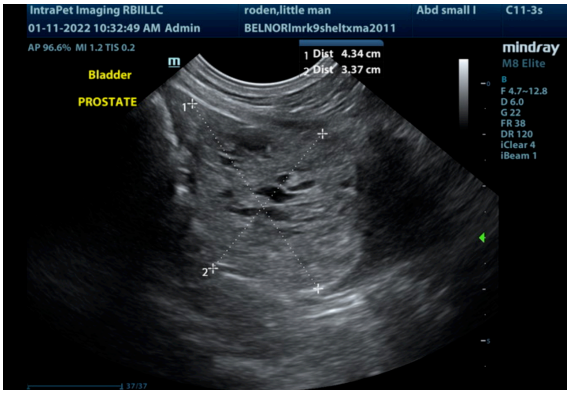


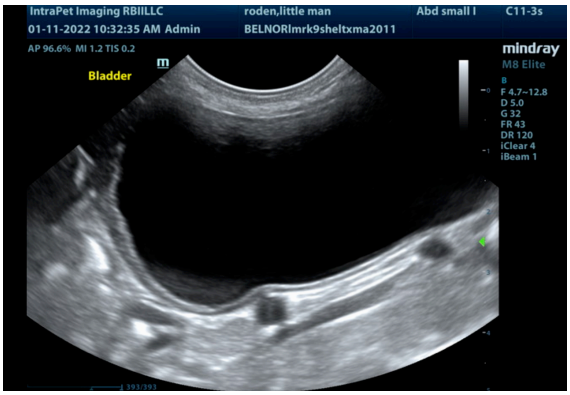


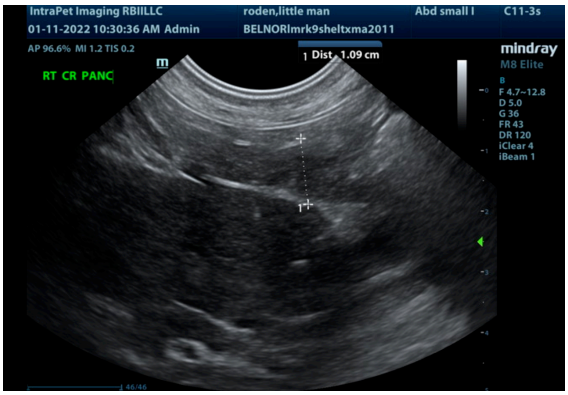












The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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