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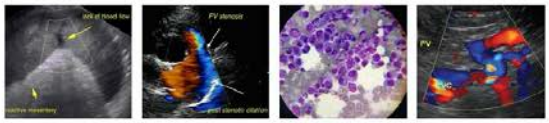

IMAGING PERFORMED BY
pawsonography@gmail.com 530-786-8340

PATIENT

Indy Demaio

SPECIES

Canine

BREED

Australian Shepherd

SEX

Neutered Male

AGE

3 Years

WEIGHT

29.7 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Loetitia Saint-Jacques, RVT

HOSPITAL NAME

Roundhill AH

REFERRING VET

Dr. Carl Kelly

INVOICE

34212

DATE

1/12/22

PRESENTING CLINICAL SIGNS

In October 2021 owner noticed hematuria. UA showed increase in WBC and RBC. No growth in bacteria detected on urine culture. Amoxicillin was given prior to receiving results. January 3, 2022 owner noticed dog has been wanting to go outdoors to urinate more often of the past month. Noticed darker color urine and streaks of blood. Owner noted that Amoxicillin did have a positive effect on the urination color and behavior

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The ventral wall is severely thickened and irregular with numerous polypoid like projections and masses coalescing. The degree of irregularity andthickening decreases in the dorsal aspect of the urinary bladder, but is still present. Additionally, there are too numerous to count, small shadowing stones present with sandy debris intermixed with larger stones. The irregularity extends through the trigone area and the lengh of the ventral bladder wall, but there is no evidence of irrefularity in the proximal urethra. Findings are most consistent with severe polypoid cystitis and numerous cystic calculi. An underlying neoplasia lesion cannot be completely excluded as a possibility.

The prostate is normal in size (1.24 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 (6.19 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 pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (6.03 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 pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.43 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 0.52 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.

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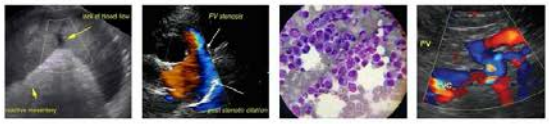

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Liver

The liver is subjectively normal in size, and hypoechoic 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 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.

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 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

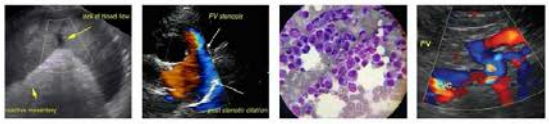
Evaluation of the peritoneal cavity did not reveal any evidence of effusion, or subjective lymphadenomegaly. The Medial iliac nodes appear normal and there was no evidence of a caudal aortic thrombus at the bifurcation. The omentum is of normal uniform echogenicity.

Other

A brief view of the heart was submitted. No significant pericardial effusion was seen.

ULTRASONOGRAPHIC FINDINGS

- Severely thickened, irregular urinary bladder wall with polypoid-like masses concentrating on the ventral aspect of the urinary bladder – Most consistent with polypoid cystitis, but underlying neoplasia cannot be excluded as a possibility.
- Numerous, variably sized cystic calculi – Shadowing stones are visualized within the urinary bladder lumen, varying in size from sady debris to approximately 1.0 cm stones. Correlate with radiographic findings.
- Hypoechoic and heterogeneous 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),



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infiltrative neoplasia (less likely) or other hepatopathy. Findings favor a potentially inflammatory or infectious differential, but if liver values are normal on lab work, this could be an incidental finding.

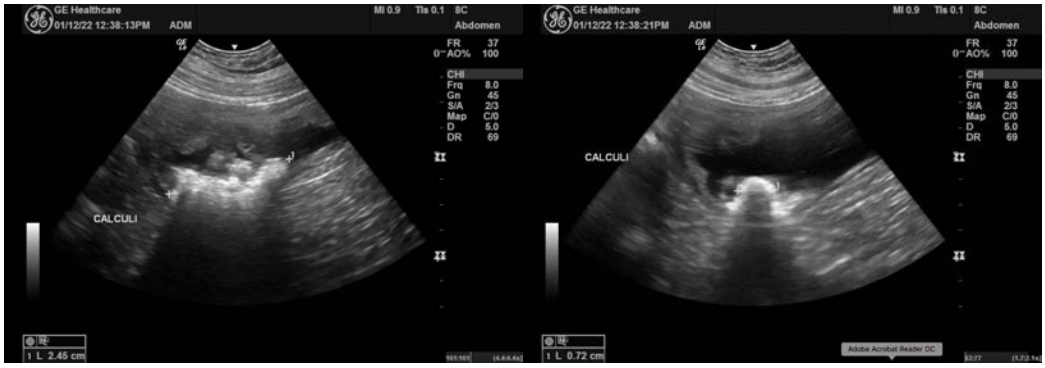
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The urinary bladder is severely affected. It is unclear if this is a case of chronic cystitis which has led to stones, etc., or if the irritation from stones, infection, etc. has caused the mucosal lesions. Additionally, there is the possibility of underlying neoplasia.

I suspect the most direct route to address this issue would be to ideally refer toa veterinary surgeon for a cystotomy to remove the stones, biopsy multiple sites of the bladder wall, and culture the urine and a bladder wall sample (off of antibiotics). This would be both therapeutic and diagnostic. Alternate plans could include cystocentesis or catheterization to obtain a sterile urine sample for culture. If an infection can be diagnosed, dissolution of the stones could be attempted, while close monitoring of the wall of the urinary bladder and long-term antibiotics continued until the urinary bladder returns to normal. If it does not, then the bladder wall would need to be biopsied or you would need a traumatic catheterization.

Additionally, at any point you could consider a BRAF mutation test on the urine. If this is positive, it would increase the likelihood that we are dealing with a primary neoplasm. If it is negative, it is a non-diagnostic test. Additionally, you could consider a traumatic catheterization to obtain a cytologic sample to try to figure out if there is an underlying neoplasm.

This has the indication of a deep, chronic infection, and care should be taken to treat the infection per culture and sensitivity results if possible until wall abnormalities normalize, with intermittent testing while on antibiotics to ensure the resistance has not shifted in the infection, etc. I am hopeful that this represents a benign lesion, as it is more severe in the ventral portion of the urinary bladder, but an underlying neoplasm is possible as well.



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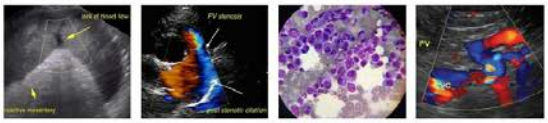

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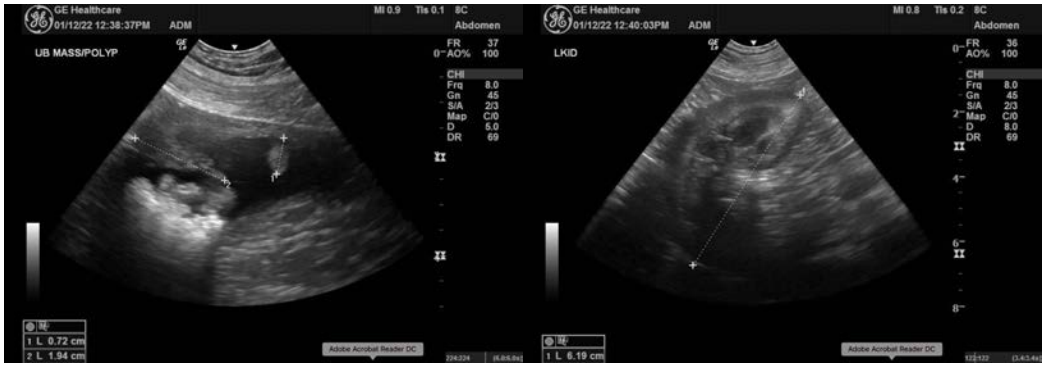

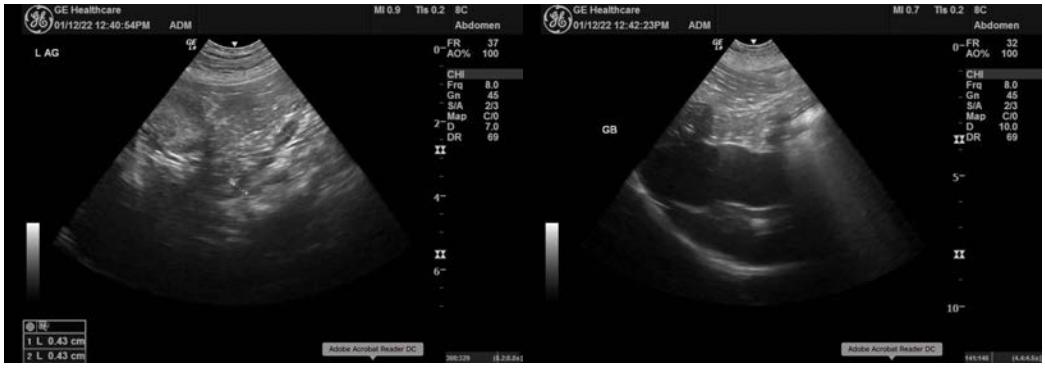

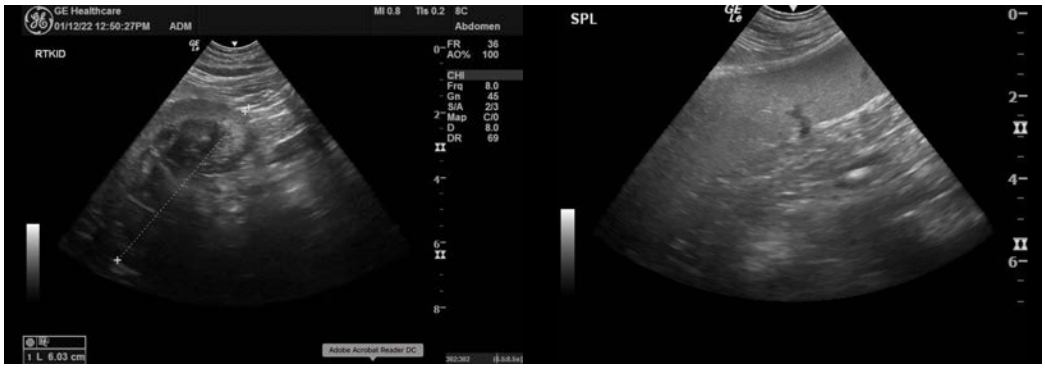

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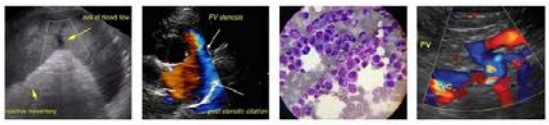

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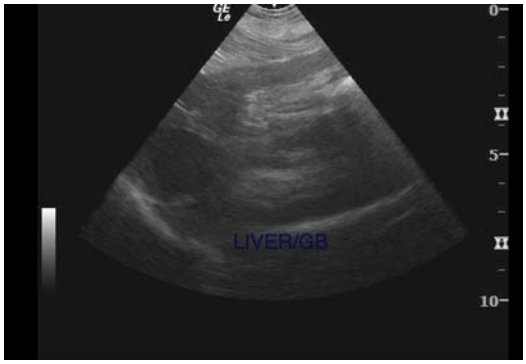

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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

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