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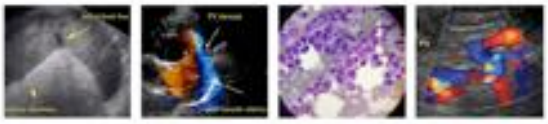


IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8348

PATIENT

Yoshi Wasley

SPECIES

Canine

BREED

Pug

SEX

Neutered Male

AGE

12 years

WEIGHT

24.36 lbs

INTERPRETED BY

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

IMAGING PERFORMED BY

Loetitia Saint-Jacques, RVT

HOSPITAL NAME

Marysville Veterinary

REFERRING VET

Dr. Berg

INVOICE

95328

DATE

1/18/22

PRESENTING CLINICAL SIGNS

SEDATION: No, vocalizing which caused abdominal wall to push out with every video and not fasted since diabetic. Referring veterinarian: Dr Grace Berg Hospital Name: Marysville Vet Hospital Patient's name: Yoshi Wasley Owner's first and last name: Sarah Wasley Species: Canine Gender (altered?): MN Age: 12 yrs 8 mos Weight in #: 24.36 Breed: Pug Chief Concern/Provisional Dx: Polychromasia with increased MCV, MCH, decreased albumin with increased globulins, frequent recurring urinary tract infections with a history of cystotomies, diabetes mellitus, kcs History: Yoshi is on insulin for diabetes mellitus. Evaluate for neoplasia, stones, intestinal disease, cause of frequent urinary tract infections. Physical : KCS (with treatment of Optimmune) Senior Screen Summary1/3/2022: as listed above

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is mildly distended with anechoic urine. The bladder wall appears diffusely thickened and irregular particularly in the ventral aspect of the urinary bladder. The bladder wall measured approximately 0.68 cm. Additionally in the dependent portion of the urinary bladder wall there is hyperechoic reverberating areas that are most consistent with gas opacity. There is concern for intraluminal or intramural gas although some mineralization cannot be excluded as a possibility.

The prostate is normal in size (1.1 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 has a normal shape and size (5.6 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. Non-obstructive nephroliths were noted. There is no evidence of pyelectasia, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (5.1 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. Non-obstructive nephroliths were noted along with significant pyelectasia that measured 0.35 cm. There is no evidence of infarcts or hydroureter. Renal vasculature is normal.

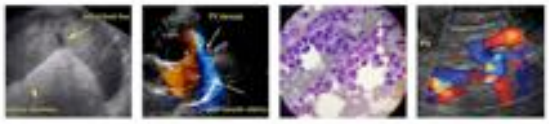
Adrenal Glands

The left adrenal gland is large in size measuring 0.96 cm at the cranial pole, 0.65 cm at the caudal pole and has a length of 1.3 cm. It is observed in its normal position cranial to the left renal artery. It is somewhat irregular in appearance in that the cranial pole is larger than the caudal and somewhat more hyperechoic creating the effect of a cranial adrenal nodule. There is no evidence of vascular invasion.

The right adrenal gland is normal in size measuring 0.55 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 or large) in size The spleen echotexture is heterogenous and mottled, the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic



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parenchyma appears normal. There are two, ill-defined, hypoechoic nodules that are visualized in the parenchyma. One measured 0.75 cm in diameter and the other measured 0.52 cm.

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. Occasional, ill-defined, hypoechoic nodules are visualized. One nodule measured 0.7 cm. The gallbladder lumen is significantly distended with a large amount of mixed echogenic debris, which is starting to organize and form mucosal stranding. The gallbladder wall appears mildly thickened with adherent debris. There is no surrounding inflammation or free fluid. This is most consistent with a gallbladder mucocele.

Gastrointestinal

The stomach is moderately dilated with fluid and irregular shadowing material most consistent with normal ingesta and gas. 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 layering 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. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed. The duodenum measured 0.58 cm and the jejunum measured 0.32 cm.

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.

Free Abdomen

There was scant anechoic free fluid visualized in the area of the urinary bladder. No lymphadenomegaly and the omentum is of normal echogenicity.

ULTRASONOGRAPHIC FINDINGS

PRIMARY FINDINGS:

- Thickened urinary bladder wall with suspected intraluminal gas. The findings could be consistent with emphysematous cystitis. I recommend urinalysis, culture and abdominal radiographs.

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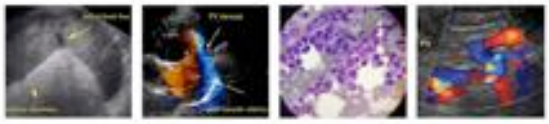

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- Subtle nodule in the cranial pole of left adrenal gland. Left adrenomegaly could be consistent with neoplasia (e.g., adenoma, carcinoma, pheochromocytoma), hyperplasia, inflammation, other.

- Decreased corticomedullary distinction in both kidneys with non-obstructive nephroliths and right sided pyelectasia. Mild loss of corticomedullary distinction in both kidneys could be consistent with chronic degenerative disease or interstitial nephrosis. The hyperechoic mineralized foci observed at the corticomedullary junction of the left/right kidney are consistent with small, non-obstructive nephroliths. Pyelectasia of the left/right kidney could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.

- Mottled spleen with two hypoechoic nodules. There are several, non-cavitated, hypoechoic splenic nodules visualized. Differentials include lymphoid hyperplasia, extramedullary hematopoiesis, infiltrative neoplasia, inflammation, other. Cytology or histopathology would be necessary to get a definitive diagnosis.

- Large heterogenous liver with rare, ill-defined, hypoechoic nodule. 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. The findings are most consistent with a vacuolar hepatopathy (diabetic hepatopathy).

- Gallbladder mucocele is present, but no obvious evidence of inflammation or rupture. I recommend medical management and close monitoring.

SECONDARY FINDINGS:

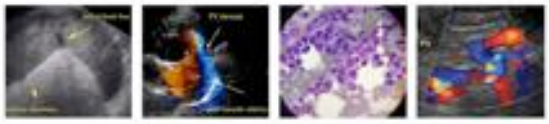
- Prominent mottled pancreas. The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation.

- Mild, small intestinal wall thickening. The mild small intestinal wall changes may be a normal variant in this patient or could be consistent with an inflammatory process (e.g., inflammatory bowel disease).

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The urinary bladder wall is very irregular and thickened. Additionally, there is hyperechoic, non-shadowing material that is most consistent with intraluminal or intramural gas. Correlate with abdominal radiographs to look for evidence of air opacity in the urinary bladder, which could be consistent with emphysematous cystitis.
These findings in addition to dilation of the right kidney are concerning for a severe UTI with pyelonephritis. I recommend urinalysis, culture, blood pressure evaluation and antibiotic treatment with frequent cultures while on antibiotics (during therapy and after) and continued treatment until urinary bladder wall normalizes.
If the urinary bladder wall does not normalize despite clearing of the infection, then underlying neoplasia could be a consideration, but given the history of diabetes this is likely severe cystitis.

The changes observed in the spleen, liver, pancreas and kidneys may be age related and associated with chronic renal disease, diabetic hepatopathy and chronic recurrent pancreatitis. Consider FNA of the



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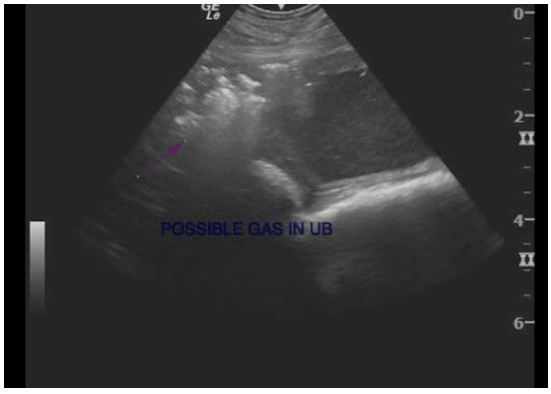
spleen although the hypoechoic nodules are relatively subtle as underlying neoplasia cannot be excluded as a possibility.

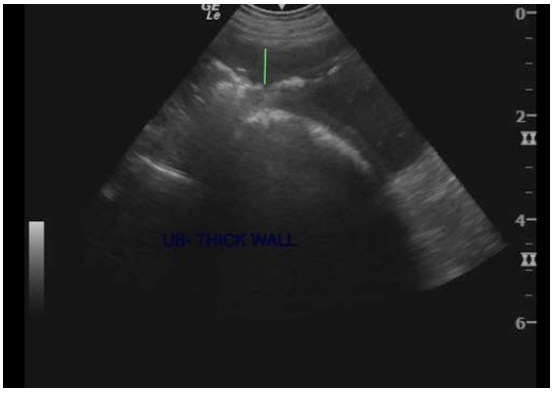
The cranial pole of the left adrenal gland is prominent. This may be an incidental finding or may be consistent with early cancerous growth. Additionally this lesion could be secreting hormones or be non-active. Possible considerations include:

- 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). Care needs to be taken in trying to diagnose Cushing's in a sick diabetic as false positives can occur.
- 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.

A gallbladder mucocele is present. This does not appear urgently surgical and given the numerous other issues going on with this patient it is likely that stabilization with medical management is currently appropriate. I recommend starting Ursodiol and antibiotics (they will likely be started for the urinary tract issue soon as well). I recommend close monitoring with ultrasound and monitoring of liver values. If there is a spike, nausea, abdominal pain, etc. I recommend reevaluation as surgical lesion may develop.

An obvious cause for the CBC changes described is not visualized. I recommend pathologist review of the CBC with a reticulocyte count. Possible differentials for hypoalbuminemia could be protein losing enteropathy or nephropathy. Additionally impaired liver function may be an issue. You can consider urine protein to creatinine ratio once the infection has cleared, pre and post prandial bile acids to evaluate the liver and a GI panel to Texas A&M for a qualitative PLI, TLI, cobalamin and folate to further evaluate the pancreas and small intestine.





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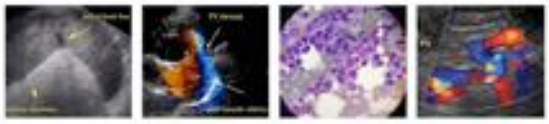

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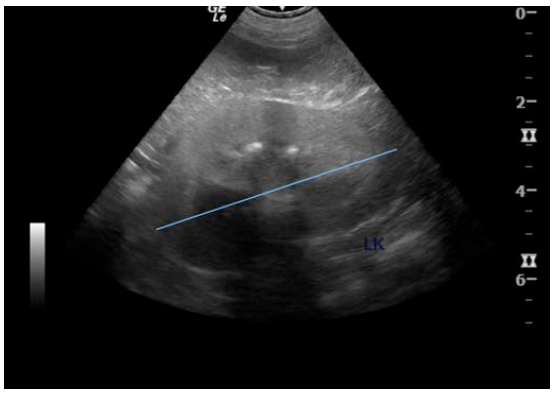

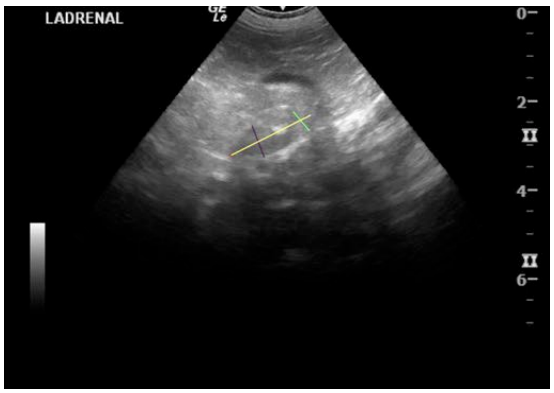

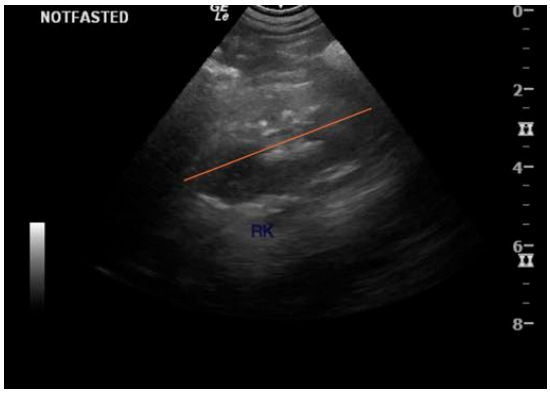

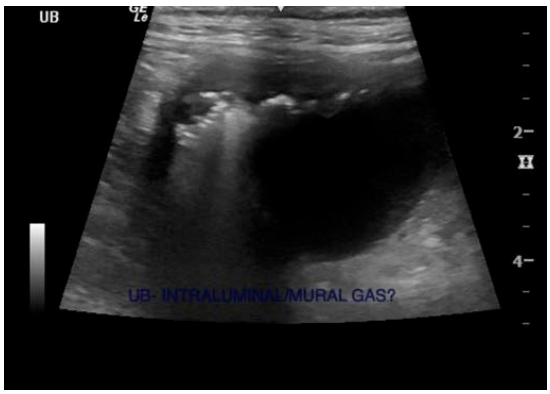

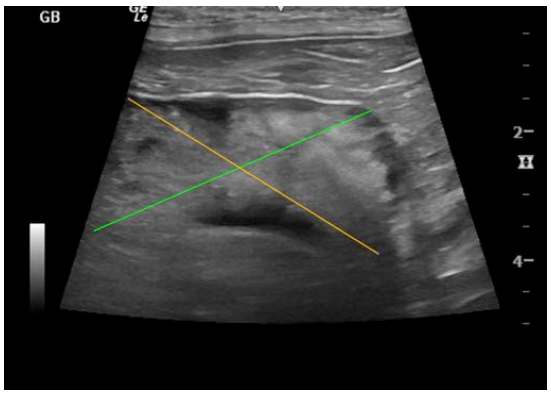

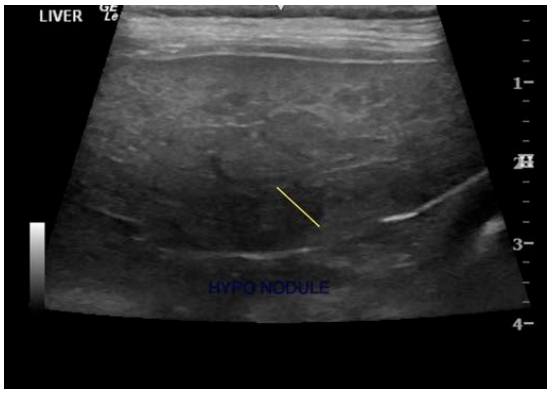

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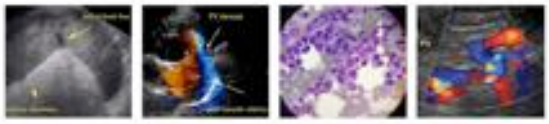

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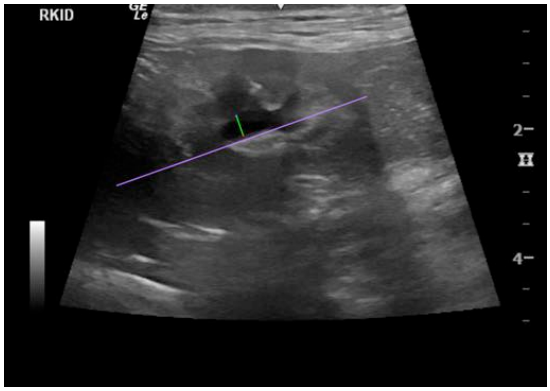

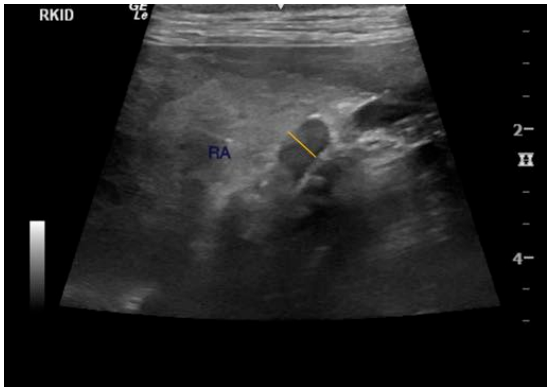

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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