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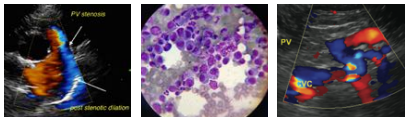

SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™
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DATE
7/12/22

PATIENT
Toni Pesacov

SPECIES
Canine

BREED
Shih Tzu

SEX
Spayed female

AGE
7/3/07

WEIGHT
6.1 lbs

INTERPRETED BY
Lisa Carioto, DVM, DVSc, Diplomate ACVIM

HOSPITAL NAME
Greenbrier VC

REFERRING VET
Dr. Whitfield

INVOICE
31574

PRESENTING CLINICAL SIGNS

Anorexia, vomiting, lethargy seen at home. P stomach became hard and distended and P seems uncomfortable. P had a suspected syncopal event after running upstairs. She collapsed, but recovered. Then, she vomited a large amount of fluid. Her belly seemed "deflated" per O. They took her to the ER and xrays showed what appeared to be a lot of fluid in her stomach. BW was normal aside from dehydration. They started her on metoclopramide and cerenia. 3 days later, her appetite and energy is improving some, but she is not back to normal and her xrays are unchanged.
Current Medications: Metoclopramide, Cerenia.
Lab Results: hx of kidney value elevation, has been normal for past 6 months.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Stat requested.
Imaging Performed By: Rachel Brilhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder** is adequately distended with anechoic contents. 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 3.18 cm. The capsule is smooth. The cortex is mildly hyperechoic. A mild loss of the normal definition of the cortico-medullary junction is present. Minimal mineralization of the diverticulae and pelvis is present, and there are no signs of nephroliths or pyelectasia. Subjectively, blood flow appears increased. The surrounding mesentery is not hyperechoic.

The **right** kidney measures 3.33 cm. Findings are very similar to the left kidney.

Aortic bifurcation/trifurcation No abnormalities observed.

Adrenal Glands

The **left** adrenal gland measures 0.53 cm at the cranial pole, 0.49 cm at the caudal pole and 1.59 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 0.47 cm at the cranial pole, 0.51 cm at the caudal pole and 1.39 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, architecture, echotexture, and echogenicity. The capsule is smooth. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly and its borders are smooth and sharp to mildly rounded. The liver's echotexture is mildly heterogeneous or "mottled" with multiple hypoechoic nodules of variable size scattered haphazardly throughout the parenchyma. Example, 0.66 cm in diameter x 0.59 cm in length. Target-like lesions are not noted. No abnormalities are observed with the hepatic vessels, including the portal vein.

The **gallbladder** (GB) is filled with a very small amount of free floating material (sludge). The GB wall is within normal limits in thickness and echogenicity. 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

A moderate amount of fluid and large amount of gas are present within the lumen of the stomach. The gastric wall is at the high end of the normal reference range, to very mildly increased for a dog of Toni's stature. Although the wall layers are well defined, the mucosa and muscularis are thickened and mild fogging of both layers are observed. The submucosa is also considered mildly prominent. Peristalsis appears decreased.

Echogenic ingesta, fluid and gas are present within the duodenum. The duodenum and a number of segments of jejunum show thickening and fogging of both the mucosa and muscularis layers, as well as ineffective peristalsis is observed, with a "to and fro" motion.

Note, a more severe ileus, with "swirling" fluid and gas, is noted as the ultrasound progresses.

The colonic wall is not thickened and mural detail is considered normal. Formed and semi- formed stools are present within the colon.

Pancreas

Severe hypoechogenicity and heterogeneity of the pancreas are observed. It has irregular contours with acoustic enhancement, i.e., signs are suggestive of active pancreatitis.

Other

Lymph nodes

A round, mildly hypoechoic nodule is noted in the region between the liver and stomach. It measures 1.02 cm x 1.15 cm. The mesentery surrounding the lymph node is mildly hyperechoic.

Abdominal effusion is not visualized.

ULTRASONOGRAPHIC FINDINGS

- **Pancreas**: Pancreatitis is suspected.

- **Gastrointestinal tract**: Changes are suggestive of severe inflammation, with ileus of the stomach and duodenum. Obvious signs of neoplasia are not visualized, however, the gas and fluid present are preventing an in-depth evaluation of the pylorus. Toni's breed is predisposed to pyloric hypertrophy and secondary obstructions. These differentials, including a mass, cannot be excluded, therefore, biopsies are required to obtain a definitive diagnosis. Severe inflammatory bowel disease secondary to pancreatitis remains a possible cause for Toni's clinical signs.

- **Liver**: Heterogeneity of the liver is suggestive of nodular hyperplasia, which is a benign, age-related change. Neoplasia is considered less likely as target lesions are not visualized.

- **Lymph nodes**: A gastric or hepatic lymph node is mildly enlarged. Its appearance is suggestive of reactive hyperplasia. Obvious signs of neoplasia are not appreciated.

- **Kidneys**: Although subtle sonographic changes suggestive of age-related degeneration are noted, blood flow appears increased. One cannot exclude hypertension.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

A nasogastric tube could be passed to aspirate as much fluid and gas as possible. The abdominal ultrasound of the stomach and cranial gastrointestinal tract would then be repeated to evaluate the area to exclude a possible mass or obstruction.

Note, the nasogastric tube may be maintained in place to continue removing fluid and gas, and to administer medications, as needed.

If repeating the ultrasound is not possible, the nasogastric tube may be passed and a barium study could be performed.

It is possible that Toni's ileus is secondary to pancreatitis and not due to a mass or obstruction of the GI tract.

Aggressive treatment of pancreatitis and ileus is suggested for another 48 to 72 hours.

Intravenous fluids at approximately ¼ to ½ maintenance to avoid volume overload (due to heart murmur). Monitor weight twice a day (due to heart murmur); helps monitor ins and outs to maintain hydration and avoid volume overload.

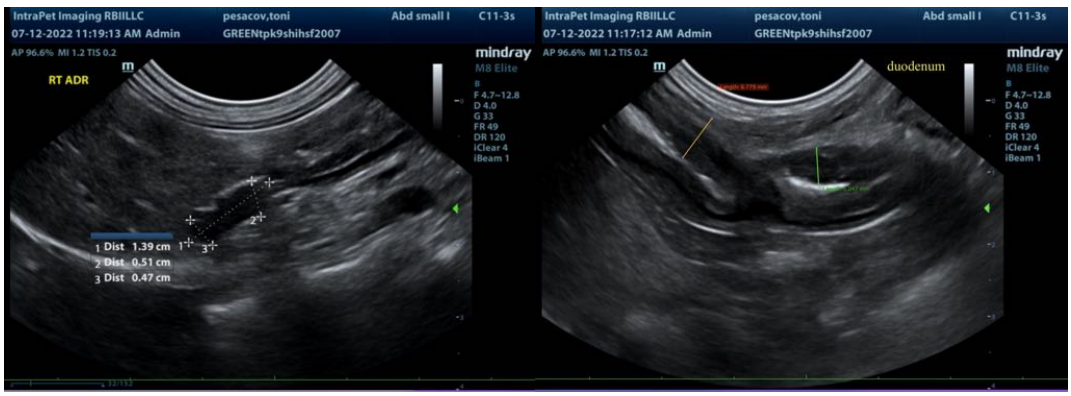
Analgesia – IV, ideally a CRI of an opioid (e.g. fentanyl), and judicious use of CRI of lidocaine and ketamine (monitor heart rate). Gabapentin orally, in addition to IV analgesics.

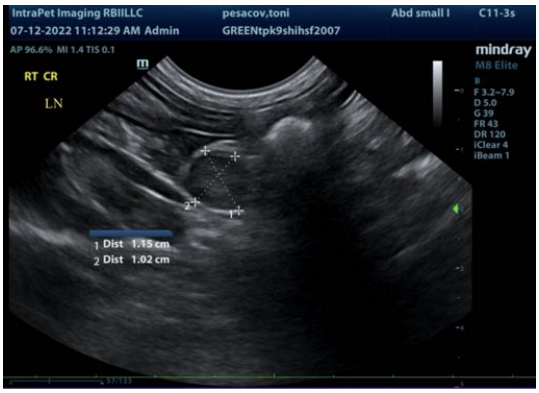
Pantoprazole IV twice a day, Maropitant (Cerenia) intravenously, at 1 mg/kg. If it is ineffective, you could try combining it with metoclopramide IV as a CRI. Ondansetron is another option (IV), although it is more expensive.

Once she is ready to eat, a bland, easily digestible, low fat, moderately restricted fibre diet is recommended to help decrease bloating and cramps.

Note, renal diets tend to be high in fat, therefore, a vegetarian diet, such as Purina HA may address Toni's kidneys and pancreatic issues, or a board certified nutritionist may formulate a balanced diet.

Monitoring left atrium: aortic ratio will also help evaluate volume overload secondary to fluid therapy.

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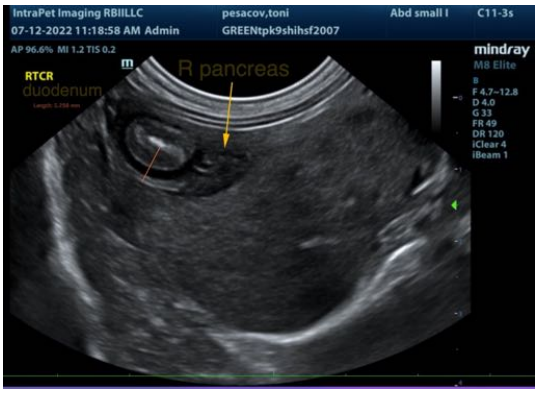
1 Dist 1.15 cm
2 Dist 1.02 cm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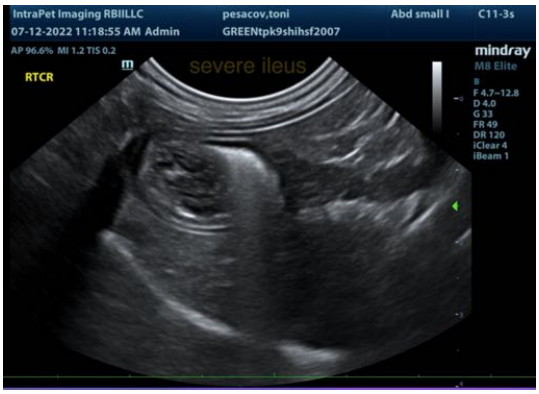
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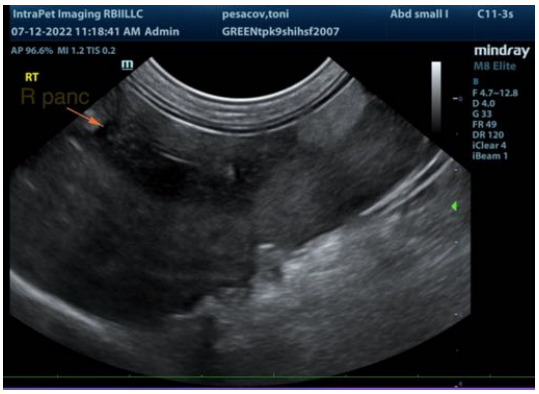
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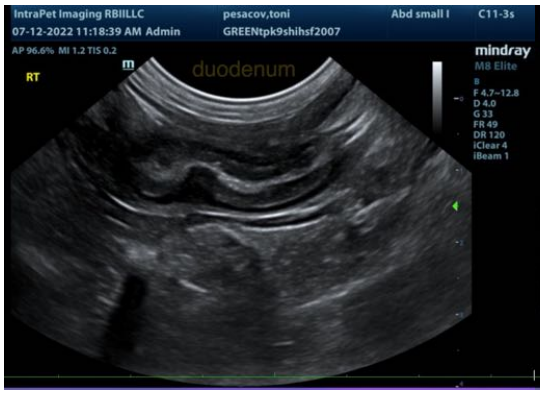
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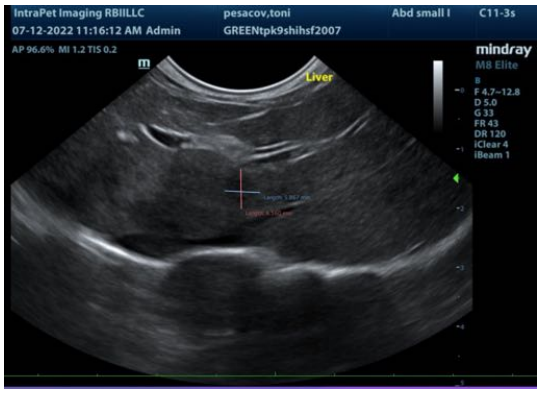
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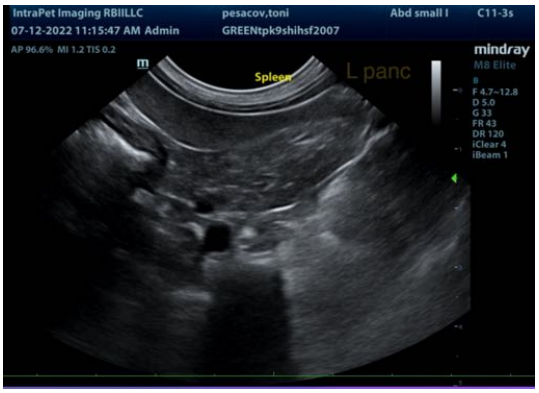
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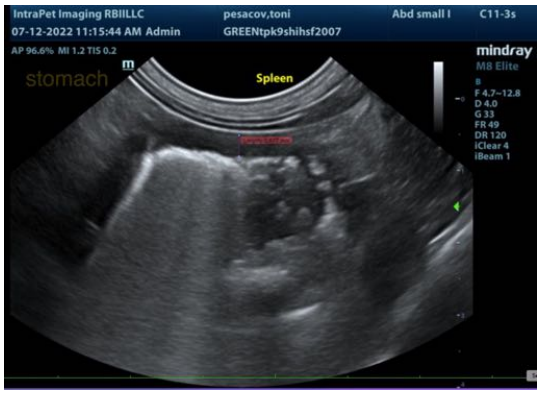
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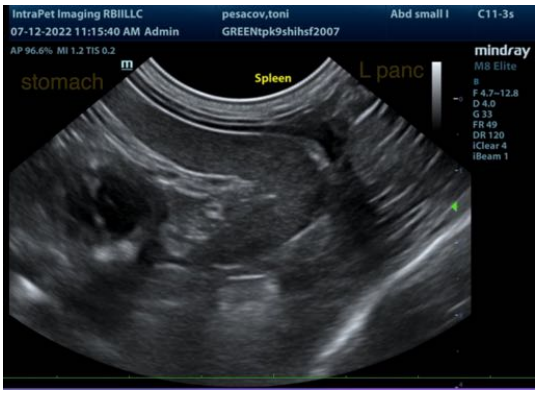
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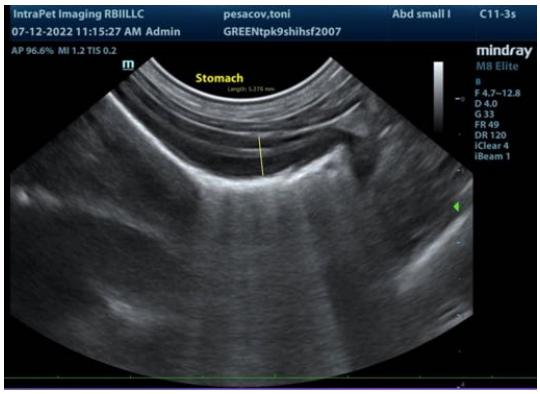
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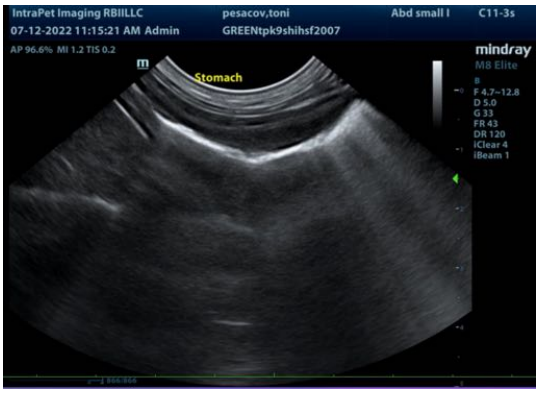
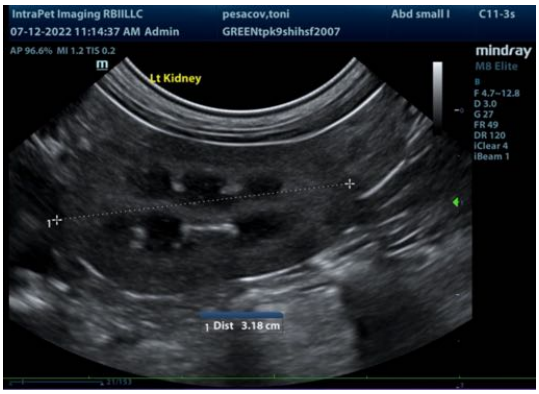
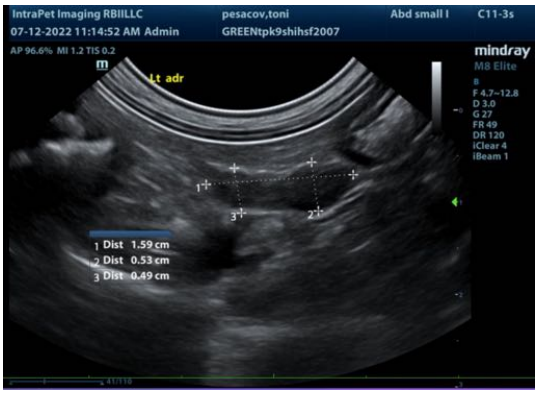
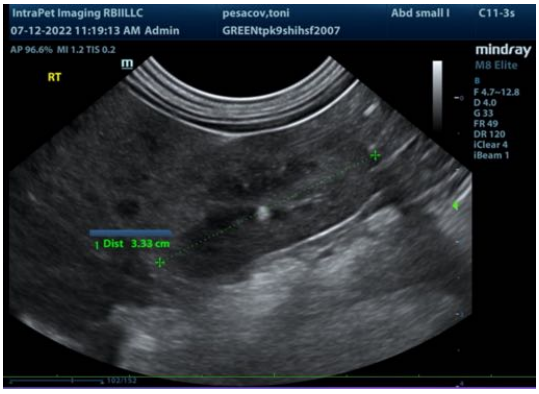
Bladder
colon









The information and recommendations provided are based on the images presented by the referring veterinarian. 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.