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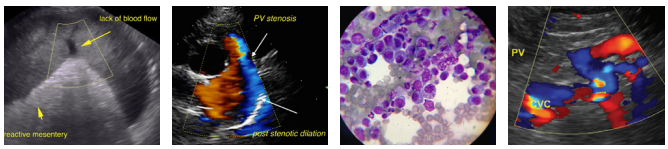

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1-800-838-4268 info@sonopath.com

PATIENT
Rusty Cohen

SPECIES
Canine

BREED
Cocker Spaniel

SEX
Neutered Male

AGE
13 Years

WEIGHT
25 Pounds

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY
Chelsea Pastor

HOSPITAL NAME
Fredon AH

REFERRING VET
Dr. Linda Grau

INVOICE
36672

DATE
4/1/22

PRESENTING CLINICAL SIGNS

sudden onset of vomit/diarrhea
Abnormal PE/Chem/CBC/UA Results: inflamed left conjunctiva, weak, borderline dehydration

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The urinary bladder is adequately filled. The wall is mildly irregular. No abnormalities are present with the trigone or proximal urethra. There is no evidence of sediment, cystoliths, polyps or a mass. Ureteral papillae are visualized and unremarkable.

The left kidney measures 5.0 cm (low end of normal reference range). The capsule is smooth. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present; this is not abnormal in a dog of Rusty's age. Very small, punctate, mineralizations of the diverticulae are present without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic. Nice blood flow is present.

The right kidney is within normal limits in size (5.8 cm) for the patient's weight and the capsule is smooth. The cortex is mildly hyperechoic and a mild loss of the normal definition of the cortico-medullary junction is present. Very small, punctate, mineralizations of the diverticulae are present without evidence of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

Adrenal Glands

The left adrenal gland measures 0.62 cm. No abnormalities are noted with the gland's shape, overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

The right adrenal gland measures approximately 0.35 cm at the cranial pole, 0.41 cm at the caudal pole, and 1.25 cm in length. No abnormalities are noted with the gland's shape, overall architecture, echogenicity or echotexture. The phrenico-abdominal vein and surrounding vasculature and mesentery are unremarkable.

Spleen

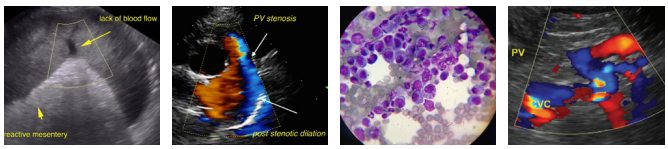
The spleen is within normal limits in size, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified. The mesentery surrounding the spleen and the cranial abdomen, in general, is hyperechoic.

Liver

There are no obvious signs of hepatomegaly and liver borders are smooth and sharp. Occasional hypoechoic nodules of variable size are observed scattered throughout the parenchyma. The largest hypoechoic nodule measures 1.1 cm x 1.1 cm. These appear most consistent with nodular regeneration, which is a benign, age-related change often observed in senior patients. The liver is hyperechoic; it is isoechoic to the spleen. The mild hyperechogenicity is a non-specific change, which may be suggestive of a vacuolar hepatopathy, which may occur due to stress (chronic illness) or hyperadrenocorticism. The latter disease is not suspected. Other causes of diffuse hyperechogenicity include hepatitis, cholangitis/cholangiohepatitis, and cholestasis.

A scant amount of ascites is observed dorsal to the liver.

Moderate to marked dilation of the gallbladder is present, in addition to a moderate to marked accumulation of echogenic material (sludge) within its lumen. The sludge is free floating, but has also



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settled by gravity in the region of the neck of the gallbladder, which also seems to be present within the initial portion of the cystic duct. Inspissated, hyperechoic sludge, in the form of nodules is also observed, some of which are attached to the wall, in addition to mucus strings. The latter are attached from the gallbladder wall to the center of the inspissated sludge. A very thin anechoic line surrounding the gall bladder is observed, which is highly suggestive of fluid or edema. The cystic duct is not followed distally to the common bile duct. An obvious rupture of the gallbladder is not visualized.

Gastrointestinal

The stomach lumen is filled with a mild to moderate amount of fluid and gas. An obvious foreign body or mass is not visualized. The definition of the wall layers is preserved. The mesentery surrounding the stomach is markedly hyperechoic.

The small intestinal wall thickness is within normal limits and the definition of the wall layers is preserved, however, the submucosa is prominent. There are no abnormalities observed with the duodenum. A few loops of bowel are mildly dilated with gas and fluid. Portions of the jejunum are filled with ingesta and fluid, and have decreased peristalsis. Gas and soft stools are present in the colon, which is at the high end of normal reference range at 2.0 mm. An obvious obstruction is not visualized.

Pancreas

The portions of the left and right limbs of the pancreas visualized have a mildly coarse echotexture and are mildly heterogeneous. These changes are most likely due to nodular hyperplasia and areas of fibrosis, which are considered age related and possibly secondary to previous episodes of pancreatitis, respectively. The mesentery is markedly hyperechoic. Although overt hypoechogenicity of the pancreas is not present, an active pancreatitis cannot be excluded.

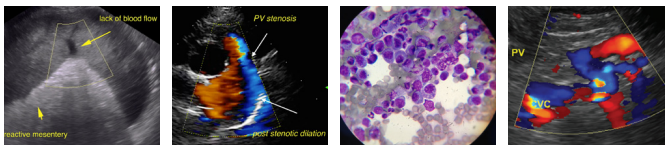
Other

Lymph nodes: No abnormalities are observed.

A scant amount of ascites is observed dorsal to the liver.

ULTRASONOGRAPHIC FINDINGS

- An specific cause for the vomiting and diarrhea is not identified. However, there are signs of gastro-enterocolitis with secondary inflammation of the mesentery. An ileus of the stomach and portions of the small intestine is also observed.
- Acute pancreatitis cannot be excluded.
- The diffuse hyperechogenicity of the liver is highly suggestive of a vacuolar hepatopathy, which may occur due to stress (chronic illness). Differential diagnoses, such as hepatitis is considered less likely, however, cholestasis is suspected and cholangitis/cholangiohepatitis cannot be excluded due to the appearance of the gallbladder. The hypoechoic nodules observed are most likely due to nodular regeneration, which is a benign, age-related change. There are no obvious signs of neoplasia.
- Cholecystitis is highly suspected. A mucocoele in its early stages of development cannot be excluded based on the appearance of the gall bladder and sludge. Although an obvious obstruction or rupture was not visualized, the latter cannot be excluded due to the fluid or edema surrounding the gallbladder and the small amount of free fluid that has collected dorsal to the liver.



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- Very mild degenerative changes of both kidneys, which is suggestive of age related degeneration.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Abdominal radiographs are suggested if a foreign body is suspected, or sequential ultrasounds may be performed to follow the ileus of the stomach and gastrointestinal tract to ensure the gas is moving.

Repeat ultrasounds to ensure the fluid surrounding the gallbladder and free abdominal fluid do not accumulate are also recommended; this will help ensure that a bile peritonitis is not present.

A spec cPL or other test to diagnose pancreatitis may be performed.

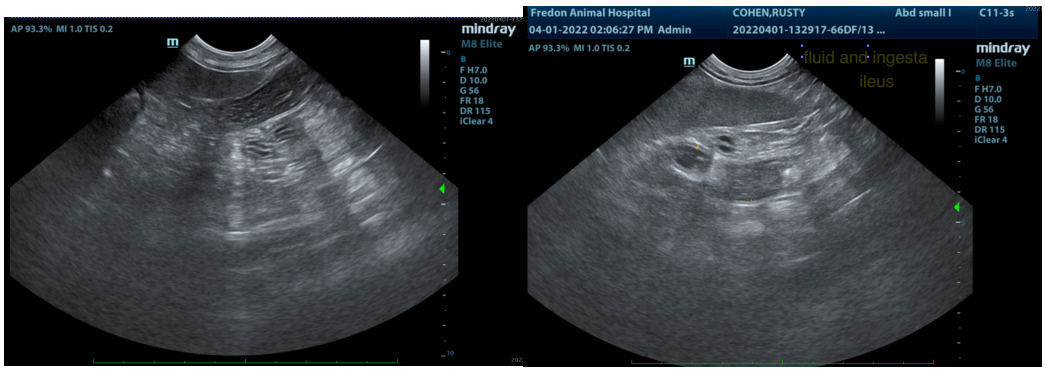
Treatment for pancreatitis is recommended, consisting of intravenous fluids, antiemetics, and most importantly, intravenous analgesics. Oral gabapentin can be added to IV analgesics provided Rusty is no longer vomiting.

Due to the risk of secondary bacterial infections of the bile, broad-spectrum antibiotics administered intravenously are recommended. Treatment with antibiotics may be required for up to 4 weeks or longer.

A sonographic reevaluation of the gallbladder is recommended in 4-6 weeks.

Depending on Rusty's clinical signs, an exploratory laparotomy may be required to perform a cholecystectomy.

Once he is feeling better, ursodeoxycholic acid may be considered at a *very low dose. However, the clients must be forewarned of possible rupture of the gallbladder*. The dose should be started at 3 mg/kg per day and increased once a week, by 10-15%, until a dose of 7.5 or 10 mg/kg per day is achieved. If this dose is tolerated for 2 weeks, the dose may be increased *judiciously* to 15 mg/kg/day. The medication should be discontinued if there are any signs of nausea, vomiting or diarrhea. Development of jaundice would be an emergency.



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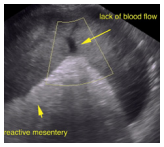

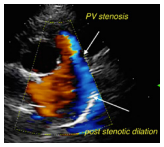

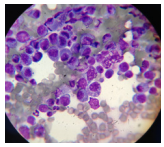
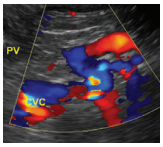

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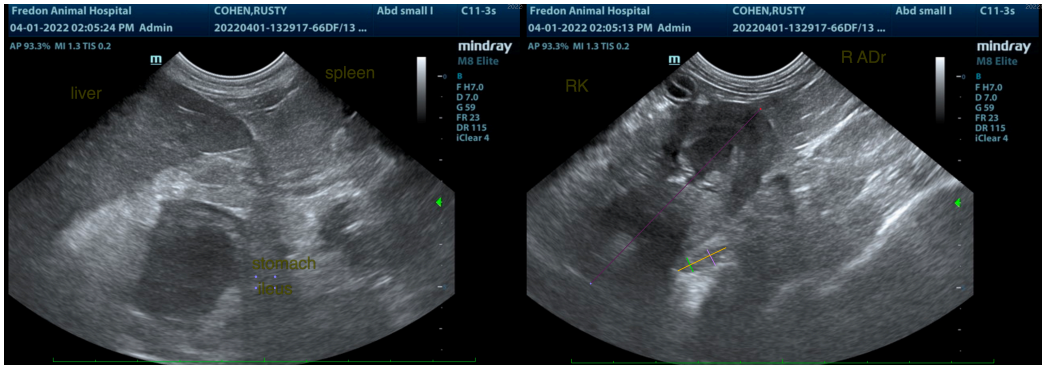

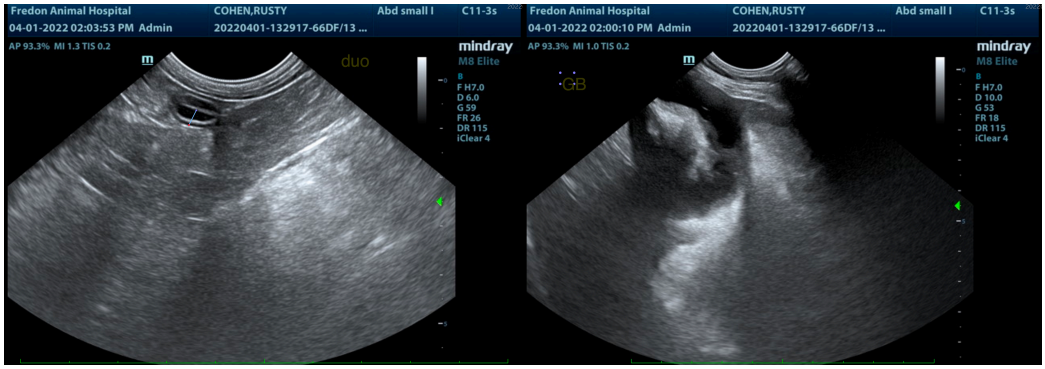

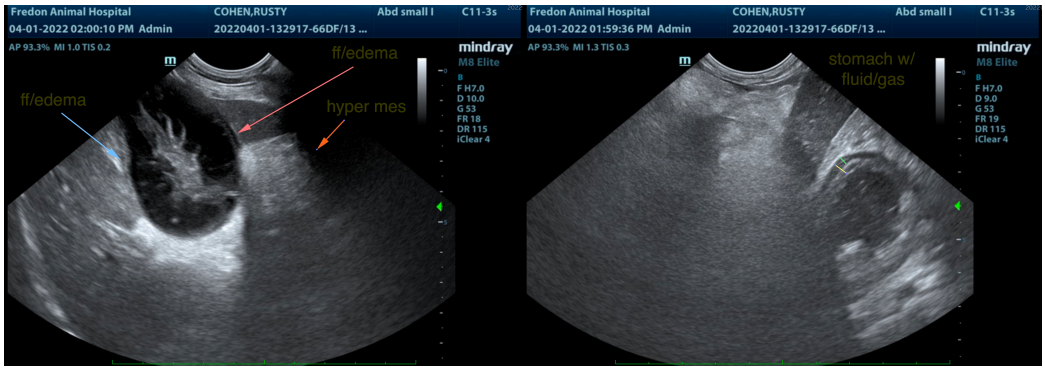

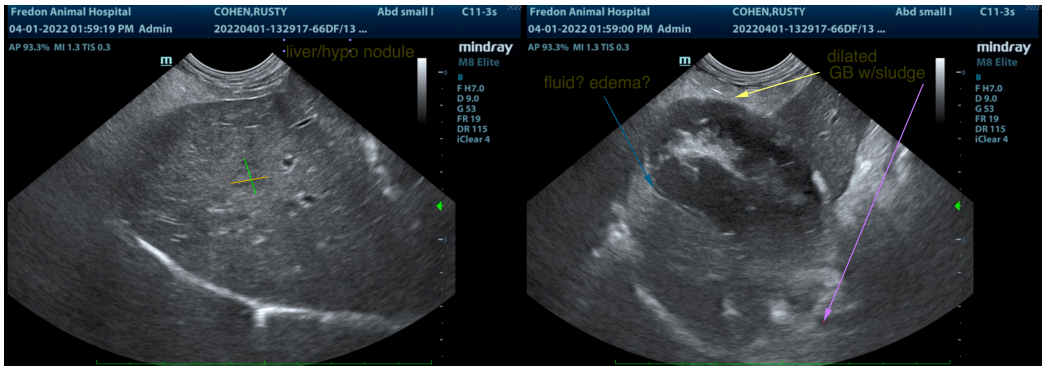

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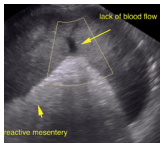

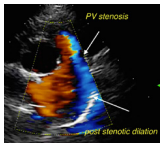

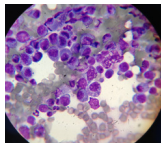
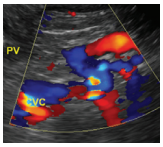

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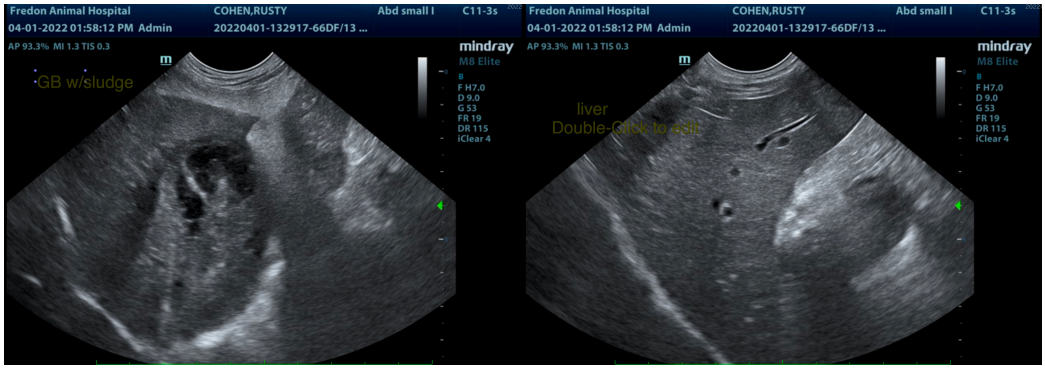

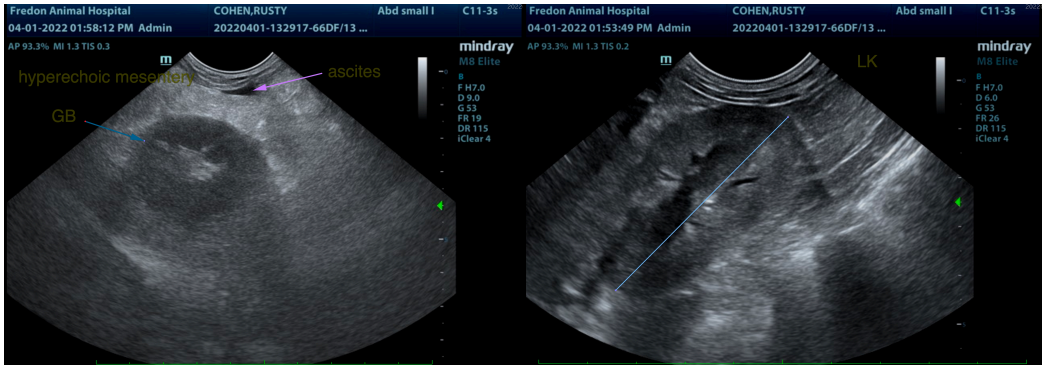

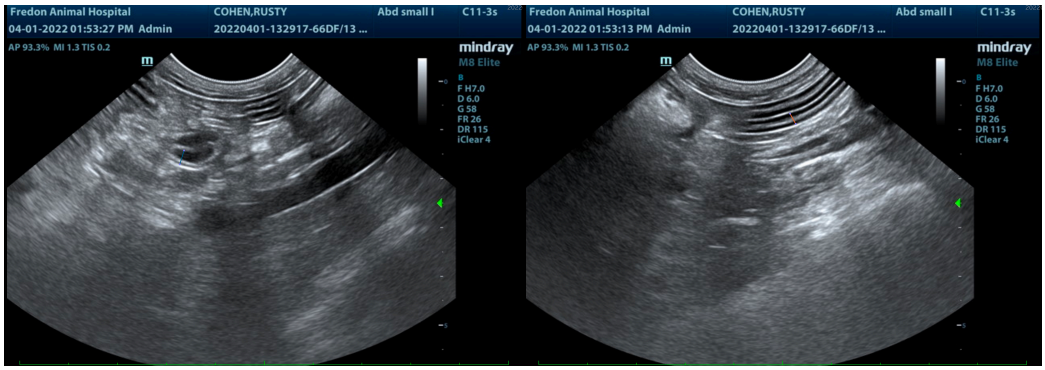

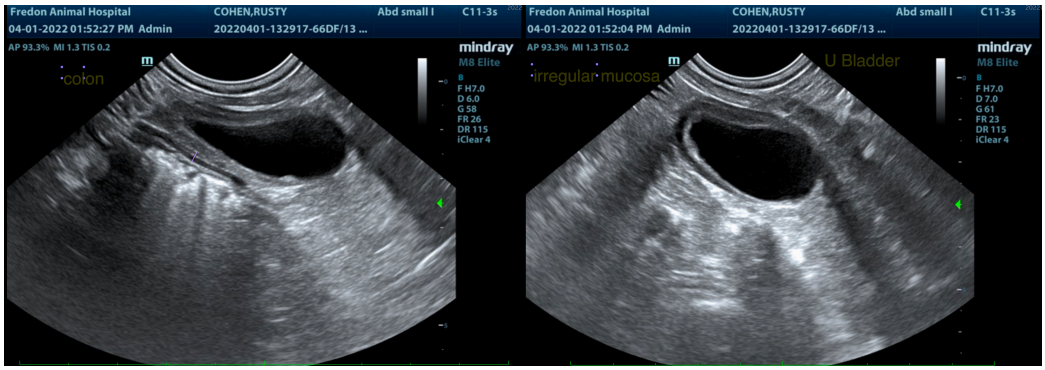

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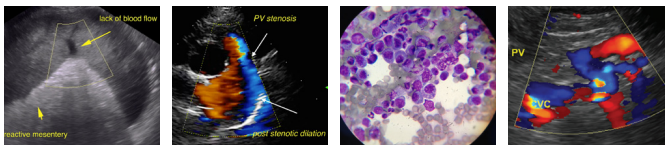

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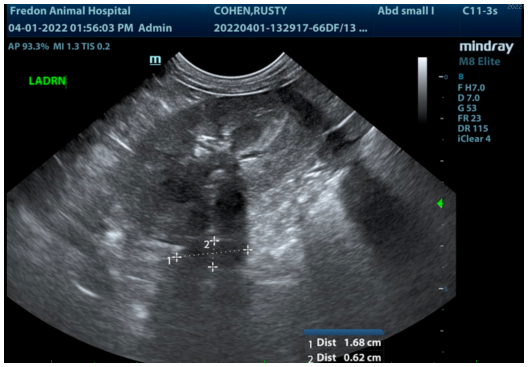

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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