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Clinical Sonography & Telecytology
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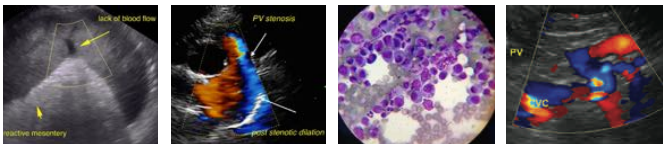

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Minnie Antonacci

SPECIES
Feline

BREED
Domestic Shorthair

SEX
Spayed Female

AGE
14 years

WEIGHT
15 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Dr. Cassels-Conway

HOSPITAL NAME
Central Broward AH

REFERRING VET
Dr. Lezcano

INVOICE
30870

DATE
6/6/22

PRESENTING CLINICAL SIGNS

History: P has hx of obesity, presented w hx of decreased appetite for last few week with weight loss. P also has occasional vomiting and diarrhea.
Abnormal PE/Chem/CBC/UA Results: CBC: plt ct: 14896H; Chem: ALT: 228H, AP: 183H, T4: 1.3, UA: SG: 1.040, 1+ prot, 1+ bilirubin, fecal NPS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is well distended with anechoic contents. The wall is smooth and regular. No abnormalities are present with the trigone or proximal urethra. A trivial amount of free floating sediment is present, however, there is no evidence of cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 3.44 cm (3.80-4.40 cm), decreased in size. The capsule is very mildly irregular along the anti-mesenteric border. The cortex is mildly hyperechoic, i.e. it is isoechoic to the spleen. A very mild loss of the normal definition of the cortico-medullary junction is present. There are no signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 3.74 cm (3.80-4.40 cm), very mildly decreased in size. The capsule is smooth. The cortex is very mildly hyperechoic. Mild mineralization of the diverticulae and pelvis is present without nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.34 cm at the cranial pole, 0.30 cm at the caudal pole and 1.01 cm in length. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The **right** adrenal gland measures 0.20 cm at the cranial pole, 0.23 cm at the caudal pole and 0.82 cm in length. No abnormalities are noted with the gland's overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

The spleen is within normal limits in size 7.6 mm (normal = 10 mm), echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

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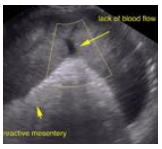

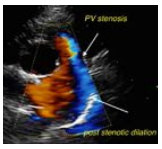

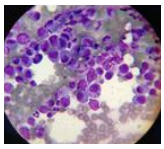
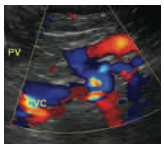

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Liver

Mild hepatomegaly is suspected, however, this is better characterized at the time of the ultrasound or with radiographs. The liver's borders are smooth and vary between sharp to very mildly rounded.

The liver is diffusely hyperechoic, but homogeneous. It is isoechoic to both the falciform fat and spleen.

A hypoechoic nodule, measuring 4.68 mm in diameter x 5.74 mm in length, is noted is noted in the cranial liver.

Two hypoechoic nodules, similar size to that described above, are observed in the caudal liver (transverse view).

The gallbladder (GB) wall is mildly thickened (1.7 mm) and mildly hyperechoic. No obvious echogenic material is present within the GB. The portions of the cystic and/or common bile ducts observed are not dilated or tortuous, i.e. there are no signs of an obstruction.

Gastrointestinal

The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

The small intestinal wall thickness, including the duodenum, is within normal limits and the definition of the wall layers is preserved. However, the muscularis of the duodenum and submucosa of the small intestines are more prominent than usual, respectively. No abnormalities are observed with the ileocecal colic junction. Abnormally dilated loops of bowel are not observed.

Gas and ingesta are present within the transverse colon.

The colonic wall is not thickened and mural detail is considered normal. A large amount of formed stools and gas are present within the descending colon.

Pancreas

No abnormalities are observed with the architecture, contours, echogenicity or echotexture of the left limb. There is no evidence of hyperechogenicity of the surrounding mesentery.

The right limb has a mildly coarse echotexture. It consists of homogeneous parenchyma with pinpoint and punctate hyperechoic foci scattered haphazardly throughout. These changes are suggestive of fibrosis, which may be due to age-related changes, secondary to previous episodes of pancreatitis, mineralization, as well as amyloid deposition. Signs of active pancreatitis or neoplasia are not appreciated.

Other

Lymph nodes

No abnormalities are observed

Abdominal effusion is not visualized.

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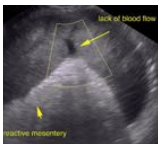
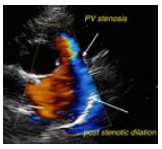
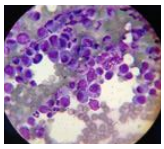
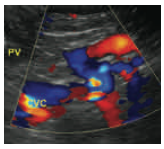

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ULTRASONOGRAPHIC FINDINGS

- **Liver and gallbladder (GB)**: Suppurative cholecystitis, cholangitis/cholangiohepatitis and cholestasis are suspected given the bilirubinuria and elevated hepatic enzyme activities. Hepatic lipidosis secondary to hyporexia may also be present. The most likely cause of the hypoechoic nodules is nodular hyperplasia based on their appearance. Target lesions, suggestive of neoplasia, are not observed.

- **Gastrointestinal tract**: The intestinal abnormalities are subtle and somewhat subjective. They may be suggestive of inflammation, such as inflammatory bowel disease, however, infiltrative disease, such as lymphoma or other round cell tumour, cannot be excluded.

- **Pancreas**: Most consistent with age-related changes. No obvious signs of active pancreatitis or neoplasia.

- **Kidneys**: Age-related degeneration is suspected, however, pyelonephritis can never be excluded despite absence of classical sonographic signs.

- **Urinary bladder**: There are no signs of cystoliths. The free floating sediment is likely clinically insignificant given the lack of inflammatory changes to the bladder wall, however, findings should be correlated with clinical signs and a urinalysis.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The following are suggested/recommended

- A urinalysis, +/- urine culture and sensitivity to exclude pyelonephritis

Depending on how proactive the clients would like to be, can either start with fine needle aspirates of the liver or the following:

- Analgesia trial for visceral pain, e.g., buprenorphine, for 5-7 days. Continue for 2-4 weeks if an improvement is noted.
- If signs of GERD, 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO q12h)
- Deworm depending on risk of exposure, including other pets in house that go outdoors
- Diet trial (veterinary prescription brand hypoallergenic, i.e., hydrolyzed or novel protein); ensure appetizing to prevent hepatic lipidosis, sarcopenia and cachexia
- Depending on response to above therapy, consider TLI, serum cobalamin, and folate, to assess for underlying maldigestion and malabsorption disease and dysbiosis (+/-SNAP PLI or Spec fPL)
- If there is no response to the above, fine needle aspirates (FNAs) of the liver and spleen are suggested, however, a hepatic tissue biopsy is ideal (evaluates hepatic architecture).
- Coagulation profile prior to liver biopsy (and ideally prior to FNA). A single dose of vitamin K (0.5 mg/kg SQ is suggested 30-45 minutes prior to the procedure, even if PT/PTT within normal limits.
- Cholestasis, cholangitis/cholangiohepatitis and cholecystitis cannot be excluded, including and secondary ascending bacterial infections. Although indiscriminate use of antibiotics is not normally recommended, one could begin treatment with a broad-spectrum antibiotic and assess clinical response. *If a response is observed, continue antibiotics for a total of 4 to 6 weeks.

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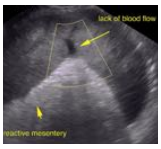
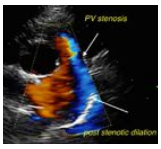
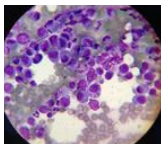
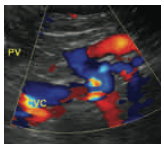

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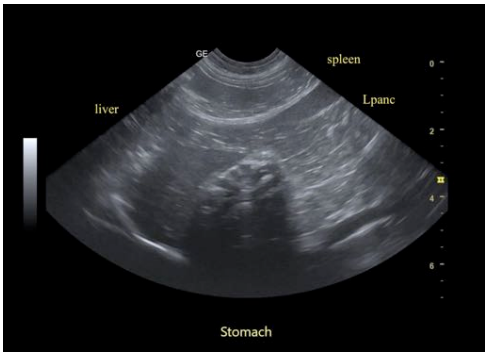
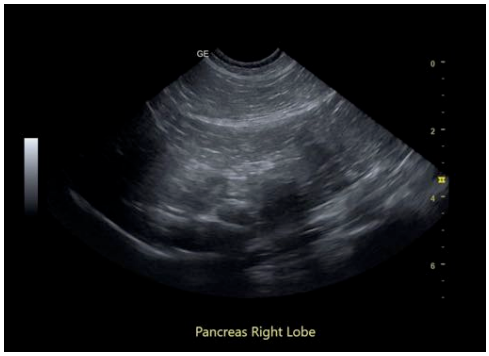
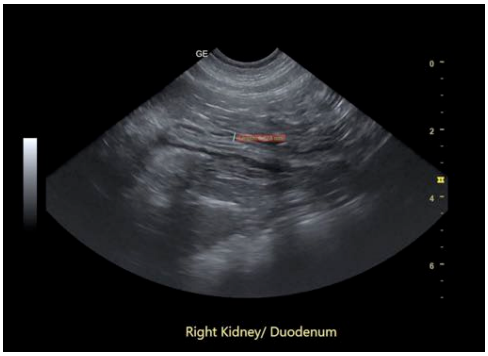
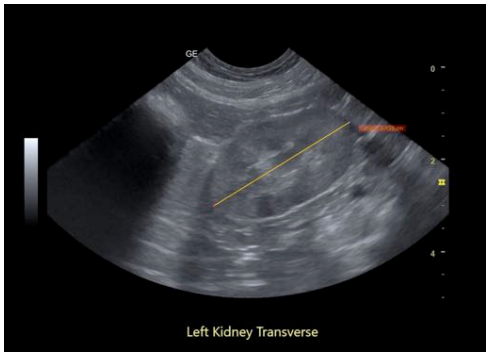
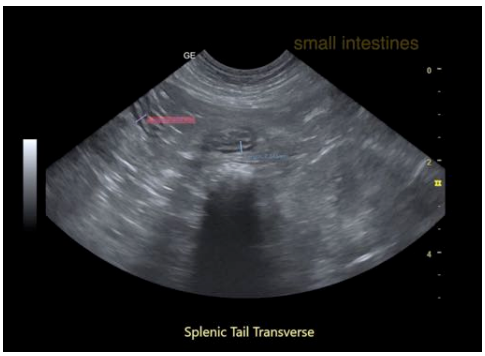
- Endoscopy of the upper and lower GI tract would be the final step in the work up due to the vomiting and diarrhea, however, this may also occur due to cholangitis/cholangiohepatitis and cholecystitis. Another option, although much more invasive, would be to perform an exploratory laparotomy.

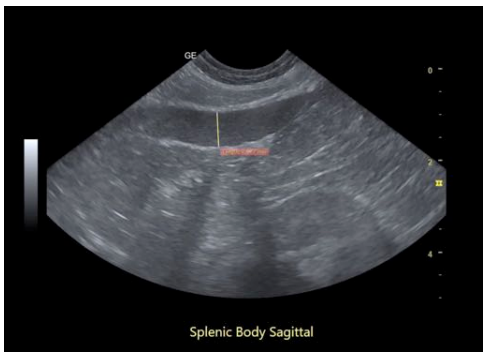


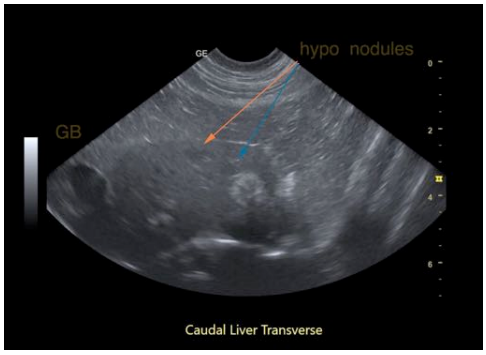












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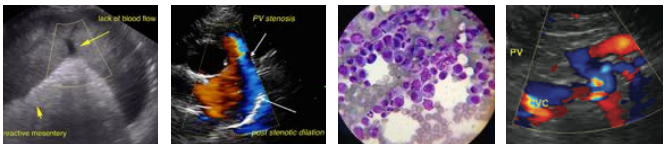

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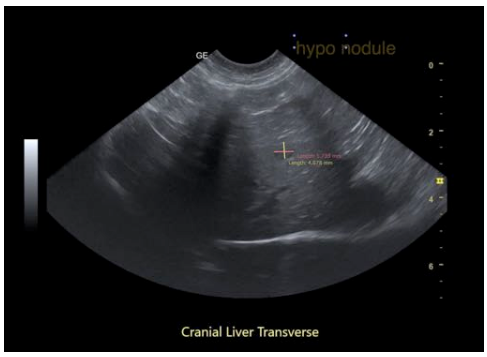

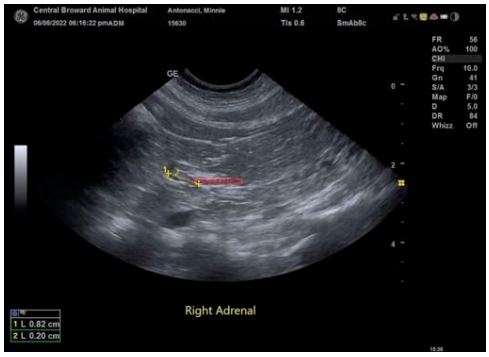

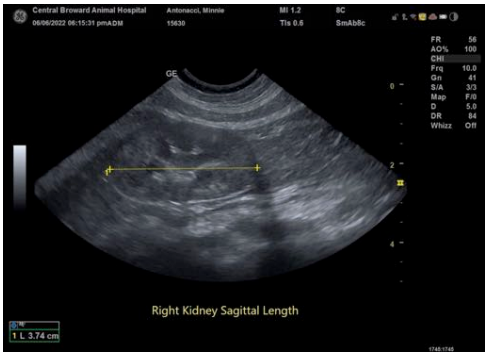

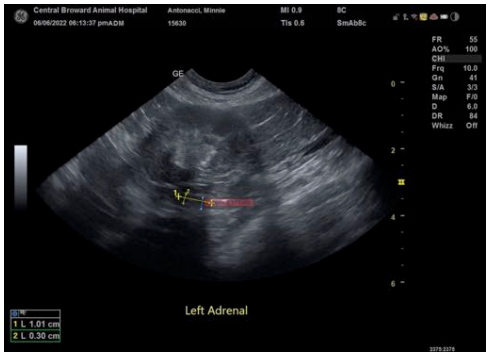

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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