



PATIENT

Princess Tinkham

SPECIES

Feline

BREED

Siamese Mix

SEX

Spayed Female

AGE

14 Years 6 Months

WEIGHT

6.4 Pounds

INTERPRETED BY

Lisa Carioto, DVM,
DVSc, Diplomate
ACVIM

IMAGING PERFORMED BY

Sarah Green

HOSPITAL NAME

Healing Spirit AW

REFERRING VET

Sarah Green

INVOICE

16492

DATE

7/24/22

PRESENTING CLINICAL SIGNS

History: Presented 2 days ago with a 7-10 day history of hyporexia/anorexia and lethargy. No v/d.

Abnormal PE/Chem/CBC/UA Results: Numerous fleas present on exam, NAF otherwise. Progressive anemia (HCT=22% on 7/21, 19% on 7/23), clin path review of CBC pending, anemia PCR panel pending. Saline agglutination - negative

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

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

Kidneys

The **left kidney** measures 3.05 cm (3.80-4.40 cm). The capsule is smooth. The cortex is mildly hyperechoic. A mild loss of the normal definition of the cortico-medullary junction is present. Small mineralizations of the diverticulae and pelvis are present, in addition to a pelvic nephrolith of 1.75 mm. There are no signs of pyelectasia. The surrounding mesentery is not hyperechoic.

The **right kidney** measures 3.50 cm (3.80-4.40 cm). The capsule is smooth. The cortex is mildly hyperechoic. A mild loss of the normal definition of the cortico-medullary junction is present. Small mineralizations of the diverticulae and pelvis are present, without signs of nephroliths or pyelectasia. The surrounding mesentery is not hyperechoic.

Aortic bifurcation/trifurcation No abnormalities observed.

Adrenal Glands

The **left adrenal gland** measures 0.24 cm at the cranial pole, 0.30 cm at the caudal pole. 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 0.35 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 decreased in size 5.9 mm (normal = 10 mm), but within normal limits in echotexture, and echogenicity. The capsule is smooth. Occasional perivascular cuffing, attributed to myelolipomas, is noted. The latter is considered clinically insignificant. No abnormalities are observed with its vasculature, i.e. congestion and thrombi are not identified.

Liver

There are no obvious signs of hepatomegaly. The liver's borders are smooth, but rounded. The walls of the portal veins are prominent (i.e. they are hyperechoic), creating a heterogeneous echotexture. A diffuse, mildly coarse or granular echotexture is also observed. The liver is hyperechoic, i.e. it is isoechoic to the falciform fat. Focal lesions are not noted.

The gallbladder (GB) is not abnormally distended, but is filled with free floating echogenic material (sludge). The GB appears to have a double wall, both of which are thickened, i.e., the "inner" wall



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measures 2.2 mm with an outer wall measuring 1.7 mm. The hypoechoic halo separating the two walls is suggestive of edema or inflammation. The cystic duct is severely tortuous, but neither the cystic duct or the common bile duct is dilated.

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Gastrointestinal

A large amount of gas, fluid and ingesta are present within the lumen of the stomach. The gastric wall is within normal limits in thickness and the wall layers are well defined. No obvious abnormalities are observed with its peristalsis.

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Duodenum: The proximal duodenum is thickened (0.33 cm), and shows prominent wall layers with moderate to severe acoustic enhancement. The duodenal papilla is enlarged, yet homogeneous 0.75 cm in diameter x 0.72 cm in length. The duodenum is within normal limits distal to the duodenal papilla. The mucosa and muscularis are more prominent than usual with severe fogging of both layers.

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Jejunum: The small intestinal wall thickness varies, with some loops of bowel at the high end of normal (0.27 cm) and prominent wall layers, including the mucosa, submucosa and muscularis.

No abnormalities are noted with the ileo-cecal-colic junction.

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The transverse colon is filled with a large amount of ingesta and gas with decreased peristalsis. Colon: No obvious abnormalities.

Pancreas

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The pancreas is severely enlarged and moderately hypoechoic. Its contours are moderately to severely irregular. The surrounding mesenteric fat is moderately to severely hyperechoic.

In addition to these findings, a mildly coarse echotexture is present, in addition to pinpoint to punctate hyperechoic foci, which are scattered throughout the parenchyma. The former abnormalities are suggestive of active pancreatitis, while the latter are most likely due to age-related changes, such as nodular hyperplasia and fibrosis, respectively. Fibrosis may occur secondary to age, previous episodes of pancreatitis, mineralization, as well as amyloid deposition. Overt signs of neoplasia are not noted.

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Other

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Lymph nodes (LN)

Pancreatic LN: A prominent (0.35 cm in diameter x 0.67 cm in length), mildly hypoechoic with smooth borders is noted. The surrounding mesentery is moderately hyperechoic.

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A *second pancreatic LN* is enlarged and elongated compared to normal. It is 0.50 cm in diameter. It is within normal limits in echotexture and echogenicity and has smooth borders. The surrounding mesentery is moderately hyperechoic.

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Gastric LN: A prominent (0.40 cm in diameter x 0.40 cm in length), moderately hypoechoic with smooth borders is noted. The surrounding mesentery is severely hyperechoic.

Abdominal effusion is not visualized.

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ULTRASONOGRAPHIC FINDINGS

- **Pancreas:** Active pancreatitis is suspected. Signs suggestive of age-related changes are also observed, in addition to fibrosis secondary to age, previous episodes of pancreatitis, mineralization, and amyloid deposition. Overt signs of neoplasia are not noted.

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- Gallbladder:** Abnormalities suggestive of edema and cholecystitis. A suppurative component cannot be excluded. The enlarged duodenal papilla is homogeneous, therefore, an inflammatory process is suspected, however, neoplasia cannot be excluded. Obtaining a history regarding signs of gastroesophageal reflux disease (GERD), from the client is suggested.
- Liver:** A reactive hepatopathy and cholangitis/cholangiohepatitis are suspected. Hepatic lipidosis may also be contributing to the hyperechogenicity.
- Gastrointestinal (GI) tract:** Severe inflammation is suspected, for example, a chronic enteropathy (CE) due to inflammatory bowel disease, food intolerance, dysbiosis, etc. Although the definition of the wall layers is well preserved, neoplasia, (lymphoma or other round cell tumour), cannot be excluded definitively without performing tissue biopsies, and possibly immunohistochemistry and PARR.
- “Triaditis”** is possible
- Lymph nodes:** Mildly prominent to mild lymphadenomegaly, possibly due to reactive hyperplasia. Infiltrative disease is considered less likely based on their appearance, but cannot be ruled out.
- Spleen:** Hypovolemia is most likely present based on its size.
- Kidneys:** Renal changes are most consistent with mild age-related changes. Architecture is well preserved for Princess’ age.
- Urinary bladder:** The urine sediment is most likely composed of mucus, crystalline material and exfoliated cells. The debris 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

Recommendations may change depending on the pathologist’s interpretation of blood smear.

Urinalysis

Depending on how proactive the clients would like to be, one can either start with fine needle aspirates of the liver and culture of both the liver and bile (pending coagulation profile), or the following:

Treatment for pancreatitis, most importantly, analgesia, such as buprenorphine (0.005-0.01 mg/kg, sublingually, every 8-12 hours), with gabapentin. Continue for 3-4 weeks, or longer, as needed and taper the dose over a few weeks.

+/- gabapentin

Supportive care (maropitant, mirtazapine, SQ fluids, etc.)

Supplementation with vitamin B12 (anemia and pancreatitis, signs of CE)



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Obtaining a history regarding signs of gastroesophageal reflux disease (GERD), from the client is suggested.

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If signs of gastro-esophageal reflux disease (GERD) due to IBD, pancreatitis, cholecystitis, etc., consider 10-14 day trial with famotidine or omeprazole (0.7-1 mg/kg PO q12h)

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Cholestasis, cholangitis/cholangiohepatitis and suppurative cholecystitis are suspected. 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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Steroids (prednisolone) may be considered if little to no improvement is observed and further diagnostics are not pursued.

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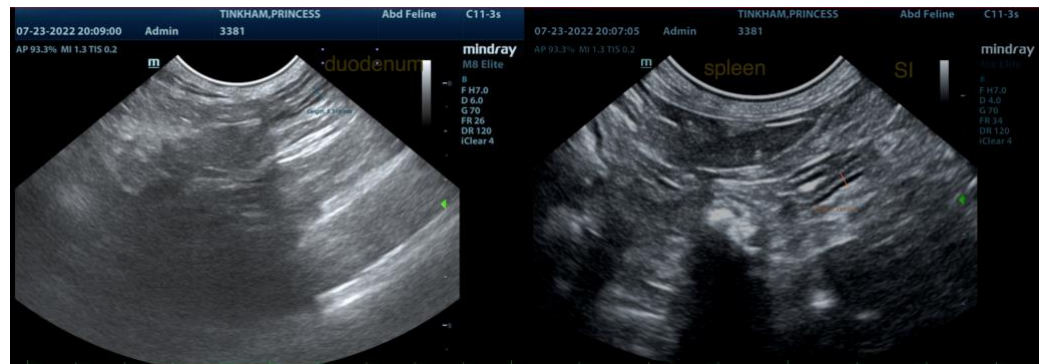
Diet trial (veterinary prescription brand hypoallergenic, i.e., ideally hydrolyzed diet); ensure appetizing to prevent hepatic lipidosis, sarcopenia and cachexia

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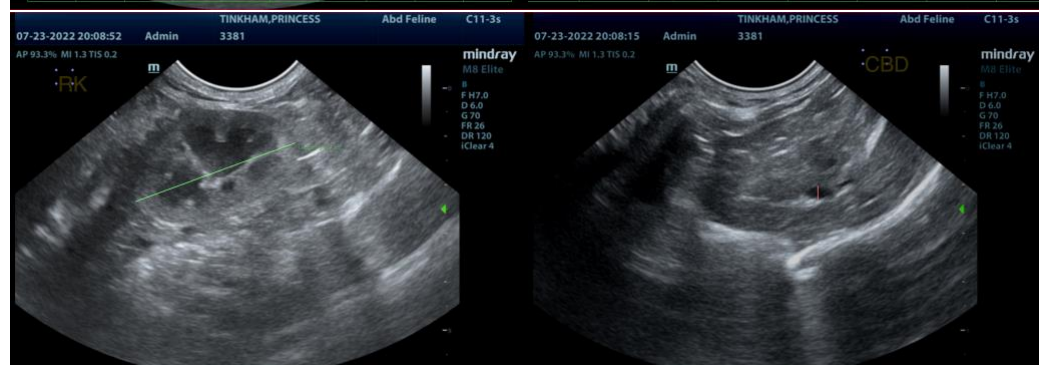
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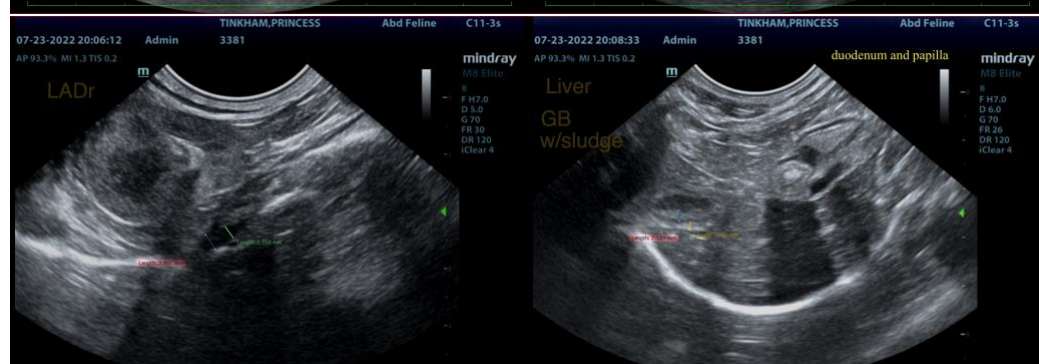
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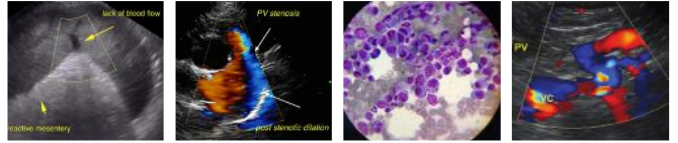
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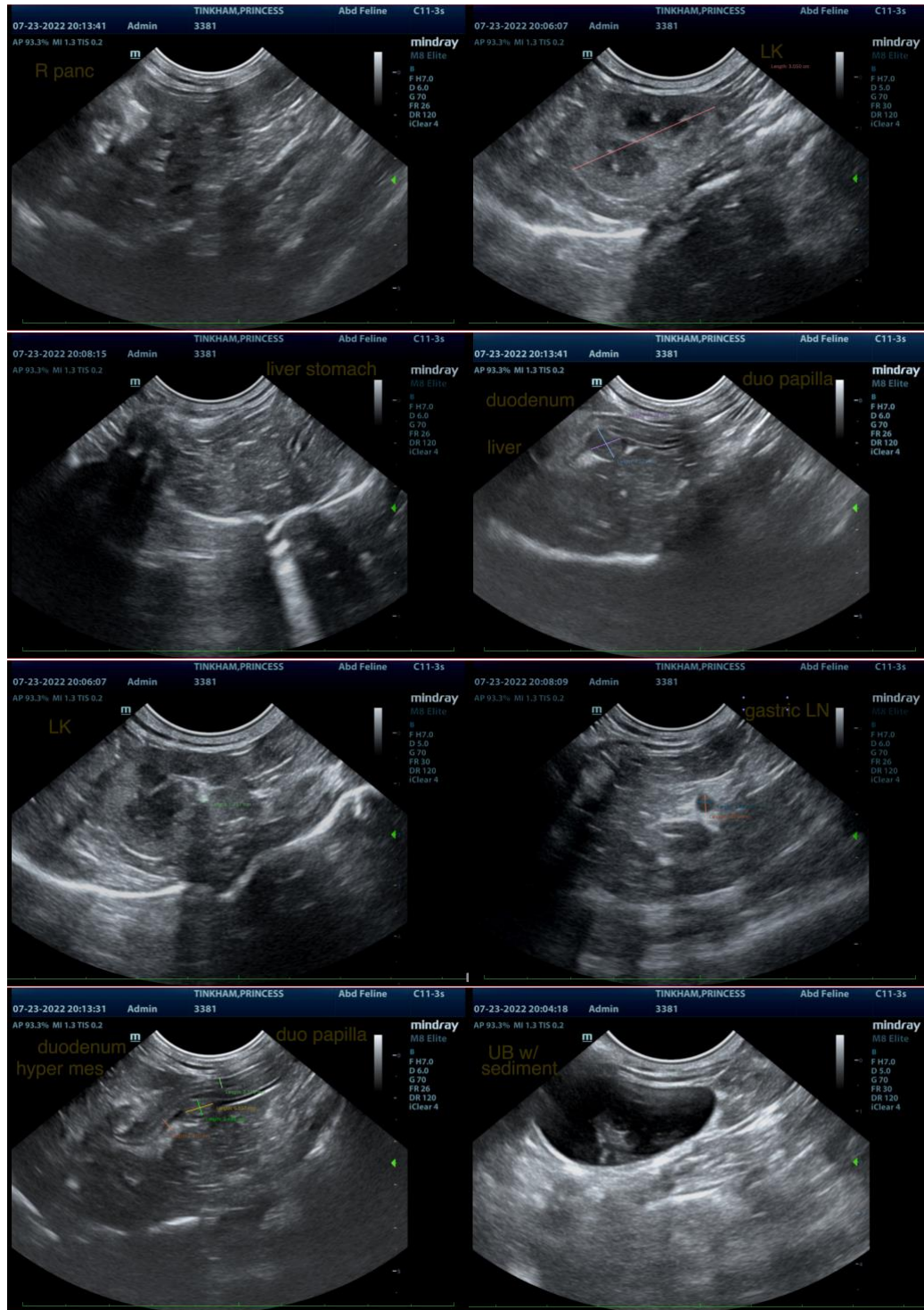
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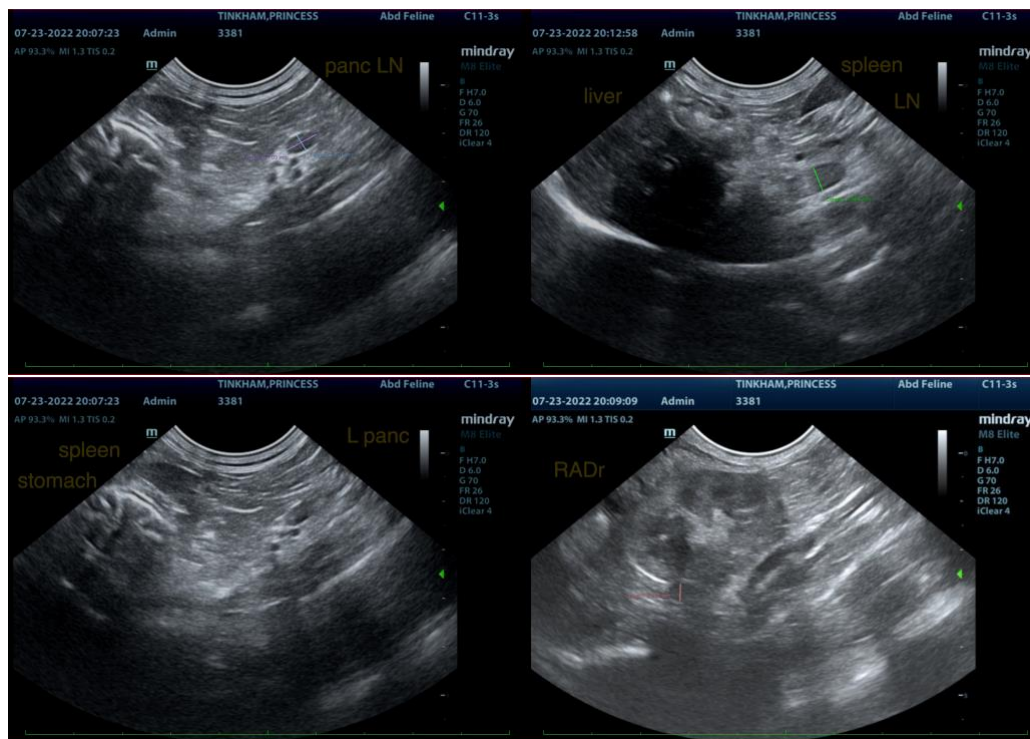
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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