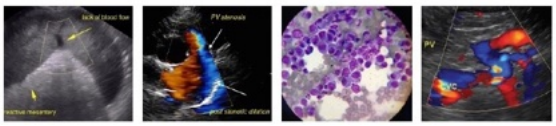


PATIENT

Philip Strandholm

SPECIES

Canine

BREED

Shih Poo

SEX

Neutered Male

AGE

15 yrs.

WEIGHT

8.2 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Kelly Reschny

HOSPITAL NAME

Hamilton Regional Veterinary Emergency Clinic

REFERRING VET

Dr. Grewal

INVOICE

10422

DATE

8/16/2023

PRESENTING CLINICAL SIGNS

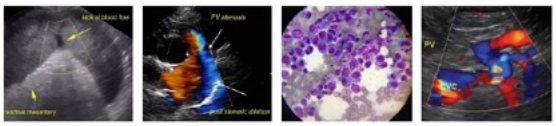
History: Patient presented to HREVC on 8/15/2023 for straining to urinate + anorexia + lethargy. Patient was hyporexic the day before and only ate a treat -> this progressed to anorexia on 8/15/2023. Acute onset vomiting 8/15/2023, approx. 5 episodes. No diarrhea. Patient may have gotten into something on 8/13/2023 at family picnic. Other Previous History as per Dr. AH notes: HREVC visit in 2021: - concerns: lethargic, shaking, not eating or drinking - physical examination: grade III right-sided murmur, lenticular sclerosis OU - radiographs: nephrolithiasis, cystic calculi - treatment: cerenia, buprenorphine, prescription C/D diet Dewitt Park Animal Hospital visit on July 17th: - concerns: licking penis, discharge from eye - physical examination: mild gallop rhythm, purulent penile discharge, lenticular sclerosis OU - treatment: Clavaseptin and FortiFlora Reportedly a history of elevated kidney values. Vitals: T=38 C, HR=80 bpm, RR=30 brpm General: QAR, ambulatory Eyes: OU=lenticular sclerosis. Normal menace, PLR, and palpebral reflex. Fundic exam not performed Ears: Normal, no discharge or erythema. Otoscopic examination not performed Nose: Normal, no nasal discharge Throat/Oral/Dental: Moderate generalized dental calculus. Cardiovascular: Heart murmur Grade 4/6. Abnormal rhythm? Peripheral pulses fair Respiratory: Normal lung sounds, no crackles or wheezes auscultated, normal respiratory effort Gastrointestinal: Tense and painful abdomen, unable to palpate for organomegaly or masses. Musculoskeletal: Ambulatory X 4. Mild generalized loss of muscle mass. Reduced ROM hind limbs. Nervous System: No obvious deficits, no ataxia, no head tilt present. CN not assessed. Proprioception not assessed. Lymph nodes: No peripheral lymphadenopathy. Skin: Approx 0.5 cm soft, non-mobile, non-painful mass on dorsal thorax. Normal coat condition, no ectoparasites noted. Urogenital: No straining to urinate on walk outside. Rectal/Perineal: Mild fecal staining ventral to tail. Patient defecated prior to rectal exam -> no palpable feces on rectal. No blood noted on glove. Current Medications IVF PLA 1XM @ 16 ml/hr, was reduced after initial 24 ml/hr. Methadone 0.2 mg/kg IV q6hr. Cerenia 1 mg/kg IV q24hr.

Abnormal PE/Chem/CBC/UA Results: Bloodwork 8/15/2023: Mildly elevated platelecrit 0.52% (ref: 0.14-0.46) Elevated SDMA 18 ug/dL (ref: 0-14) High normal creatinine 148 umol/L (ref: 44-159) Mildly elevated ALT 141 U/L (ref: 10-125) SNAP CPL: Normal. Blood Pressure 156/113 (121) HR/RR: 80 bpm / 30 brpm rads: FINDINGS: The stomach is moderately distended with gas and some homogeneous soft tissue opacity material. The small intestines are all of normal size and shape. The larger loops identified are consistent with the cecum and colon. The colon contains some homogeneous soft tissue opacity material compatible with fluid, most likely associated with impending diarrhea. Peritoneal and retroperitoneal serosal details are adequate. No lesion is detected in the liver or the spleen. Bilaterally, the kidneys are small and contain some mineral opacities. There are multiple mineral opacities in the urinary bladder, the largest one measuring 3 mm. The urinary bladder is of normal size and shape. No mineral opacity is identified in the region of the urethra. In the caudal dorsal thorax, there is some variable increased soft tissue opacity which is consistent with gastroesophageal reflux. No lesion is identified in the included skeletal structures. CONCLUSIONS: The soft tissue opacity material in the stomach is nonspecific. This could represent normal ingesta/fluid, but a gastric foreign body cannot be excluded. These cannot be definitively differentiated based on a single set of survey radiographs. A nonspecific gastro-enteritis or pancreatitis should also be considered as differential diagnosis. The appearance of the kidneys is compatible with chronic nephropathy. There are some small mineralized uro-cystoliths. There is gastroesophageal reflux of uncertain significance.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic urine. The Bladder wall appears diffusely thickened and slightly irregular measuring 0.6 cm and there are numerous small hyperechoic



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shadowing foci visualized in the dependent portion of the urinary bladder most consistent with small stones and sandy debris.

The visualized areas of prostate and surrounding tissue appear normal. Unfortunately, the prostate is not fully visualized likely due to its intrapelvic location. Correlate with rectal exam findings.

The left kidney has a normal shape and size (3.73 cm) with pinpoint non obstructive nephroliths. 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 pyelectasia, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (3.74 cm) with pinpoint non obstructive nephroliths. 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 pyelectasia, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.56 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 0.55 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 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

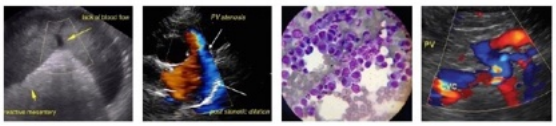
The liver is borderline large and mildly mottled, and echogenicity with smooth peripheral margins. The parenchyma is homogenous echotexture. The visible portions of the vasculature and biliary tract appear normal. There is an ill-defined hypoechoic nodule visualized within the parenchyma measuring 1.8 cm in diameter.

The gallbladder lumen is moderately 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 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 (0.39 cm), and the jejunum measured as normal (0.24 cm.) Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.



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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 area of 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.

PRIMARY FINDINGS

- Diffusely thickened urinary bladder wall with too numerous to count small hyperechoic shadowing foci. Findings are most consistent with numerous small calculi.
- Decreased corticomedullary distinction in both kidneys with pinpoint non obstructive nephroliths. Mild loss of corticomedullary distinction in both kidneys could be consistent with chronic degenerative disease or interstitial nephrosis.
- Borderline large mildly heterogenous liver with 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 appearance of the hypoechoic nodule trends towards a benign process. Continued monitoring is warranted.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No focal lesions are visualized associated with the gastrointestinal tract to explain the acute GI signs noted. There is no definitive evidence for significant pancreatic inflammation and the stomach appears relatively empty. Recommend empirical treatment for acute gastroenteritis if symptoms are not improving with empirical therapy consider repeat imaging (radiographs, +/- ultrasound) as ingested foreign material or developing pancreatitis cannot be definitively ruled out.

The changes reported associated with the liver are very mild and nonspecific. If the ALT evaluation is persistent consider a liver function test and possibly a fine needle aspirate of the liver.

The changes visualized associated with kidneys are consistent with chronic progressive renal disease.

As expected, there are numerous small stones visualized within the urinary bladder as well as significant bladder wall thickening and cystitis. Correlate these findings with a culture. If lower urinary tract signs persist despite management and the stones are persistent surgical removal may be necessary (confirm number and size of stones with abdominal radiographs).

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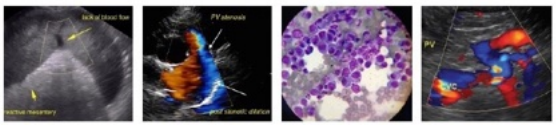

THE FOCAL ZONE

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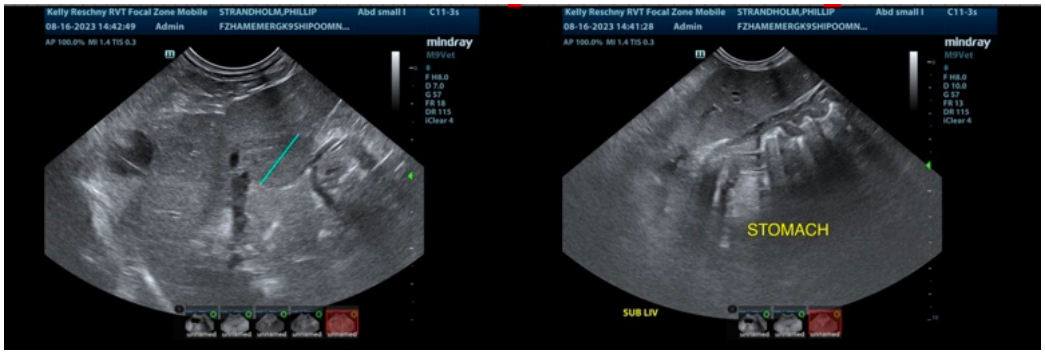

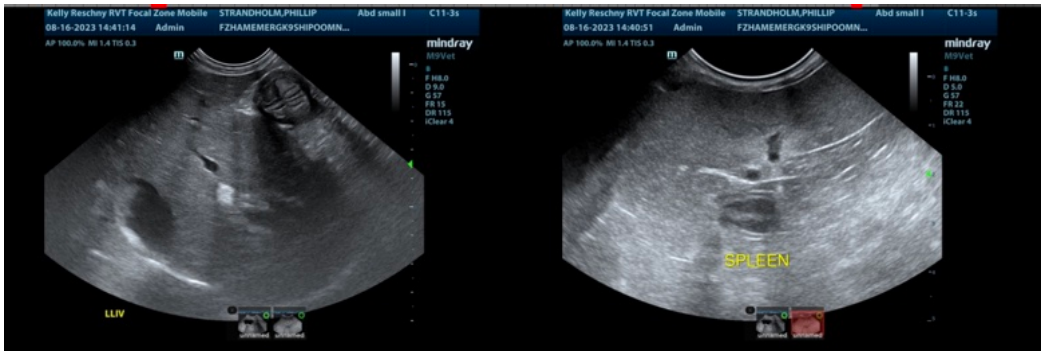

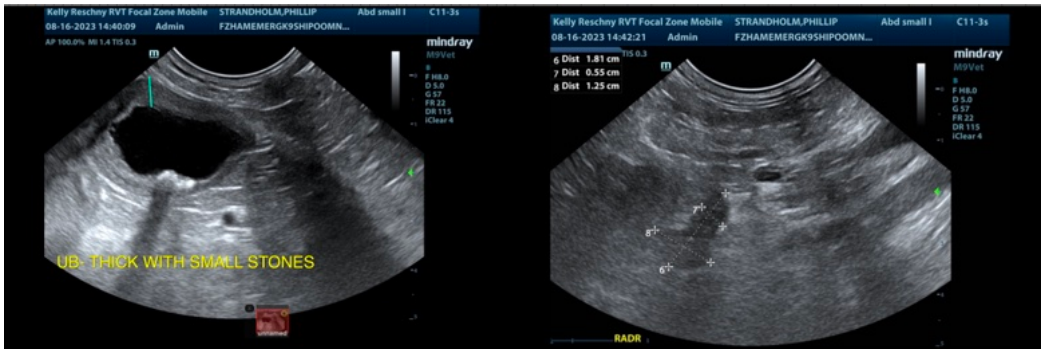

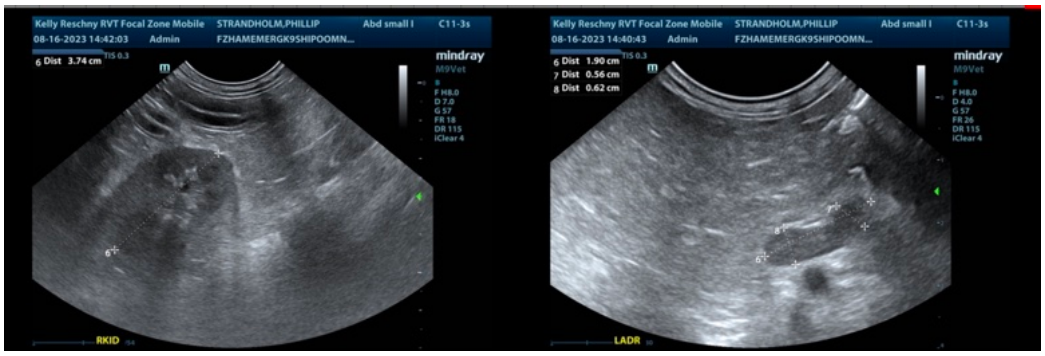

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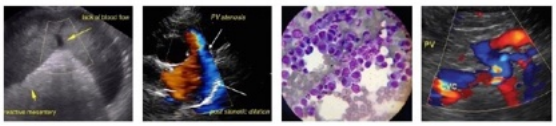

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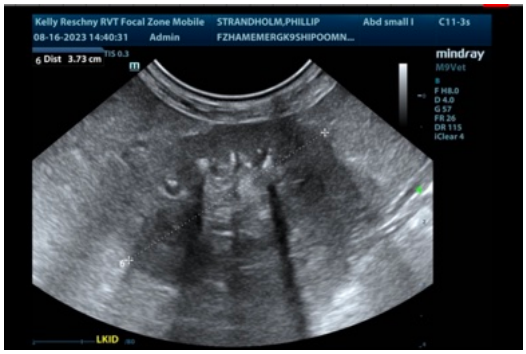

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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

info@sonopath.com