



**PATIENT**

Laurel Bell

**SPECIES**

Canine

**BREED**

Lab Mix

**SEX**

Spayed Female

**AGE**

9.3 Pounds

**WEIGHT**

60 Pounds

**INTERPRETED BY**

Beth Johnson, DVM  
DACVIM

**IMAGING PERFORMED BY**

Meghan Myers, VMD

**HOSPITAL NAME**

Hershire AH

**REFERRING VET**

Dr. Alesha Glass

**INVOICE**

21502

**DATE**

3/6/23

**PRESENTING CLINICAL SIGNS**

History: O presented patient on 3/3/23 for concerns of progressively decreasing appetite prior to onset of anorexia of 24-36 hours duration. Patient vomited twice on 3/2/23 which consisted of 3 pieces of undigested food and mucus. O does not feel she got into anything she shouldn't. Urinations & defecations are WNL. No increase in drinking habits. In general patient is starting to slow down. Patient has a history of atopy & seizures and is on Apoquel & Phenobarbital respectively. Patient's last known seizure was about 7 months ago. Most notable PE changes include weight loss of 3.4# since last seen on 1/31/23. Her abdomen is tense on repeated cranial & mid abdominal palpation and she lip licks. Remainder of PE is unremarkable. cerenia injection, bland diet, mirtaz PRN, and enrofloxacin (for uti) - prescribed. Updated history today: No vomiting, ate well last night, no diarrhea.

Abnormal PE/Chem/CBC/UA Results: Diagnostics reveal pre-prandial bile acids <1 (0-14.9). ALT: 300 (10-125), normal ALP & GGT. Albumin: 2 (2.2-3.9), TP: 4.8 (5.2-8.2), Globulin: 2.8 (2.5-4.5). cPLI = normal. Urinalysis revealed SPG 1.036, 3+ protein, RBC 47/hpf, WBC 38/hpf, rods & cocci present.

**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 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.

Left kidney is normal in size (6.1 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

Right kidney is normal in size (6.2 cm), shape and echogenicity. It has smooth peripheral margination. There is a normal 1:3 cortex to medulla ratio with appropriate corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

**Adrenal Glands**

Left adrenal gland is normal in size (0.32 cm at cranial pole and 0.41 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

Right adrenal gland is normal in size (0.58 cm at cranial pole and 0.47 cm at caudal pole), shape and overall architecture, echogenicity and echotexture. Visible surrounding vasculature appears normal.

**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 with mildly irregular margins. Parenchyma is heterogenous characterized by multiple poorly defined hypoechoic nodules within otherwise hyperechoic liver parenchyma. Visible vasculature and biliary tree appear normal without distension or congestion.



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Gallbladder is moderately distended with anechoic bile as well as very 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.

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**Gastrointestinal**

The visible stomach wall is normal in thickness and layering. The lumen of the stomach is empty with no evidence of obstruction, foreign material or infiltrative disease. Pyloric outflow tract appears patent.

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The visible small intestines are normal in wall thickness and layering. Hyperechoic mucosal fogging or speckling is noted. Small intestinal motility appears adequate (1-3 contractions per min). The lumen of the small intestine is empty, except for in a small bowel loop medial to the spleen, an approximately 1.0 cm curvilinear echogenic interface with strong acoustic shadow, concerning for a possible small nonobstructive foreign object. Normal kibble, pill, other can't be ruled out but typically doesn't produce quite as significant of an acoustic shadow.

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

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**Pancreas**

The area of the pancreas contains irregular hyperechoic pancreatic remodeling.

**WEIGHT**

60 Pounds

**Free Abdomen**

There is no evidence of peritoneal effusion. There is no apparent lymphadenopathy.

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**ULTRASONOGRAPHIC FINDINGS**

**Primary Findings**

- Mucosal speckling with a possible small nonobstructive foreign body – Mucosal speckling is often present with inflammatory bowel disease (IBD). It is not specific for type or severity of disease. Mild speckling change can occur as a normal patient variant in the post-prandial state.
- Hyperechoic pancreas – This finding is suggestive of pancreatic fibrosis, possibly secondary to chronic pancreatitis. A TLI is recommended to rule out exocrine pancreatic insufficiency (EPI), especially if clinical signs (weight loss, diarrhea, etc.) are present.
- Heterogenous Liver – These changes are most consistent with benign processes such as nodular hyperplasia, steroid (vacuolar) hepatopathy, extramedullary hematopoiesis or possibly chronic inflammatory disease and less commonly infiltrative round cell or metastatic neoplasia.

**IMAGING PERFORMED BY**

Meghan Myers, VMD

**HOSPITAL NAME**

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Dr. Alesha Glass

**Secondary Findings**

- Urinary bladder debris
- Very mild Gallbladder debris - Cholecystic debris is of unknown clinical significance. It can be seen with biliary stasis from fasting or illness. Cholecystic debris is not necessarily related to hepatobiliary disease. Echogenic bile is most commonly an incidental finding in dogs and should be interpreted in combination with clinical signs such as nausea, inappetence, cranial

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**PATIENT** abdominal discomfort and/or laboratory changes such as increased ALP and/or increased Tbili.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

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Given this patients reported gastrointestinal signs, hypoalbuminemia and increased ALT combined with the reported urinary tract infection, recommendations include treating the urinary tract infection, as is reportedly already in place, ideally based on culture and sensitivity results, and hen rechecking urine a week to 10 days after finishing antibiotics. If the sediment is quiet, but protein is still present, a urine protein to creatinine ratio is recommended to help rule out protein losing nephropathy as a contributing factor to the hyperalbuminemia.

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Having said that, given the appearance of this patients bowel and pancreas, underlying gastrointestinal disease, potentially a protein losing enteropathy or even exocrine pancreatic insufficiency is more likely the cause of this patients hypoalbuminemia. Therefore, recommendations include a gastrointestinal malabsorption panel (including cobalamin, folate, TLI and PLI) to Texas A&M GI Laboratory, for further evaluation of GI and pancreatic function, as well as baseline cortisol. If baseline cortisol is less than 2, a full ACTH stimulation test is recommended to rule out hypoadrenocorticism.

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Finally, however, given the concurrently increased ALT, full bile acids are recommended to further evaluate liver function, as is testing for leptospirosis.

**WEIGHT**

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Pending results of all of the above, ideally, biopsies of the GI tract may be recommended to definitively diagnose and therefore manage the infiltrative bowel process.

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If biopsies cannot be obtained safely due to low albumin or patient stability, etc., empirical therapies could include diet change to an ultra-low-fat diet, empirical deworming with a 5-day course of Panacur, cobalamin supplementation (unless cobalamin level is evaluated and supplementation is not warranted) a probiotic and prednisolone (if not contraindicated based on patient contraindications, co-morbidities, etc.). Calcium monitoring, and supplementation, if necessary, is also recommended.

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If patient's coagulation status is otherwise appropriate, anti-thrombotics such as clopidogrel or low dose aspirin may also be warranted.

Additionally, given the increased ALT, hepatic nutraceuticals could be added to this treatment regimen.

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If the object described above is in fact a foreign object, it will most likely pass, given the small size and lack of an obstructive pattern so far, however, if vomiting persists, recheck imaging is recommended immediately to help diagnose an obstruction in a timely fashion if one should occur.

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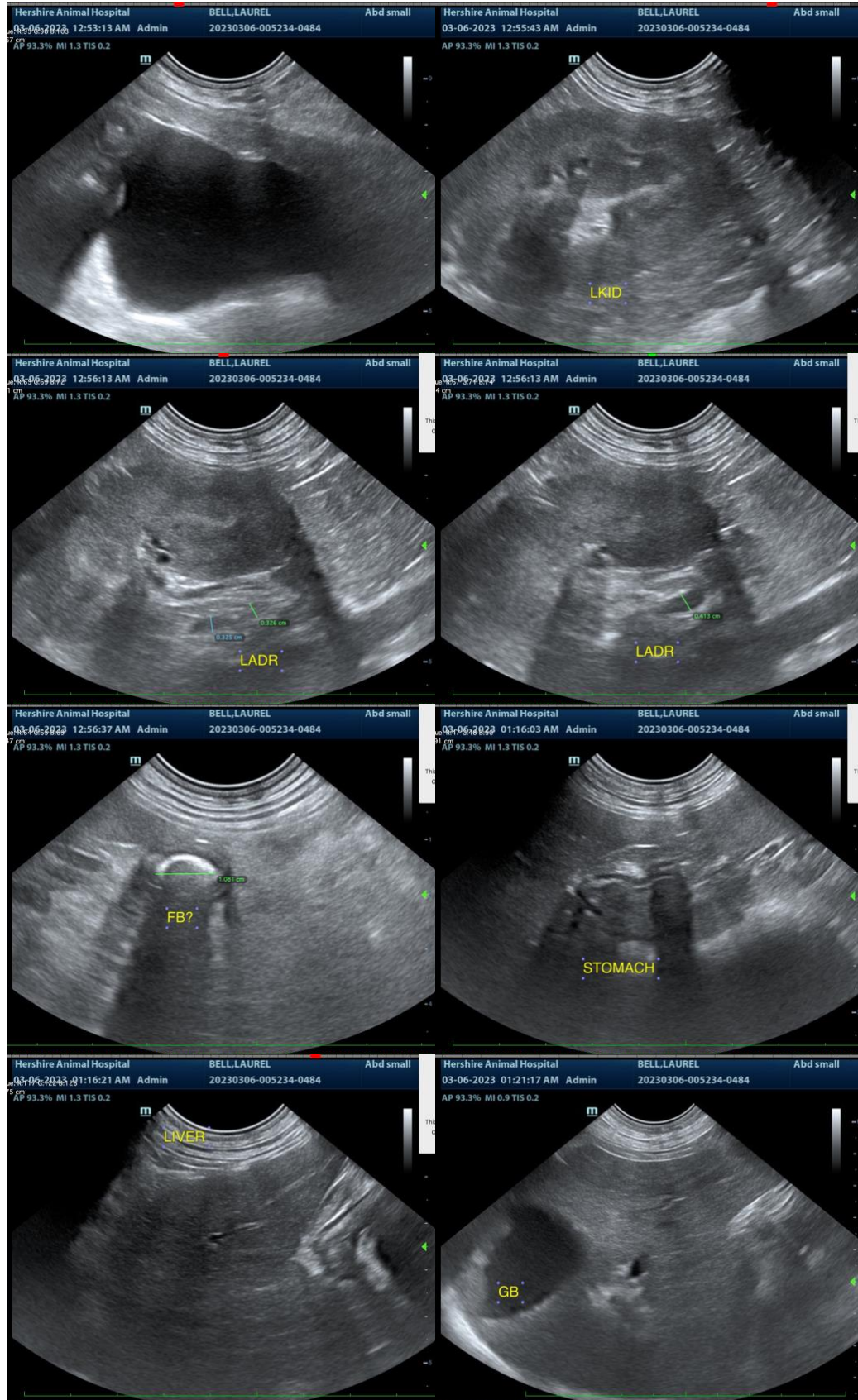
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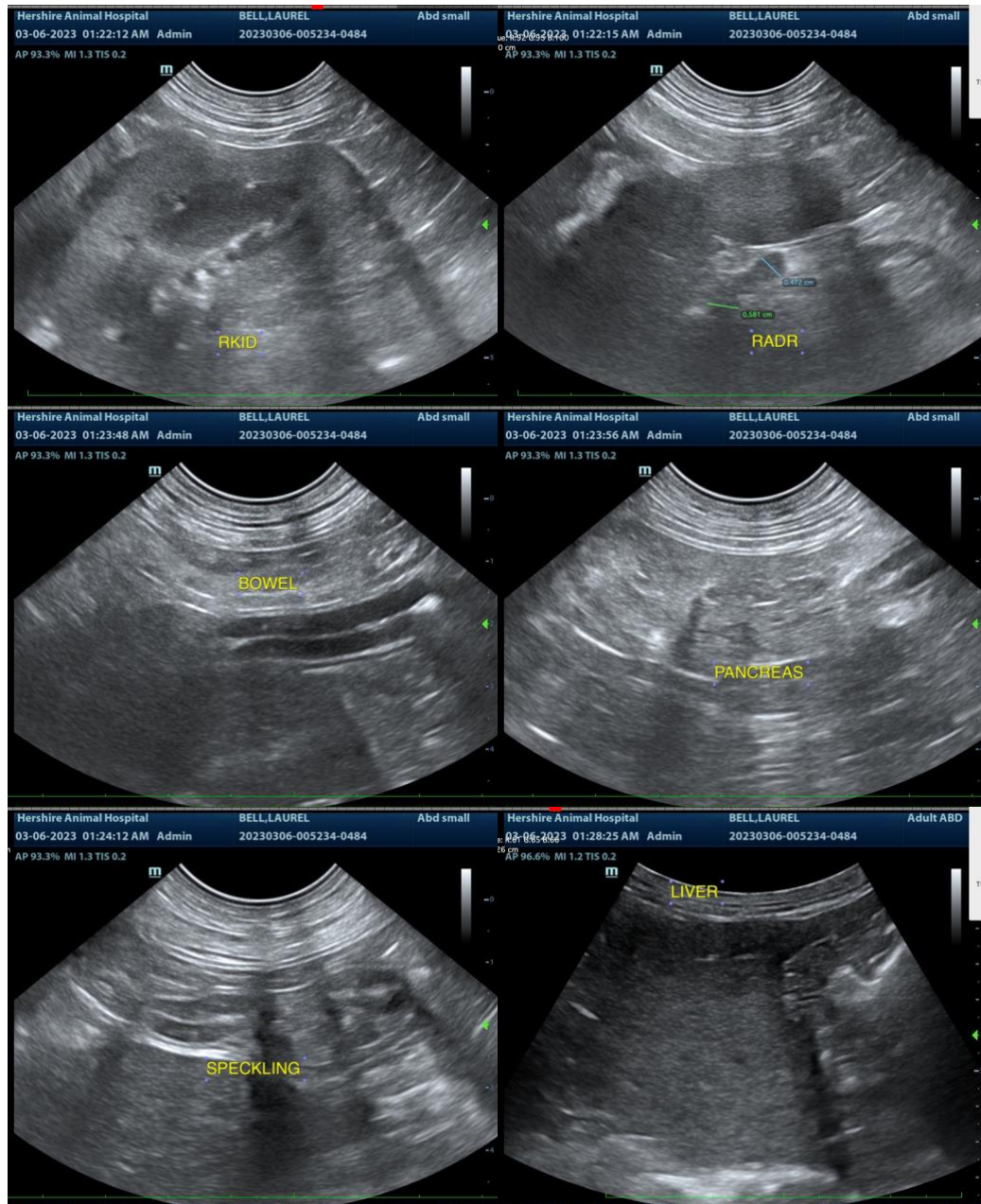
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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**

Beth.Johnson@SonoPath.com