SonoPath
Clinical Sonography & Telecytology
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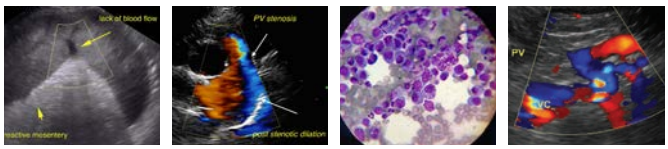

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1-800-838-4268 info@sonopath.com

PATIENT
Buddy Varrone

SPECIES
Feline

BREED
DSH

SEX
Neutered Male

AGE
17 Years

WEIGHT
10.6 Pounds

INTERPRETED BY
Beth Johnson, DVM DACVIM

IMAGING PERFORMED BY
Heather M.

HOSPITAL NAME
ACC Flanders

REFERRING VET
Dr. Hallihan

INVOICE
40328

DATE
8/11/22

PRESENTING CLINICAL SIGNS

Diabetic, progressive anemia, on 4/30/22 hematocrit was 23% today it was 16%, vomited this morning - bg was 30 when he came in today at 930am, at 11:30am his bg was 222 and at 1pm bg was 378. Kidney values unchanging Lantus insulin * gives 3.5u AM , 3u PM
Abnormal PE/Chem/CBC/UA Results: 8/11/22- GLU * 30 (lo) , Creat * 3.4 (hi), bun * 68 (hi), phos * 7.6 (hi) , k * 3.3 (lo), rbc * 4.15, HCT * 16.1, hgb * 6.0 , mchc * 37.3 (hi), lym * 0.52, mono * 0.01 (lo), Eos - 0.01 (lo)

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is moderately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

Kidneys are bilaterally small, irregular and diffusely echogenic with decreased corticomedullary distinction and poor visualization of internal architecture. There is no pyelectasia noted. Non-obstructive areas of mineralization/nephroliths are noted in both kidneys. The left kidney measures 3.97 cm. The right kidney measured 3.75 cm. A scant amount of anechoic free fluid and enhanced hyperechoic fat noted around both kidneys.

Adrenal Glands

The area of the right adrenal gland is examined without evident pathology.

The left adrenal gland is normal in size (0.36 cm), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

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.

Liver

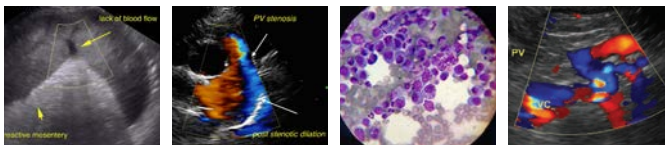
The liver is subjectively normal in size with normal smooth curvilinear peripheral contour. Parenchyma is appropriately hypoechoic to the spleen in echogenicity and appropriately mildly coarse and homogenous in echotexture. No focal lesions are observed. Visible vasculature and biliary tree appear normal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

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 stomach is moderately distended with fluid and echogenic contents, most consistent with normal ingesta. Foreign material can't be ruled out, but is considered less likely.

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.



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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

Free fluid is present as described above, around the kidneys.

There is no apparent lymphadenopathy noted in these images.

ULTRASONOGRAPHIC FINDINGS

- **Chronic Kidney Disease with bilateral non-obstructive nephrolithiasis –** This appearance of the kidneys is consistent with chronic kidney disease such as chronic glomerular or interstitial nephritis, chronic pyelonephritis, etc. The changes around the kidneys suggest focal perinephric inflammation, differentials for which include an acute on chronic insult such is seen with an acute infection, toxic insult, migrating nephrolith, etc.

- **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

If not recently evaluated, a urinalysis and, if indicated based on urinalysis results, urine culture are recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

The ultrasound images combined with the provided laboratory changes suggest potentially an acute on chronic kidney insult, perhaps an infection as can be seen with chronic pyelonephritis, etc. Anemia of chronic disease, especially chronic kidney disease, is possible, especially if it is a non-regenerative anemia. However, the progression reported over just the past few months seems rapid for anemia of chronic disease. Therefore, recommendations include further workup of possible hemorrhage or hemolysis, especially if the anemia is regenerative.

The free fluid present in the abdomen is likely too small of an amount to sample, but it should be monitored, and if it progresses, should be sampled to rule out unlikely but possible hemoabdomen.

In the meantime, recommendations include supportive/symptomatic medical management of possible acute on chronic kidney disease with IV fluids, diuresis, electrolyte support, antiemetics, gastroprotectants (in case there is microulceration secondary to the chronic kidney disease, contributing to the anemia), broad-spectrum antibiotics, and appetite simulants if needed. Discontinuation of the insulin is also recommended until this patient is hyperglycemic again, at which time the insulin should be restarted at a lower dose, perhaps 1 unit of glargine twice daily from the reported 3.0 and 3.5.

If the anemia is found to be related to chronic kidney disease, it is low enough now to consider erythropoietin or darbepoetin replacement. The anemia may also warranted an immediate blood transfusion, especially if the patient is clinical for anemia, tachycardic, tachypneic, etc.

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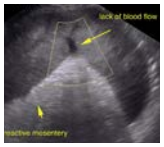
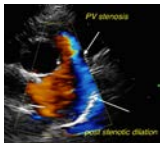
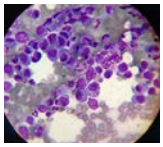
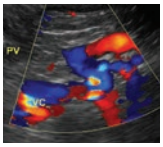

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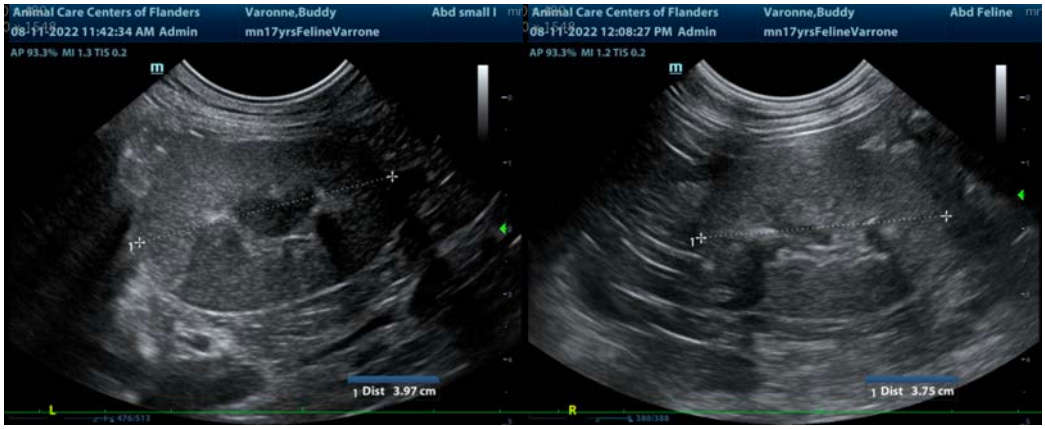

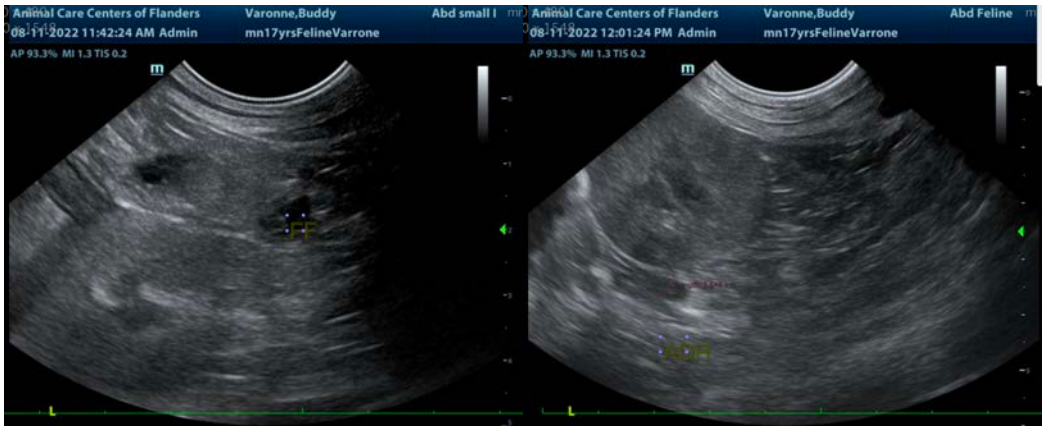

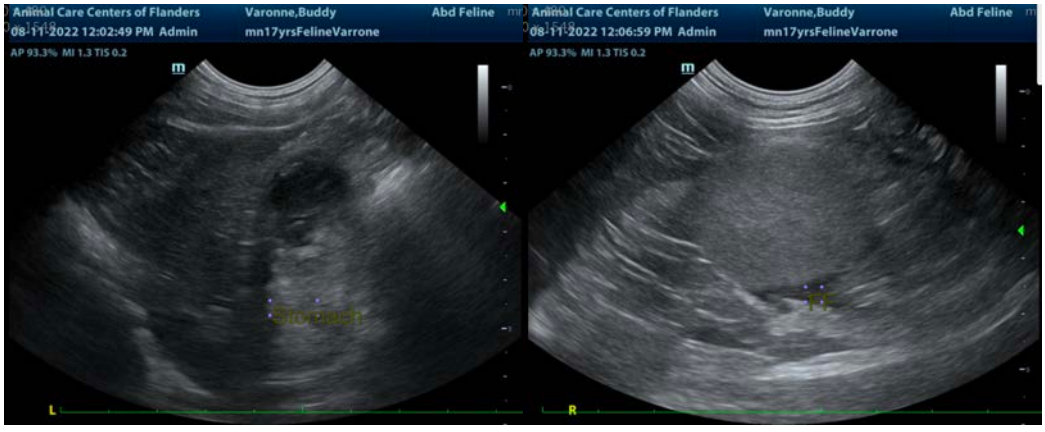

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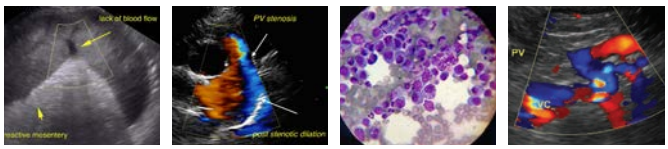

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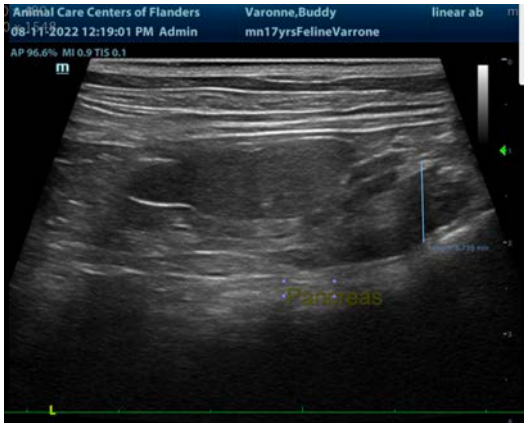

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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