IMAGING PERFORMED BY

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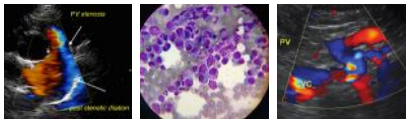

SonoPath
Clinical Sonography & Telecytology
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DATE

3/27/23

PATIENT

Magnus Bennett

SPECIES

Feline

BREED

DSH

SEX

Neutered Male

AGE

5/26/15

WEIGHT

11.5 Pounds

INTERPRETED BY

Beth Johnson, DVM DACVIM

HOSPITAL NAME

Honeygo AH

REFERRING VET

Dr. Mullinex

INVOICE

21829

PRESENTING CLINICAL SIGNS

ADR, wobbly, not eating -- all X24 hrs. Diarrhea 2 weeks ago, treated—resolved; chronic short bouts of diarrhea for several years, weight loss over past 2 years. 2/6 murmur dx 12/22, diabetes dx 10/21

Current Medications: Lantis, 4 units BID, DM diet with fancy feast, Treated 3/24 with SQ fluids, cerenia inj, convenia inj.
Lab Results: CBC Superchem 2 weeks ago - elevated amylase and PSL, glucose 177, T4 WNL
Radiographs: laterals only - calcified mass cranial chest - LN?, odd cardiac silhouette, could not evaluate for pancreatitis.
Date of Previous IntraPet Ultrasound: No previous.
Sedation: Not required to complete full diagnostic ultrasound.
Stat Report: Not requested.
Imaging Performed By: Rachel Brilhart, RDMS.

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

Urinary bladder is adequately distended. It has a normal uniform wall thickness. Contents include primarily anechoic fluid with occasional echogenic non-shadowing debris, most consistent with incidental suspended lipid in a cat, possibly combined with exfoliated cells, mucous and/or small blood clots. Both sterile inflammation as well as urinary tract infection can also present with echogenic debris. No masses or cystoliths are observed. The trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

Kidneys are overall normal in size and shape with smooth peripheral margination. A normal 1:3 cortex to medulla ratio is maintained. The medulla and cortices are uniform in texture with some mild increased cortical echogenicity and mild loss of corticomedullary distinction, expected in this age patient. There is no evidence of mineral or infarcts observed. The left kidney measures 4.38 cm. The right kidney measures 4.68 cm. Scant pyelectasia is noted bilaterally.

Adrenal Glands

Adrenal glands are bilaterally uniformly plump egg-shaped adrenals (Left 0.68 cm/Right 0.62 cm), hypoechoic in echogenicity with bilateral dystrophic mineralization noted. This is most likely a benign age-related change. This change can be caused by chronic stress/disease, so investigation for/management of other disease (chronic kidney disease, hyperthyroidism, etc.) is recommended. Adrenal disease, such as hyperadrenocorticism can't be ruled out but is considered much less likely, and should be interpreted n combination with supporting clinical signs, etc.

Spleen

Spleen is subjectively normal in size with a normal smooth capsular contour. Parenchyma is appropriately finely textured and homogenous with normal echogenicity relative to surrounding tissue (hyperechoic to liver). No focal nodules or masses are observed. Splenic vasculature appears normal.

Liver

Liver is subjectively enlarged (swollen contour) without disruption of architecture. It has a normal homogenous echotexture. Parenchyma is diffusely hyperechoic characterized by less prominent than normal portal vein walls and increased echogenicity relative to the spleen and falciform fat. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

Gallbladder is moderately distended with anechoic bile as well as mild suspended and gravity dependent echogenic debris. The wall is smooth without visible thickening. There is no evidence of cystic or CBD dilation. There is no evidence of effusion or inflammation.

Gastrointestinal

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is mildly distended with echogenic non-shadowing luminal contents and gas consistent with normal ingesta. There is no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

The visible small intestine demonstrates areas of thick muscularis layer relative to mucosa (disruption of the normal 1:3 muscularis:mucosa ratio). Small intestinal submucosa is slightly irregular, thick and hyperechoic, without evident loss of layering appreciated. The lumen of the small intestine is empty with no evidence of obstruction or foreign material.

The visible colon is normal in wall thickness and layering. Contents are consistent with normal formed feces and gas.

Pancreas

Pancreas is prominent in size with swollen irregular contour. Parenchyma is heterogenous characterized by hyperechoic tissue remodeling intermixed with ill-defined hypoechoic nodules. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation. In the left limb of the pancreas, there is a 1.6 cm x 1.2 cm, slightly more heterogenous appearing nodule, than the other ill-defined hypoechoic (suspect) nodular hyperplasia nodules.

Free Abdomen

There is no evidence of peritoneal effusion. The mesenteric lymph nodes are prominent in size with swollen capsular contour. Normal elongated shape (length to width ratio) is maintained. There is no loss of parenchymal detail.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Pancreatic nodular hyperplasia – Infiltrative neoplasia cannot be ruled out but is considered less likely. However, especially given the appearance of the nodule described in the left limb of the pancreas, infiltrative neoplasia should also be a consideration and be ruled out via tissue sampling.

- Hyperechoic hepatomegaly – This appearance is most consistent with benign hepatic lipidosis. Infiltrative disease such as amyloidosis or round cell neoplasia, such as mast cell tumor or less likely, lymphoma, is also possible.

- Inflammatory bowel disease (IBD) pattern – Thick muscularis has been reported with infiltrative bowel disease including both benign inflammatory disease as well as infiltrative neoplasia such as lymphoma. No aggressive lymphadenopathy, loss of layering, etc. is noted to make lymphoma more probable, but lymphoma cannot be definitively ruled out without tissue sampling.

- Reactive mesenteric lymph nodes – infiltrative neoplastic disease cannot be ruled out but is considered less likely.

Secondary Findings

- Urinary bladder debris
- Age-related kidney changes with bilateral scant pyelectasia noted
- Gallbladder debris – Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness, however, it can also be associated with hepatobiliary disease in cats and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

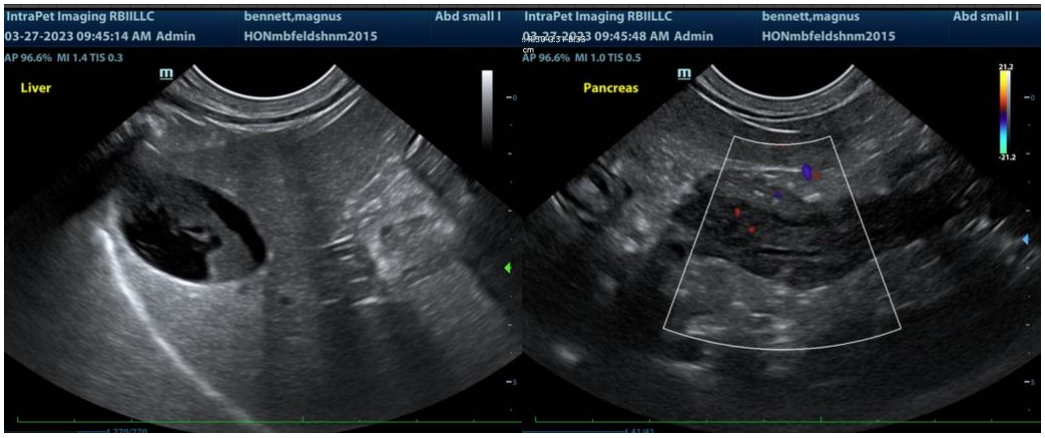
The differentials for this patients clinical signs, given the pathology discovered above, are vast and include, potentially, hypoglycemia, contributing to the patients reported wobbliness, therefore, if not ruled out, a hypoglycemic event should be investigated.

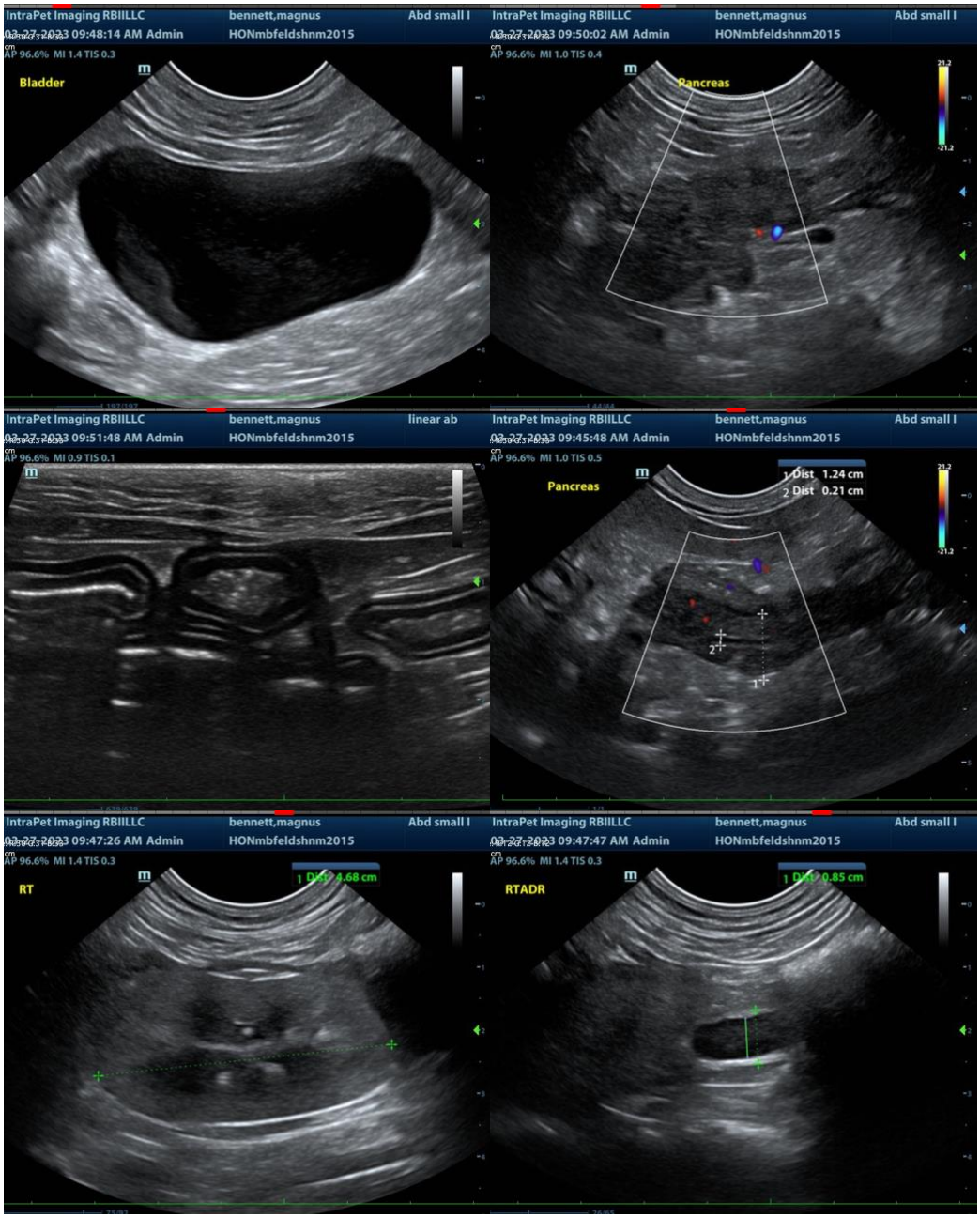
Given the patients bowel changes and chronic intermittent diarrhea, infiltrative bowel disease is considered likely, and therefore, a gastrointestinal malabsorption panel (including cobalamin, folate, TLI and PLI) to Texas A&M GI Laboratory is recommended for further evaluation of GI and pancreatic function.

Ultimately, biopsies of the GI tract may be necessary to definitively diagnose, and therefore, manage a suspected infiltrative bowel disease. However, given the marked pancreatic changes, prior to pursuing biopsies, a fine needle aspirate of the pancreas is recommended, if patients coagulation status is appropriate.

This is all pending further evaluation also of the pulmonary pathology reported. Given that, next steps to consider could include an echocardiogram, a thoracic CT, and/or possibly fine needle aspirate of a pulmonary nodule, if present, as well.

Finally, if not recently evaluated, urinalysis and, if indicated based on urinalysis results, urine culture is recommended. If protein is present in an otherwise quiet sediment, protein quantification with a urine protein to creatinine ration is recommended.

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Bladder
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Pancreas
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Pancreas
1 Dist 1.24 cm
2 Dist 0.21 cm
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RT
1 Dist 4.68 cm
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RTADR
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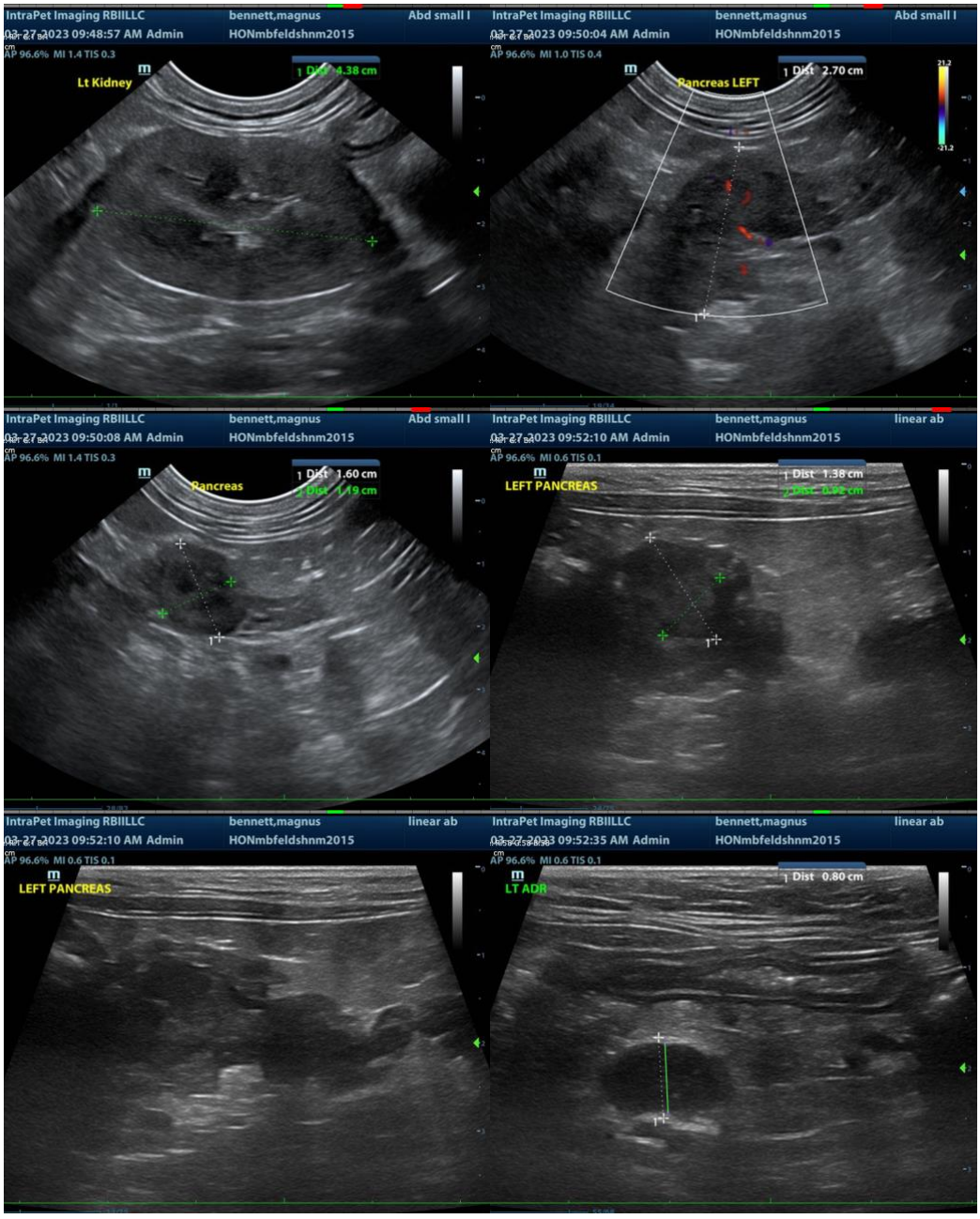
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AP 96.6% MI 1.4 TIS 0.3
Lt Kidney
1 Dist 4.38 cm
IntraPet Imaging RBIILLC
bennett,magnus
Abd small l
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HONmbfeldshnm2015
AP 96.6% MI 1.0 TIS 0.4
Pancreas LEFT
1 Dist 2.70 cm
IntraPet Imaging RBIILLC
bennett,magnus
Abd small l
03-27-2023 09:50:08 AM Admin
HONmbfeldshnm2015
AP 96.6% MI 1.4 TIS 0.3
Pancreas
1 Dist 1.60 cm
2 Dist 1.49 cm
IntraPet Imaging RBIILLC
bennett,magnus
linear ab
03-27-2023 09:52:10 AM Admin
HONmbfeldshnm2015
AP 96.6% MI 0.6 TIS 0.1
LEFT PANCREAS
1 Dist 1.38 cm
2 Dist 0.92 cm
IntraPet Imaging RBIILLC
bennett,magnus
linear ab
03-27-2023 09:52:10 AM Admin
HONmbfeldshnm2015
AP 96.6% MI 0.6 TIS 0.1
LEFT PANCREAS
IntraPet Imaging RBIILLC
bennett,magnus
linear ab
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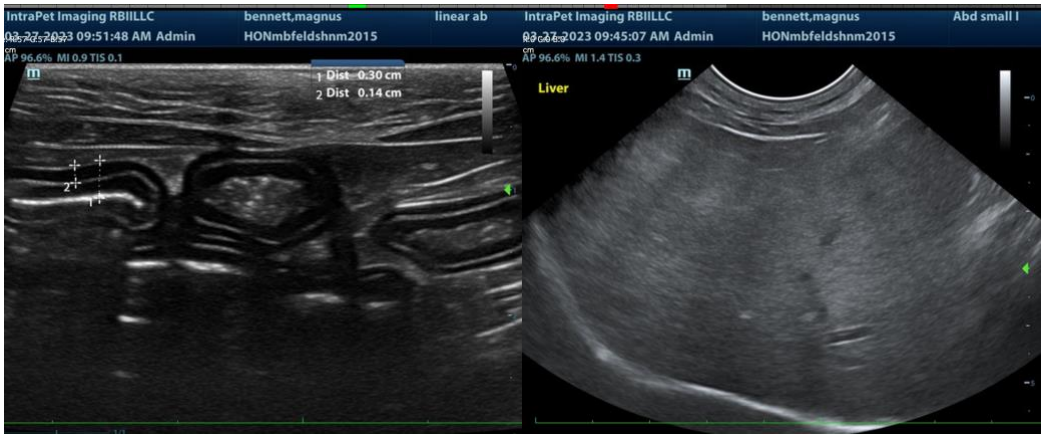
AP 96.6% MI 0.6 TIS 0.1
LT ADR
1 Dist 0.80 cm



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.

Beth Johnson, DVM DACVIM
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