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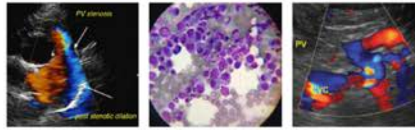

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
1-800-838-4268 info@sonopath.com SonoPath.com

PATIENT

Ginger Harper

SPECIES

Feline

BREED

DSH

SEX

Spayed Female

AGE

5 Years

WEIGHT

6.2 Pounds

INTERPRETED BY

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

IMAGING PERFORMED BY

Amy Mayhew, LVT

HOSPITAL NAME

SVS Imaging MI

REFERRING VET

Wixom Family Pet Practice

INVOICE

39005

DATE

6/22/22

PRESENTING CLINICAL SIGNS

Current Medications: Hill's z/d dry (offered since 12/2021) Revolution (?) - prescription filled in 2020 for Ginger specifically. May be sharing prescription with other cats. Patient History: Ginger first presented to our practice in October, 2020. Owner complained of pruritus and Ginger had signs of barberism affecting the entire ventrum and medial rear legs, there were also scabs on the forehead. This signs improved on follow up one month later after a change to another OTC diet, but have never fully resolved. Owner also reports that Ginger would vomit hours after eating food. Introduced Hill's z/d diet on 12/2021 - There was no improvement in the frequency of vomiting or pruritus Heska Environmental Test (5/24/22) - Tyrophagus storage mite 3+, Kochia weed 1+
Abnormal PE/Chem/CBC/UA Results: Abnormal Examination Findings: (11/30/21) Moderate diffuse calculus. Mild gingivitis. Marked barberism affecting the ventrum and medial rear legs. **BW pending

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** is adequately distended. The wall is smooth and regular. No abnormalities are noted with the trigone or proximal urethra, and there is no evidence of sediment, cystoliths, polyps or a mass.

Kidneys

The **left** kidney measures 3.37 cm (3.80-4.40 cm). The capsule is smooth. The cortex is within normal limits in echogenicity, i.e., it is hypoechoic to the spleen. Pinpoint, hyperechoic mineralizations are haphazardly dispersed throughout the cortex. The overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 3.83 cm (3.80-4.40 cm. The capsule is smooth. Pinpoint, hyperechoic mineralizations are haphazardly dispersed throughout the cortex. The overall architecture, including the definition of the cortico-medullary junction, is preserved. There are no signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation

No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.32 cm. 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 0.29 cm. 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 7.9 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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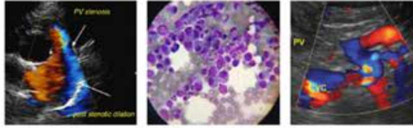

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Liver

Although overt hepatomegaly is not present, the liver is subjectively "generous" with smooth, but mildly rounded borders. Its echotexture is homogeneous, but diffusely hyperechoic, i.e. it is isoechoic to hyperechoic to the spleen. Focal lesions are not observed and no abnormalities are observed with the hepatic vessels.

The **gallbladder** (GB) is severely distended, although fasting may be contributing to its size). (consistent with a fasted individual). A moderate to severe amount of free floating and gravity-dependent echogenic material is present within the GB. The GB wall is within normal limits in thickness. The cystic duct is not dilated, but is mildly tortuous. Sludge is present within the cystic duct as it traverses toward the common bile duct. The latter is not dilated or tortuous, however, its walls are hyperechoic. An intrahepatic obstruction is not observed.

Gastrointestinal

Gas and fluid are present in the lumen of the stomach. The thickness and wall layering of the stomach is within normal limits for the most part, however, a focal area measuring at least 1.6 cm of the pylorus is very mildly thickened (0.41), with complete loss of definition of wall layering and what appears to be severe "fogging" of the mucosa, i.e., it is echogenic. Upon further evaluation, a curvilinear structure of approximately 6 mm, which casts a strong acoustic shadow, is visualized. The curvilinear structure/shadow is vis à vis the thickened mucosa (ventral to it) adjacent to one another)). The shape of the echogenic structure and acoustic shadowing may be a foreign body and is suggestive of a nut, the shell of a nut, or possibly an oral medication not yet absorbed. The latter is unlikely as the adjacent mucosa is consistent with inflammation (days). This same gas pattern is repeatable in multiple views.

Duodenum:As one follows the pylorus, the affected area lengthens and extends into the proximal duodenum. The echogenic portion of the mucosa measures 2.22 cm. A complete loss of wall layering is present, but regains its normal layering aborad. The echogenic structure and very strong acoustic shadow are still present. Ingesta and gas are present in the duodenum surrounding the structure. Fluid and gas, dilation of the stomach, representing an ileus, are suggestive of obstructive disease. This is visualized while evaluating the right kidney transversly.

Aborad to the abnormal region described above, gas and fluid are present within the duodenum, which is thicker than usual (0.35 cm). Both the mucosa and muscularis are thicker than normal. Fogging of the mucosa is also observed.

The ileo-cecal colic junction's submucosa is mildly prominent and mild fogging of the muscularis is noted. The small intestines are void of ingesta. Fogging and mild stippling of some segments of jejunum are present. The mesentery surrounding the GI tract is hyperechoic.

The submucosa of the colon is thicker than normal, however, the definition of the wall layers is preserved. Ginger may have had a recent episode of diarrhea.

Pancreas

The **left** limb is mildly hypoechoic, but maintains smooth and regular borders. It also has a diffuse, slightly coarse echotexture. The surrounding mesentery is moderately to severely hyperechoic. Although severe hypoechogenicity of the pancreas is not present, signs are suggestive of mild inflammation, i.e. pancreatitis, and subtle changes suggestive of previous episodes of pancreatitis (possible nodular regeneration fibrosis). That is, very small hypoechoic nodules and pinpoint hyperechoic foci scattered throughout the parenchyma. Signs consistent with neoplasia are not appreciated.

Only a small portion of the **right limb** is visualized. Similar findings are noted. The inflammation may be due to communication with the duodenum, rather than a "primary" pancreatitis.

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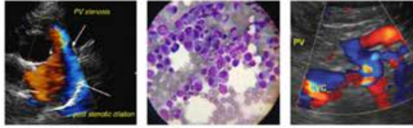

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Other

Lymph nodes

Lymphadenomegaly of a lymph node in region of the duodenum (1.03 cm x 1.26 cm. The LN is severely hypoechoic compared to normal with slightly irregular borders.

One of the LNs in the region of the ICCJ is mildly prominent.

Abdominal effusion is not visualized.

Mesentery

The mesentery surrounding the small intestines is diffusely hyperechoic.

ULTRASONOGRAPHIC FINDINGS

- **Gastrointestinal (GI) tract**: Severe focal loss of wall layering, suggestive of inflammation, at the junction of the pylorus and proximal duodenum. An echogenic structure with a strong acoustic shadow is noted in association with the abnormal mucosa. Obstructive disease is suspected. Although a foreign body (see above re: differential diagnoses) is suspected, one cannot exclude a neoplasm, such as lymphoma, adenocarcinoma, leiomyoma or leiomyosarcoma. That is, if neoplastic, it is not necessarily malignant.

  Other GI changes are present that are suggestive of diffuse inflammation, for example, a chronic enteropathy due to inflammatory bowel disease, food intolerance, dysbiosis, etc. Although the definition of the wall layers is well preserved, neoplasia cannot be excluded with certainty, and tissue biopsies are required to exclude neoplasia definitively. The colonic changes may be consistent with inflammation, i.e., Ginger may have had a recent episode of soft stools.

- **Lymph nodes:** The mild lymphadenomegaly is consistent with local inflammation, likely reactive hyperplasia, however, infiltrative disease cannot be excluded.

- **Gallbladder (GB):** Cholangitis/cholangiohepatitis and cholecystitis, including a suppurative component, due to an ascending bacterial infection from the GI tract, are suspected, in addition to cholestasis.

- **Liver**: Cholangitis/cholangiohepatitis is suspected. Mild hepatic lipidosis may also be contributing to the hyperechogenicity.

- **Pancreas**: Although overt signs of pancreatitis are not present, mild, active or a smoldering pancreatitis, cannot be excluded. Subtle changes suggestive of previous episodes of pancreatitis are also present. The inflammation may also be secondary to the inflammatory processes in the hepatobiliary and gastrointestinal systems. Signs of neoplasia are not appreciated.

- **Mesentery:** The mesentery surrounding the small intestines is diffusely hyperechoic, suggestive of diffuse inflammation/steatitis.

- *Note, other than the gastric changes, Ginger has many changes consistent with "triaditis". Evaluation of the history with the client regarding pica and gastroesophageal disease is recommended, particularly if a foreign body is diagnosed.*

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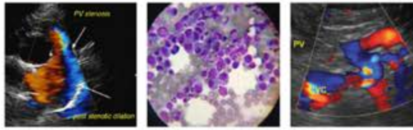

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

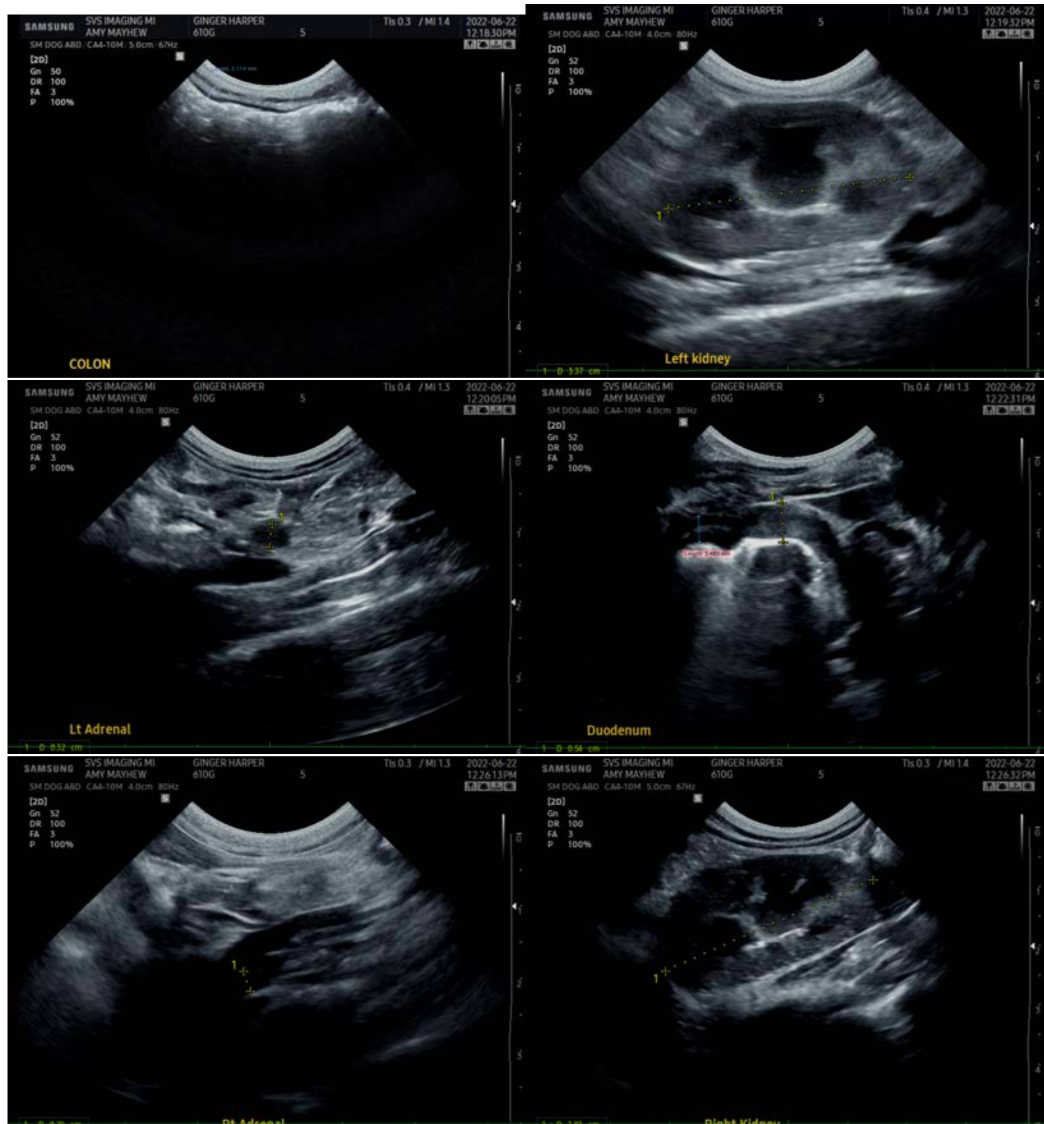
An exploratory laparotomy is strongly recommended, as soon as possible. Endoscopy is not indicated for the above sonographic findings.

IV fluids

Analgesia for visceral pain, such as buprenorphine (0.005-0.01 mg/kg sublingually every 8-12 hours), including fentanyl, and CRIs of lidocaine and ketamine.

Cholangitis/cholangiohepatitis and cholecystitis cannot be excluded, including a secondary ascending bacterial infection. Initiation of a broad-spectrum antibiotic.

One to three doses of vitamin K (0.5 mg/kg SQ) due to cholestasis q8-12 hours, a few hours prior to the procedure.



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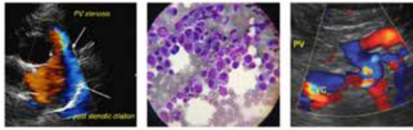

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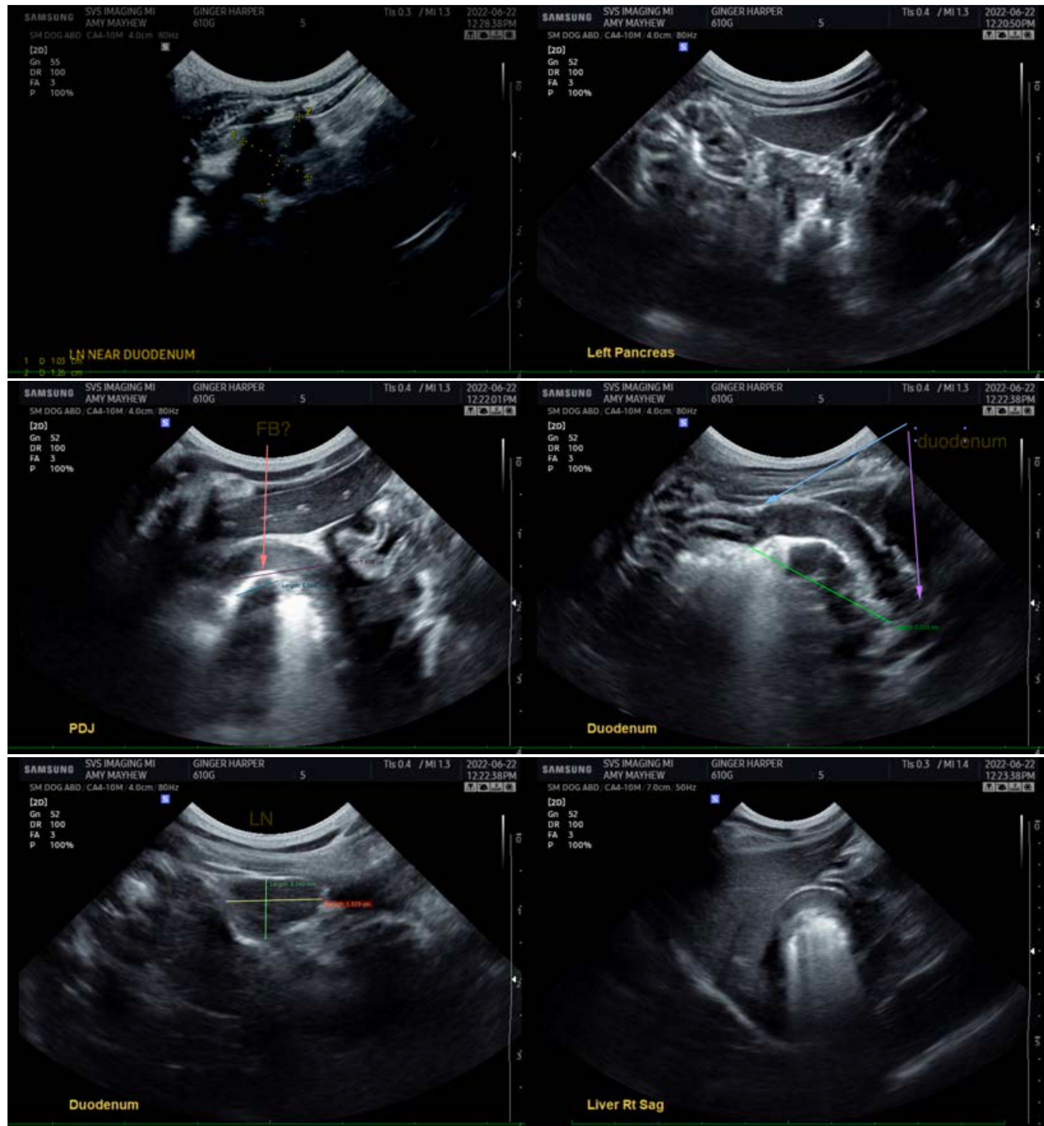

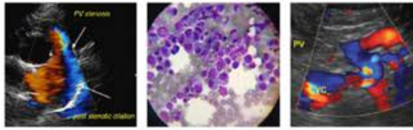

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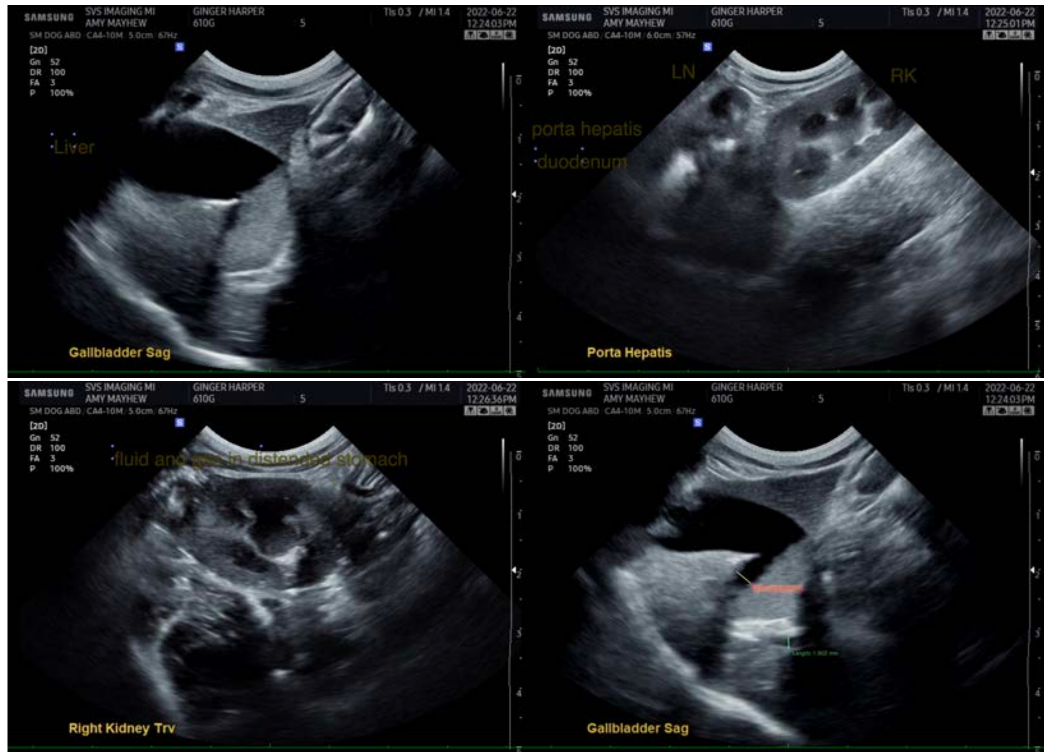

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

Lisa Carioto, DVM, DVSc, Diplomate ACVIM

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