

**DATE PRESENTING CLINICAL SIGNS**

9/8/22 Worsening kidney dz, elevated Amylase, blood in urine after finishing abx.

**PATIENT** Current Medications: Clavamox 375mg BID finished.

Muggle Steckler

Lab Results: See attached.

Date of Previous IntraPet Ultrasound: No previous.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

**SPECIES**

Canine

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN****Urinary System****BREED**

Mixed

Urinary bladder is adequately distended with primarily anechoic contents and occasional echogenic non-shadowing debris. Apical urinary bladder wall is diffusely thick (0.66 cm). Mucosa is hyperechoic and irregular. Multiple, too numerous to count, shadowing cystoliths are noted along the dependent wall and extending the entire length of the visible urethra. No masses or cystoliths are observed. The trigone and visible pelvic urethra are normal thickness with a smooth mucosal surface.

**SEX**

Spayed Female

The right kidney is normal in size (6.51 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia or infarcts observed. Multiple, too numerous to count non-obstructive nephroliths are present. A perinephric subcapsular hypo- to anechoic rim is noted around the right kidney.

**AGE**

11/16/11

**WEIGHT**

51.8 Pounds

The left kidney is normal in size (6.3 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia or infarcts observed. Multiple, too numerous to count non-obstructive nephroliths are present.

**INTERPRETED BY**

Beth Johnson, DVM  
DACVIM

**Adrenal Glands**

The right adrenal gland is normal in size (2.63 cm long x 0.69 cm at the cranial pole and 0.76 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**IMAGING PERFORMED BY**

Rachel Brillhart RDMS

The left adrenal gland is normal in size (2.8 cm long x 0.82 cm at the cranial pole and 0.90 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**HOSPITAL NAME**

AC of Southgate

**Spleen**

The spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). No focal nodules or masses are observed. Splenic vasculature appears normal.

**REFERRING VET**

Dr. Jones

**Liver**

The liver is subjectively normal in size with normal smooth curvilinear peripheral contour. Parenchyma is appropriately hypoechoic to the spleen in echogenicity and appropriately mildly coarse and homogenous in echotexture. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

**INVOICE**

41172

The gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.

### ***Gastrointestinal***

The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

The visible small intestines are normal in wall thickness and layering (canine duodenum < 0.5 cm and feline duodenum < 0.4 cm; other < 0.3 cm). Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty with no evidence of obstruction, foreign material or infiltrative disease.

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

### ***Pancreas***

The observed pancreas appears appropriately isoechoic to surrounding omental fat. The capsule is mildly irregular in shape. Parenchyma is mildly heterogenous and coarse. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

### ***Free Abdomen***

There is no evidence of free peritoneal effusion noted in these images.

There is no apparent lymphadenopathy noted in these images.

## **ULTRASONOGRAPHIC FINDINGS**

- Large number of urinary bladder cystoliths
- Bilateral non-obstructive nephrolithiasis combined with a subcapsular, hypoechoic rim around the right kidney, which is suggestive of an acute nephritis secondary to an infectious or toxic insult. This finding can also be seen with lymphoma but is a much less common differential in this patient.
- **Pancreatic age-related remodeling** – Mild irregularities are consistent with benign age-related change. Low-grade smoldering chronic pancreatitis cannot be ruled out and should be suspected in the face of appropriate clinical signs.

## **INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

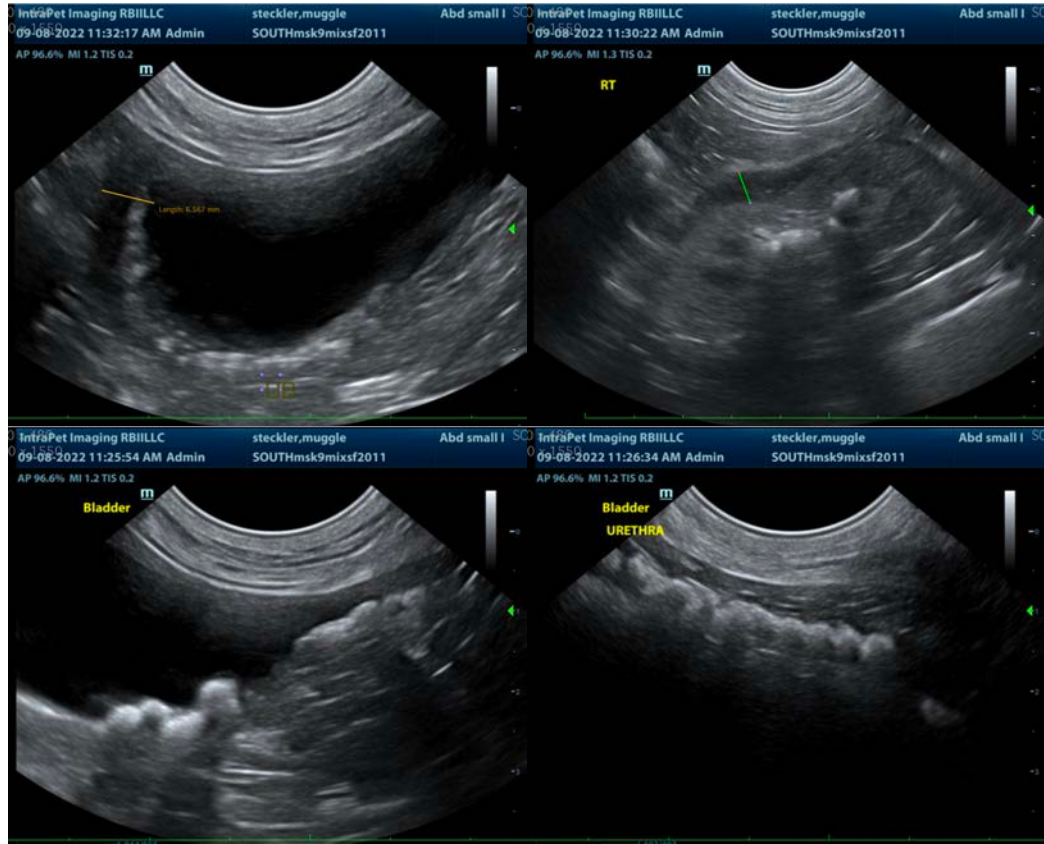
Given the reported hypercalcemia as well as the changes around the right kidney. Further evaluation of the cause of hypercalcemia to rule out hypercalcemia of malignancy and/or hyperparathyroidism, etc. that may be contributing to stone formation is recommended in the form of PTH/PTHrP and ionized calcium panel.

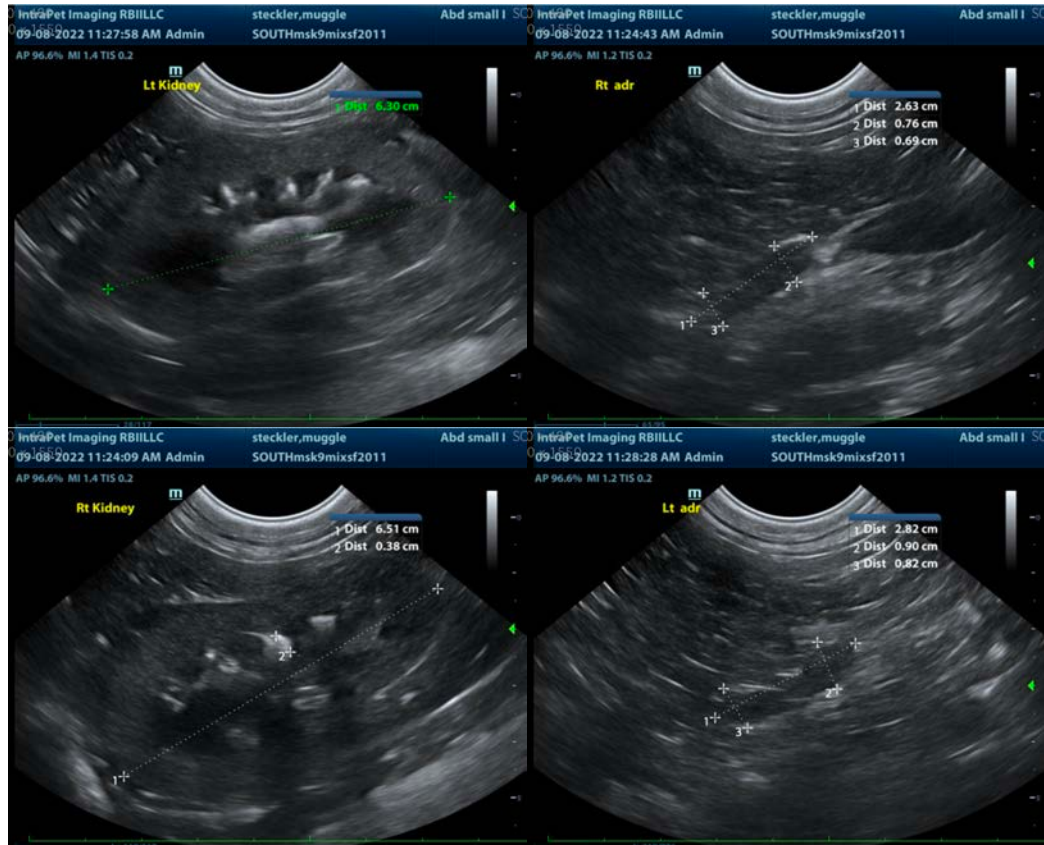
Testing for Leptospirosis is recommended if not recently evaluated.

A urine culture a week to 10 days (or more) after finishing antibiotics is recommended to ensure full clearance of any previous infection.

Pending results, this patient's clinical signs may not resolve without removal of the urinary bladder stones, especially the urethral stones. Options for this include a less invasive voiding urohydropropulsion bladder flush with the risk of larger stones not being able to be removed and/or even potentially causing an obstruction versus a more invasive surgical cystotomy for bladder flush and stone removal. Regardless of the elected method, stone analysis is recommended to help further plan future stone prevention. In the meantime, transition to a crystal/stone prevention diet is recommended for presumed calcium oxalate stones, given this patient's concurrent hypercalcemia.

Again, lymphoma causing the changes around the right kidney is very unlikely, but if the hypercalcemia workup reveals suspicion of hypercalcemia of malignancy, then a fine needle aspirate of the right kidney could be considered if patient's coagulation status is appropriate.





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.

**Beth Johnson, DVM, DACVIM**  
Beth.Johnson@sonopath.com