



DATE PRESENTING CLINICAL SIGNS

4/27/23

P started with urinary issues and oral issues in February. Radiographs and bloodwork were performed, concerned about urinary tract infection and bladder stones. P was put on UR diet and treated for UTI, P continued to decline with elevated renal enzymes. P not eating as well and now having severe oral issues including severe drooling. No significant evidence of oral lesions noted on evaluation

PATIENT

Marley Holthaus

SPECIES

Feline

BREED

Himalayan

SEX

Neutered Male

AGE

7/12/11

WEIGHT

4.6 Pounds

INTERPRETED BY

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MS, Diplomate ACVIM
(Small Animal Internal
Medicine)

HOSPITAL NAME

Northwind AH

REFERRING VET

Dr. Jones

INVOICE

46998

Current Medications: Convenia, Mirtazapine, Fluid Therapy.

Lab Results: Gi inflammation, bladder stones, Elevated renal enzymes (creatinine, phos, BUN), Elevated calcium

Date of Previous IntraPet Ultrasound: No previous.

Sedation: Isoflourane box/mask.

Stat Report: Not requested.

Imaging Performed By: Stephanie Warga RDCS, RVT.

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, or masses. In the dependent portion of the urinary bladder there are numerous hyperechoic, shadowing foci, most consistent with multiple small bladder stones.

The left kidney is normal in size (3.03 cm) but irregular in shape (likely due to previous infarct) 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, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

The right kidney has a normal shape and size (2.68 cm). 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, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

Adrenal Glands

The left adrenal gland is normal in size measuring 0.34 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 0.31 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 normal/borderline contracted/small in size (0.40 cm), 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 normal in size, and echogenicity with smooth peripheral margins. The parenchyma is homogenous echotexture. 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 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 0.26 cm 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 uniform diameter with minimal fluid distension. Wall thickness is normal to slightly increased. Bowel loops follow a typical curvilinear path with distinct wall layering, but some areas display a prominent muscularis layer which does not display the typical 1:3 muscularis:mucosa layer ratio. Jejunum wall measures 0.20 cm. 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 hypoechoic as 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

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

- Multiple cystic calculi visualized in the dependent portion of the urinary bladder – Recommend urinalysis and culture and radiographs to confirm the number and size of stones present.
- Decreased corticomedullary distinction in both kidneys with a likely left renal infarct – Mild loss of corticomedullary distinction in both kidneys could be consistent with chronic degenerative disease or interstitial nephrosis.
- Prominent, hypoechoic pancreas – The pancreatic changes are most consistent with mild pancreatitis or a recent episode of pancreatic inflammation.
- Prominent muscularis layer to the small intestine – The small intestinal wall changes could be consistent with an underlying inflammatory process. These types of changes can sometimes be seen in normal older cats. Correlate with clinical signs.

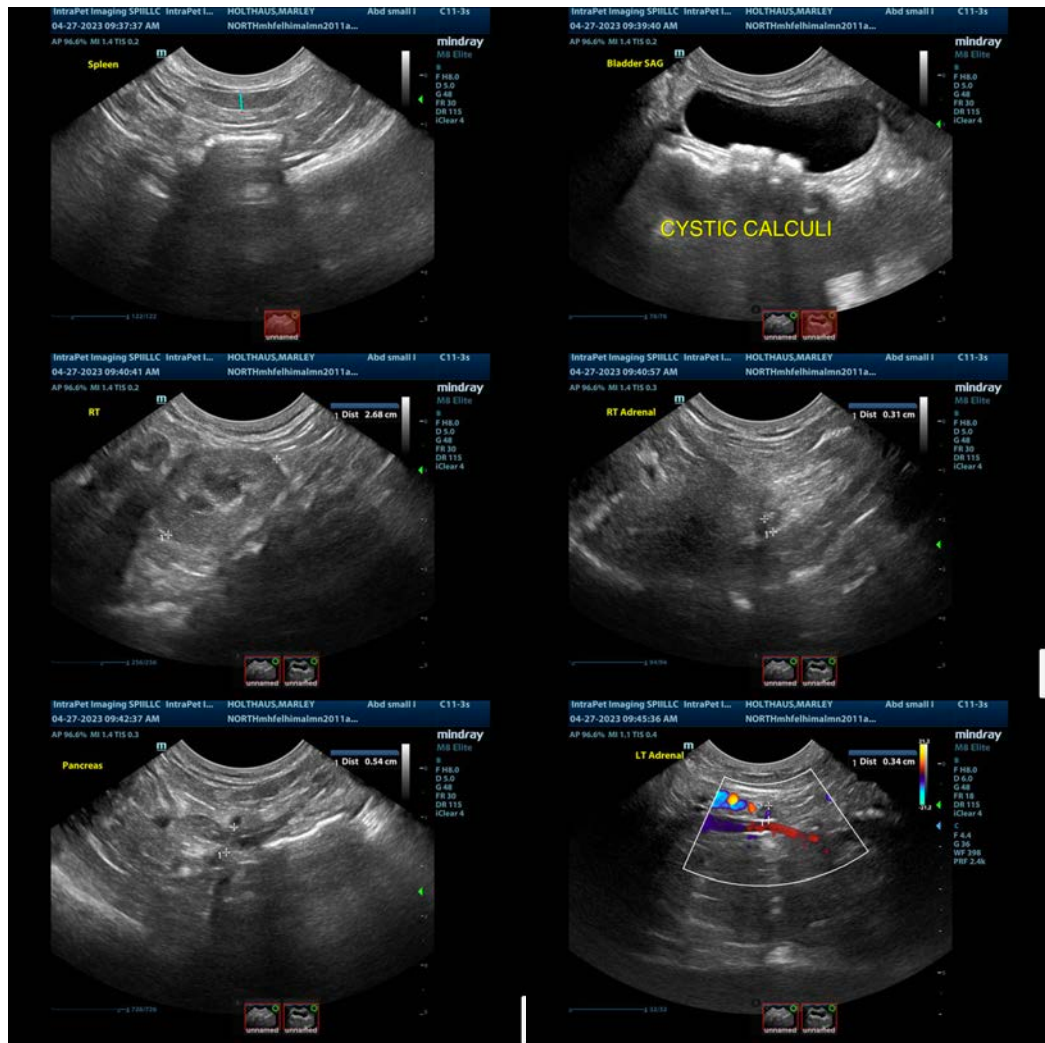
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

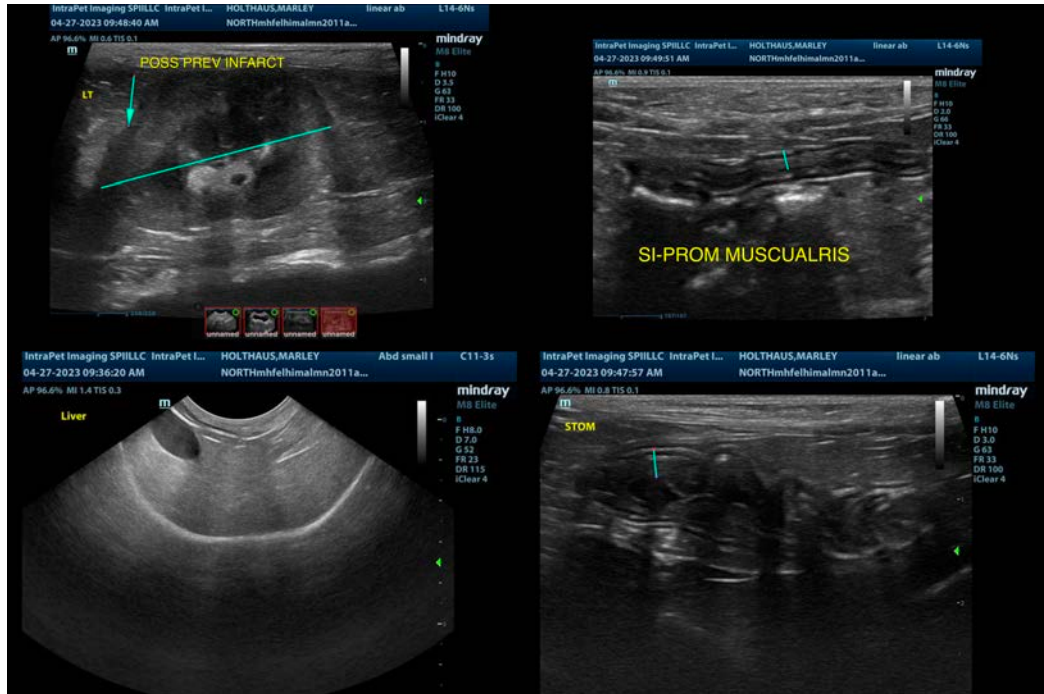
There are numerous stones visualized within the urinary bladder. The bladder wall itself appears relatively normal with no signs of severe concurrent cystitis. I was not able to see any mineralizations associated with the urethra, ureters, or kidneys, but survey radiographs should be considered in the unlikely event of a ureteral stone causing discomfort/nausea, etc.

There is decreased corticomedullary distinction in both kidneys, consistent with underlying renal disease and azotemia reported. Recommend blood pressure evaluation.

The pancreas is prominent and hypoechoic in both limbs. This is most consistent with previous episodes of pancreatic inflammation, but mild current inflammation is possible. Correlate with a quantitative fPLI level.

The muscularis layer of the small intestine is somewhat prominent. This can be a normal finding in some older cats but can also be a sign of an underlying enteropathy. Correlate these findings with a degree of azotemia to see if the symptoms associated are due to uremia or likely due to some other issue. The drooling reported could be due to oral pain, systemic pain/anxiety, or nausea. Consider anti-nausea medication to see if this helps. If not, consider pain medication, etc. More aggressive management with in-house fluid therapy, nausea medications, etc. may be necessary, as well as a hypercalcemia of malignancy panel (ionized calcium, PTH, PTHrP level) to see if better hydration will help, as the spleen appears significantly contracted, possibly due to dehydration.





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.

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