



**PATIENT PRESENTING CLINICAL SIGNS**

Mooch Burpo

History: Transfer from rDVM for treatment of anemia. 1 week ago P had diarrhea for 2 days. Since then no BM. Progressively more lethargic since then. Yesterday started feeling very weak and no appetite. Went to rDVM, blood work showed marked anemia with leukocytosis & hypoalbuminemia. No chronic medications.

**SPECIES**

Canine

Abnormal PE/Chem/CBC/UA Results: 5/10 @ rDVM: CBC: HCT 13%, WBC 38.62k, Neut 24.81k, Lym 11k, Mono 2.57k, PLT 162k. Chem: BUN 36, Creat 0.4, TP 5.2, Alb 2.2, Glu 173, Na 162, K 3.8, rest wnl. TBIL 0.3 wnl. DEA 1.1 neg. Received 1.36 mg/kg dex SP. Recommended transfer to Wilvet for blood transfusion.

**BREED**

Schnauzer Mix

O brought in the following day 5/11/22. 5/11 @ Wilvet: PCV 11%, TS 5.8. Anemia PCR to idexx - pending A/T fast = free abd fluid, gall bladder wall halo. Received whole blood transfusion: 120 ml over 4 hours. 6pm - 2 hours post transfusion PCV/TS = 28% 6 g/dl. CBC differential STAT: Interpretation: Marked normocytic hypochromic anemia with moderate regeneration. Moderate leukocytosis due to moderate neutrophilia with moderate left shift and mild toxicity. Mild lymphopenia and eosinopenia. Mild hypoproteinemia. Comments: Severe anemia with moderate regeneration is consistent with hemorrhage and/or hemolysis. No evidence of spherocytosis, ghost cells or auto-agglutination is found in the blood smear, but the possibility of hemolysis cannot be ruled out. The neutrophil changes are supportive of substantial acute/ongoing inflammation and is a typical finding in canine IMHA. No microorganisms are seen in the smear, and no evidence of neoplasia is found. Exam: QDR. MM pale, tacky. Grade 4-5/6 systolic murmur. Tachypneic with harsh lung sounds, no crackles auscultated. Melena on rectal exam.

**SEX**

Neutered Male

**AGE**

12 years

**WEIGHT**

13 lbs

**ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

**Urinary System**

The urinary bladder, trigone, and pelvic urethra are normal in thickness and the mucosal surface is smooth. The bladder lumen is moderately distended with anechoic urine. No masses, inflammatory changes or calculi are observed. Ureteral papillae and visualized portion of the proximal urethra, visible to a depth of 1-2 cm, are normal.

The prostate is normal in size (1.27 cm in width) and shape. Parenchyma is homogenous. The prostatic urethra appears normal without evidence of dilation or obstruction.

The left kidney presented normal size (4.42 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal to mild loss of corticomedullary distinction. Several nonobstructive nephroliths are present. There is no evidence of pyelectasia, infarcts or hydroureter.

The right kidney presented normal size (4.03 cm in length); normal shape and architecture with smooth peripheral margins. There is a normal 1:3 cortex to medulla ratio with minimal to mild loss of corticomedullary distinction. Several nonobstructive nephroliths are present. There is no evidence of pyelectasia, infarcts or hydroureter.

**Adrenal Glands**

The left adrenal gland is mildly enlarged (0.45 cm at cranial pole) (0.64 cm at caudal pole); normal shape; homogenous parenchyma. The glandular echogenicity and detail are unremarkable. Capsule, cortex, and medullary definition are normal. The phrenicoabdominal vein and surrounding vasculature are normal.

The region of the right adrenal gland is evaluated. No obvious pathology is observed.

**INTERPRETED BY**

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**IMAGING PERFORMED BY**

Dr. Couser

**HOSPITAL NAME**

Willamette VH

**REFERRING VET**

Dr. Couser

**INVOICE**

10884

**DATE**

5/12/22

### ***Spleen***

The spleen is normal in size (1.12 cm in width at the level of the hilus) with a normal capsular contour. There is appropriate echogenicity and echotexture. A 0.57 cm hypoechoic nodule is observed at the medial aspect. Splenic vasculature is normal.

### ***Liver***

The liver is subjectively prominent in size with swollen curvilinear peripheral contours. The parenchyma is isoechoic relative to the spleen and exhibits mild heterogeneity. No distinct focal lesions are observed. Hepatic vasculature and biliary tracts are of normal volume with no evidence of congestion. The portal vein to caudal vena cava ratio is approximately 1: 1.

The gall bladder is moderately distended. The wall is thickened (up to 0.40 cm) and edematous with double-walled" effect. A moderate amount of suspended echogenic debris is observed within the lumen. The cystic and common bile ducts are normal/not seen.

### ***Gastrointestinal***

The stomach and intestine are free of stasis and exhibit normal peristaltic activity. The gastric lumen is not distended. The gastric wall and pylorus are normal in thickness with a normal layering pattern. The small intestinal lumen is not dilated. The small intestinal wall thickness is normal with a normal layering pattern and appropriate mural detail. Discreet masses are not identified. The colonic wall is normal. No obstructive or overt infiltrative disease is noted.

### ***Pancreas***

The pancreas is diffusely prominent in size with minimal deviation from the normal peripheral contours. The parenchyma is slightly hypoechoic relative to surrounding omental fat and subtly mottled in appearance. No distinct focal lesions are observed. The pancreatic duct is not overtly dilated.

### ***Free Abdomen***

A small to moderate amount of anechoic free fluid is present. The mesentery throughout the abdomen is hyperechoic.

## **ULTRASONOGRAPHIC FINDINGS**

### **Primary Findings**

- The gall bladder wall changes are most consistent with edema, which can be seen with low oncotic pressure, autoimmune disease, blood transfusion, anaphylaxis, cholecystitis, other.
- Ascites

\*A cause or the regenerative anemia is not identified in this study. Considerations include gastrointestinal hemorrhage, autoimmune disease, infectious (i.e., tick-borne disease), other.

### **Secondary Findings**

- Bilateral chronic renal changes with nonobstructive nephrolithiasis (mild)
- Left adrenomegaly

- The hypoechoic splenic nodule trends toward the benign (i.e., focus of lymphoid hyperplasia, extramedullary hematopoiesis or similar) with a lower possibility of emerging neoplasia.
- The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, regenerative nodular hyperplasia, and/or age-related remodeling. Inflammatory and infiltrative disease are considered less likely. Correlation with the patient's liver values is recommended.
- The pancreatic changes may be a normal variant for this patient or could be consistent with mild, chronic pancreatitis. Correlation with clinical findings is recommended.

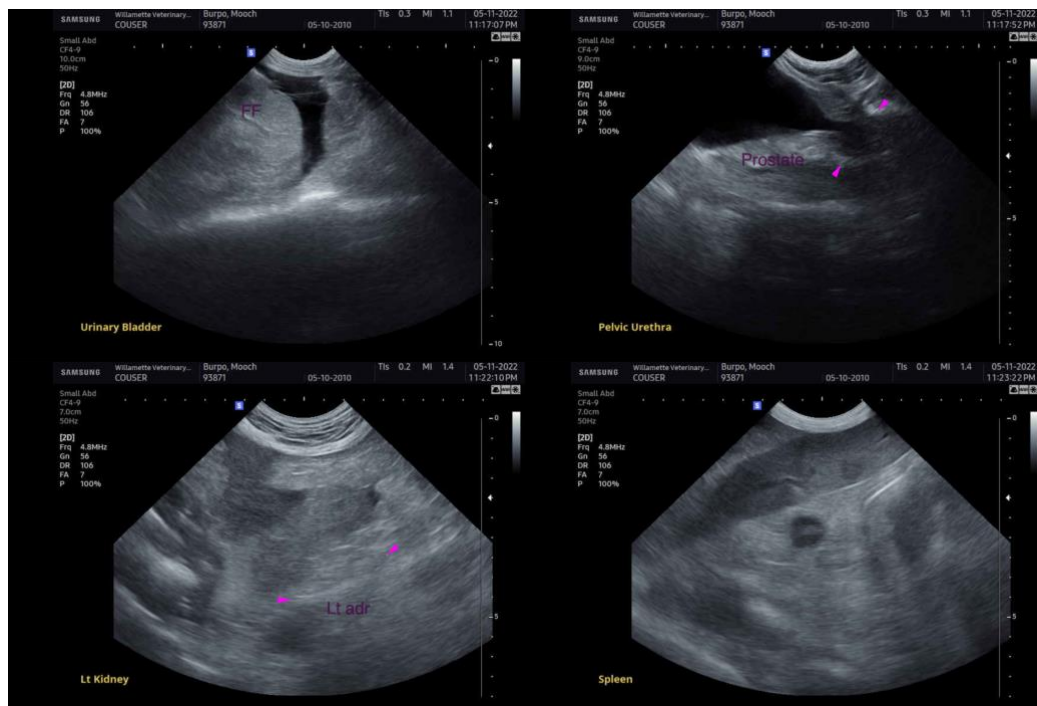
### INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

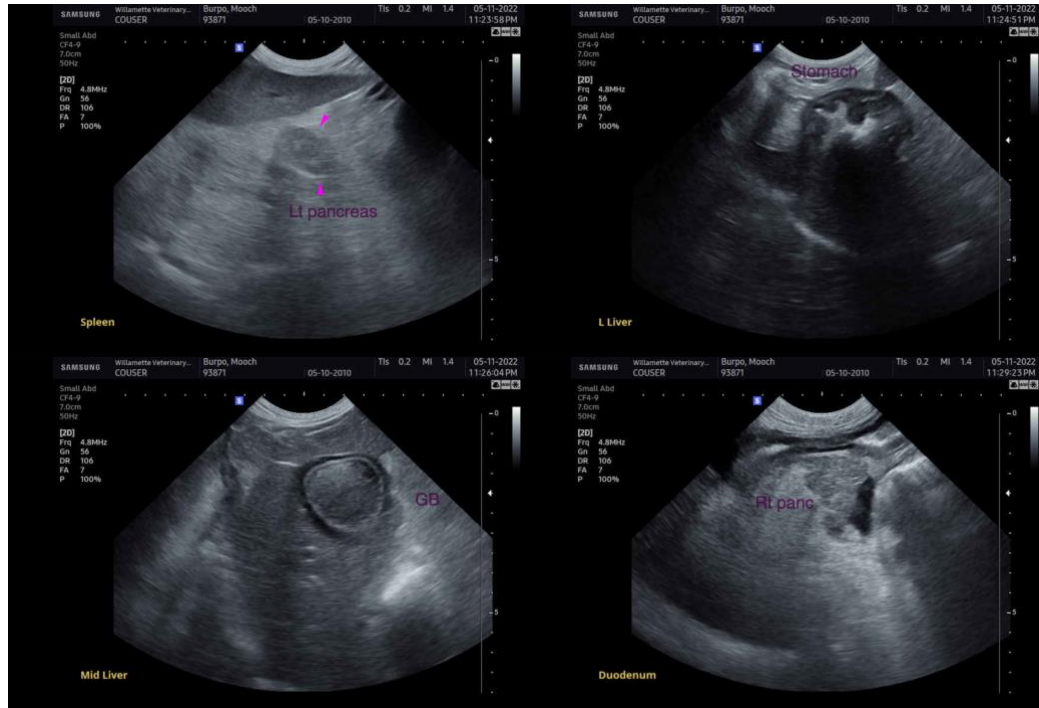
Thoracic radiographs are recommended to assess for occult neoplasia in the chest, if not already performed.

Given the concern for the possibility of GI bleeding, consider an upper GI endoscopy to assess for gastric ulcers, small tumors, etc., particularly if corticosteroids are to be initiated. An abdominal CT scan may also be useful in assessing for small GI tumors.

A comprehensive tick panel, including PCR and serology (submission to North Carolina State University's Vector Borne Disease Diagnostic Lab) is recommended. <https://cvm.ncsu.edu/research/labs/clinical-sciences/vector-borne-disease>.

Consider fine-aspiration of the abdominal fluid with submission for fluid analysis and cytology.





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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