

**DATE PRESENTING CLINICAL SIGNS**

2/17/22

History: O concerned about incontinence. Pet appears to be leaking large volumes of urine. On exam it was also found pet had diarrhea and rectal irritation. Weight loss of 7 lbs since October. Exam unremarkable other than weight loss. Has history of possible IBD and is on Z/D diet. Bloodwork is showing low albumin. Urine Specific gravity low.

**PATIENT**

Rommel Griffin

**SPECIES**

Canine

Current Medications: Z/D diet, Proin 50 mg BID.

Lab Results: alb- 2.1 (2.7-4.4), urine spec gravity- 1.006 with neg culture and insignificant microalbumin.

Date of Previous IntraPet Ultrasound: 11-16-2019.

Sedation: Not required to complete full diagnostic ultrasound.

Stat Report: Not requested.

**BREED**

German Shepherd

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN****Urinary System****SEX**

Neutered Male

In the images dated 3/1/22, the urinary bladder is moderately distended with anechoic contents. No masses, inflammatory changes, echogenic sediment or cystoliths are observed. The urinary bladder, trigone and visible pelvic urethra are normal in thickness with a smooth mucosal surface.

**AGE**

7/1/10

The right kidney is normal in size (6.93 cm) 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 echogenicity and mild loss of corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

**WEIGHT**

72 Pounds

The left kidney is normal in size (6.76 cm) 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 echogenicity and mild loss of corticomedullary distinction. There is no evidence of pyelectasia, mineral or infarcts observed.

**INTERPRETED BY**Beth Johnson, DVM  
DACVIM**Adrenal Glands**

The right adrenal gland is normal in size (2.35 cm long x 0.73 cm at the cranial pole and 0.69 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**IMAGING PERFORMED BY**

Rachel Brilhart RDMS

The left adrenal gland is normal in size (3.4 cm long x 0.52 cm at the cranial pole and 0.59 cm at the caudal pole), shape and contour. Corticomedullary structure is unremarkable. Visible surrounding vasculature appears normal.

**HOSPITAL NAME**

Fullerton AH

**Spleen**

The 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.

**REFERRING VET**

Dr. Unger

**Liver**

The liver is subjectively normal in size with normal smooth curvilinear peripheral contour. Parenchyma is appropriately hypoechoic to the spleen in echogenicity and appropriately mildly coarse and homogenous in echotexture. No focal lesions are observed. Visible vasculature and biliary tree appear normal without distension or congestion.

**INVOICE**

35725

The gallbladder is non-distended in size. The wall is smooth without visible thickening. Luminal contents are primarily anechoic. There is no evidence of cystic or common bile duct dilation.

### ***Gastrointestinal***

The stomach wall is normal in thickness (canine < 0.5 cm and feline < 0.4 cm) and layering. The lumen is moderately fluid distended. Pyloric outflow tract appears patent.

There is evidence of a bowel mass measuring 2.8 cm x 2.5 cm in diameter and has a mixed, primarily hypoechoic appearance with complete loss of normal layering (this mass was not imaged in the images dated 2/17/22).

The visible colon is normal in wall thickness (< 0.2 cm) and layering. Contents are consistent with normal formed feces and gas.

### ***Pancreas***

The pancreatic parenchyma is appropriately isoechoic to surrounding tissue. Visible capsule is smooth and normal in contour. There is no visible pancreatic duct dilation. There is no evidence of active peripancreatic inflammation.

### ***Free Abdomen***

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

## **ULTRASONOGRAPHIC FINDINGS**

- Diffusely fluid distended stomach and small bowel
- Bowel mass (in images dated 3/1/22) – differentials include both benign and malignant disease. Benign lipogranulomatous lymphangitis associated with protein losing enteropathy and lymphangiectasia can result in a bowel mass and is considered a possibility in this patient, given the reported hypoalbuminemia. However, given the complete loss of normal layering and suspected progressive nature, infiltrative neoplasia such as a leiomyosarcoma, which can cause PU/PD and/or round cell neoplasia such as lymphoma, are also considered likely differentials.
- Age related kidney change – This finding is expected/consistent with age-related mild degenerative disease and should be interpreted clinically in combination with laboratory changes.

## **INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Given this patient's historical GI signs combined with the hypoalbuminemia, recommendations at this time include a gastrointestinal malabsorption panel to include TLI, PLI, folate and cobalamin, and potentially biopsies of the gastrointestinal tract to more definitively diagnose and manage the primary bowel signs. In the meantime, transition to a low-fat diet instead of the reported Z/D diet, could be considered, combined with a probiotic.

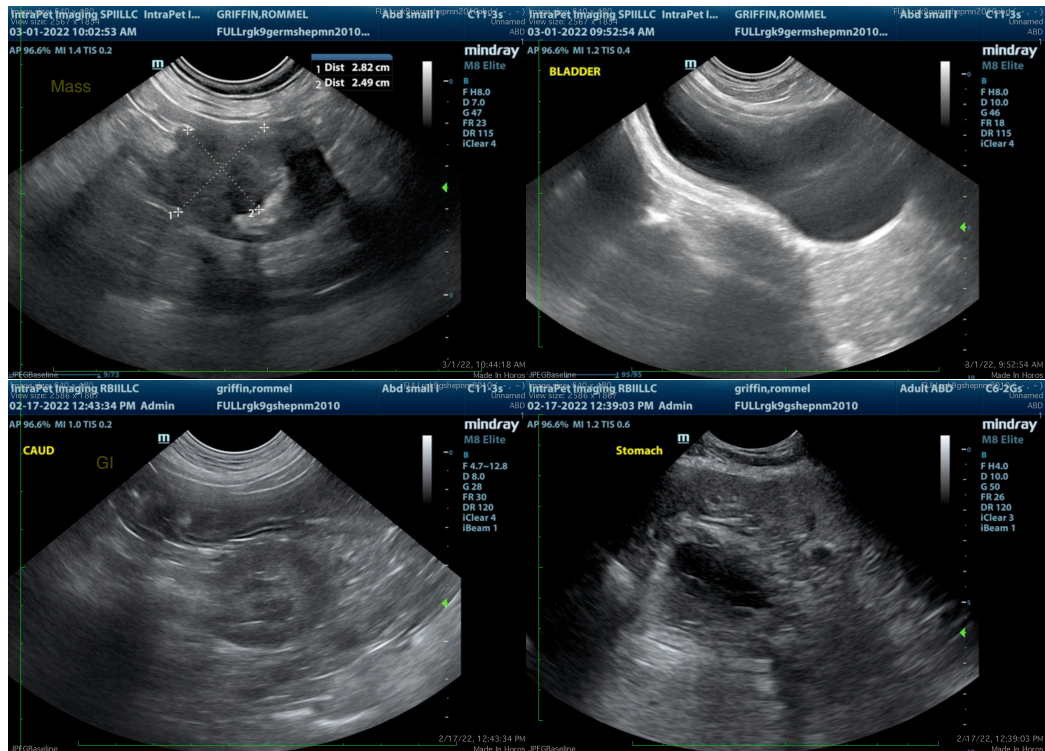
The intestinal mass was not evident in the image set dated 2/17/22, likely owing to emerging disease without neoplastic criteria during the first scan and/or interfering colonic artifact/lack of acoustic window. Given that lymphoma is a differential in this case, these lesions can emerge within days in our experience. Recommendations include 3-view thoracic radiographs if not recently evaluated to further assess for possible metastatic disease followed by surgery to remove and biopsy the bowel mass.

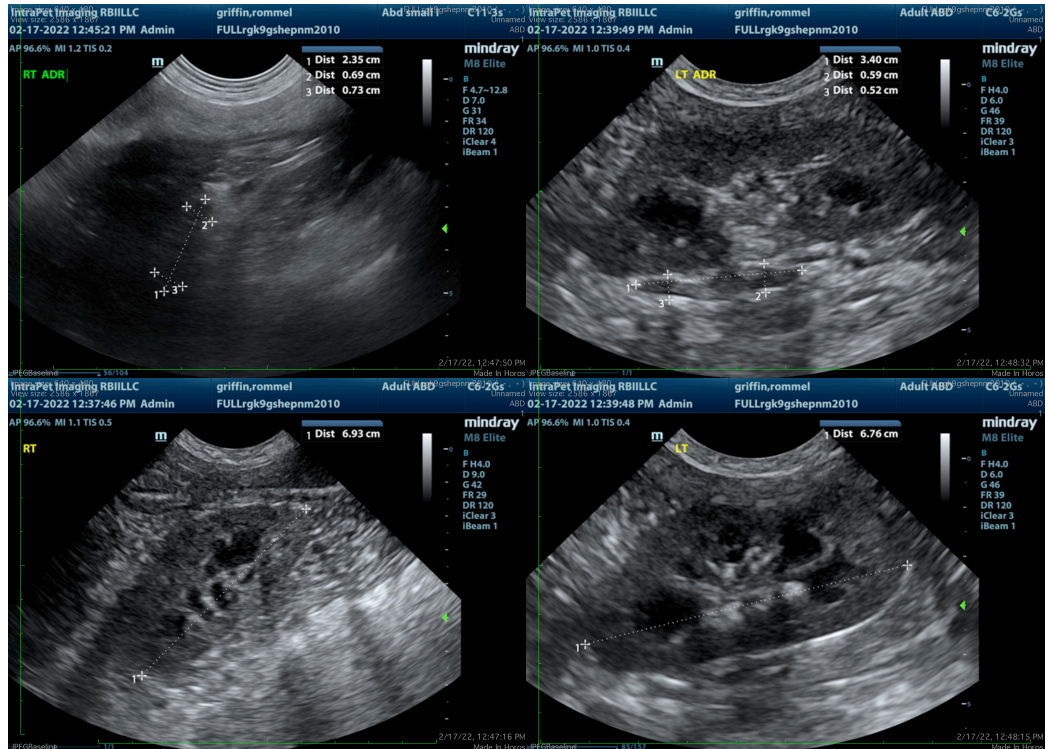
The urinary incontinence is likely secondary to the reported polyuria/polydipsia. Therefore, a workup for polyuria/polydipsia is recommended prior to starting steroids for the suspected protein losing enteropathy. It is even considered possible that this patient's polyuria/polydipsia and resultant incontinence are secondary

to the underlying gastrointestinal disease, so it may be that part of the polyuria/polydipsia workup includes managing the gastrointestinal disease. Understanding that part of the gastrointestinal treatment (i.e., steroids) will likely exacerbate the polyuria/polydipsia, especially if the two conditions are not related, makes managing the dual conditions a complicated balancing act, and further consultation with internist and/or referral to an internist may be helpful for long-term balancing of therapy.

**Polyuria/polydipsia** – Differentials are vast and include, but are not limited to, primary polyuria caused by chronic kidney disease, pyelonephritis, liver disease, diabetes mellitus, hyperthyroidism, hypercalcemia, hyperadrenocorticism, hypoadrenocorticism, E.coli infectious ie) pyometra in females, polycythemia, central diabetes insipidus or primary nephrogenic diabetes insipidus or primary polydipsia caused by psychogenic polydipsia, fever, pain or central nervous system disease.

Most causes of PU/PD can be diagnosed with a comprehensive history and physical exam, a first AM urine specific gravity to see if urine concentration is possible (as most animals drink less overnight) followed by a comprehensive CBC, serum chemistry panel, electrolytes and urinalysis. If not, next step(s) should include a urine culture, low dose dexamethasone suppression test, T4, bile acids, Leptospirosis testing and/or an empirical course of antibiotics. If a diagnosis is still not obtained, a more advanced work-up is recommended.





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.

**Beth Johnson, DVM, DACVIM**  
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