



**PATIENT PRESENTING CLINICAL SIGNS**

Nico Joe  
Chronic diarrhea, abdominal ultrasound last performed Nov 2020. Current meds: Probiotic  
Abnormal PE/Chem/CBC/UA Results: Nsf. USG 1.020, mild bacteria otherwise nsf

**SPECIES ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN**

Canine

**Urinary System**

**BREED**

Spanish Water Dog

The urinary bladder is moderately distended with anechoic urine. The Bladder wall, trigone, ureteral papillae and visible urethra (to a depth of 2cm) appear normal with no evidence of wall thickening, mucosal irregularities, masses or cystic calculi.

**SEX**

Neutered Male

The prostate is normal in size (1.15 cm) and shape for this neutered male dog. The parenchyma is homogenous and the external margins are smooth. The prostatic urethra appears normal with no evidence of irregularity, invasion, mass effect or calculi.

**AGE**

5 Years 11 Months

The left kidney has a normal shape and size (5.94 cm). Overall echogenicity is slightly hyperechoic with mildly decreased corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. Pyelectasia is noted. There is no evidence of nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**WEIGHT**

40 Pounds

The right kidney has a normal shape and size (5.99 cm). Overall echogenicity is slightly hyperechoic with mildly decreased corticomedullary distinction and a typical 1:3 cortex:medulla ratio. There is no evidence of perinephric inflammation or effusion. Small non-obstructive nephroliths are visualized. There is no evidence of pyelectasia, nephroliths, infarcts or hydroureter. Renal vasculature is normal.

**Adrenal Glands**

**INTERPRETED BY**

Kathleen Sennello DVM,  
MS, Diplomate ACVIM  
(Small Animal Internal  
Medicine)

The left adrenal gland is normal to slightly small in size measuring 0.24 cm at the caudal pole. It is observed in its normal position cranial to the left renal artery. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

**IMAGING PERFORMED BY**

Shari Reffi, CVT

The right adrenal gland is normal/borderline small in size measuring 0.34 cm at the caudal pole. It is observed in its normal position between the cranial aspect of the right kidney and the caudal vena cava. It is normal in appearance (uniformly hypoechoic) and shape with no evidence of a mass effect.

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**Spleen**

The spleen is subjectively normal in size, echotexture is homogenous, and the splenic capsule is smooth with no irregularities. The blood flow through the hilus and splenic parenchyma appears normal. No focal parenchymal abnormalities are visualized.

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Dr. Baker

The liver is subjectively normal in size, and echogenicity with smooth peripheral margins. The parenchyma is heterogenous in echotexture with subtle, indistinct focal mottling. The visible portions of the vasculature and biliary tract appear normal. No focal nodules or cystic lesions are observed.

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The gallbladder lumen is moderately distended. The wall of the gall bladder is not thickened and has a smooth mucosal surface. Luminal contents are primarily anechoic. The cystic and common bile ducts are normal/not visible.

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**Gastrointestinal**

The stomach is moderately dilated with fluid and irregular shadowing material most consistent with normal ingesta and gas. It measures at a normal thickness of <0.7cm with some variability due to the



## PATIENT

Nico Joe

presence of rugal folds. The distinction of the gastric wall layering is adequate and there is no impression of reduced peristaltic activity. No masses or focal lesions were observed.

## SPECIES

Canine

The visualized areas of duodenum, jejunum and ileum have a relatively uniform diameter with minimal fluid distension. Wall thickness is normal. Bowel loops follow a curvilinear path with distinct wall layering maintaining the typical 1:3 muscularis:mucosa layer ratio. Jejunum wall measured 0.21, 0.26 cm. Visualized peristalsis appears appropriate. There were no focal lesions consistent with obstruction or a mass effect observed.

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The ileocecal junction was visualized and exhibited normal intact wall layering and is subjectively of normal thickness. Sections of colon are visualized with formed fecal material and gas shadowing distally. There is no observed focal or generalized colon wall thickening or loss of layering.

## SEX

Neutered Male

### **Pancreas**

The pancreas is normal and isoechoic to surrounding mesentery. There is no evidence of nodules or cystic lesions. There is no evidence of regional mesenteric inflammation or fluid.

## AGE

5 Years 11 Months

### **Free Abdomen**

There is a small volume of anechoic free abdominal fluid. There is a very mild mesenteric lymphadenopathy with mesenteric lymph node measured 0.44 cm. Additionally, the sublumbal lymph node is prominent at the iliac trifurcation, measuring 0.77 cm in diameter. The omentum is of normal uniform echogenicity.

## WEIGHT

40 Pounds

### **PRIMARY FINDINGS**

- Heterogeneous liver – The diffuse hepatic changes are non-specific and could be consistent with vacuolar hepatopathy, nodular hyperplasia, inflammatory/immune-mediated disease, fibrosis, extramedullary hematopoiesis, toxic hepatopathy (e.g., copper), infiltrative neoplasia (less likely) or other hepatopathy.
- Borderline small adrenal glands – recommend screening for Addison's disease.
- Mild mesenteric lymphadenopathy – The prominent abdominal lymph nodes are most consistent with reactive lymphadenitis or lymphoid hyperplasia. Neoplastic infiltration is considered less likely. Recommend rectal exam for further evaluation of the sublumbal lymphadenopathy.
- Small volume free abdominal fluid – correlate with albumin levels. This could be due to hypoproteinemia, inflammation, other.

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Kathleen Sennello DVM,  
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Medicine)

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### **SECONDARY FINDINGS**

- Mildly reduced corticomedullary distinction in both kidneys with mild pyelectasia of the left kidney – Mild loss of corticomedullary distinction in both kidneys could be consistent with chronic degenerative disease or interstitial nephrosis. Pyelectasia of the left kidney could be consistent with pyelonephritis, chronic renal disease, secondary to PU/PD or fluid therapy (if applicable), other.
- Mild/moderate gastric distention with shadowing material – correlate with feeding history, as this is likely normal ingesta. If the patient is adequately fasted, then consider such differentials as delayed gastric emptying or foreign material in the stomach.

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**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

The ultrasound findings on today's scan were relatively non-specific. The liver is heterogeneous. If liver values are normal, this is less likely to be a significant finding. Additionally, there is some free fluid present. Recommend current albumin levels to look for evidence of a possible protein losing enteropathy. Otherwise consider sampling and fluid analysis cytology if possible.

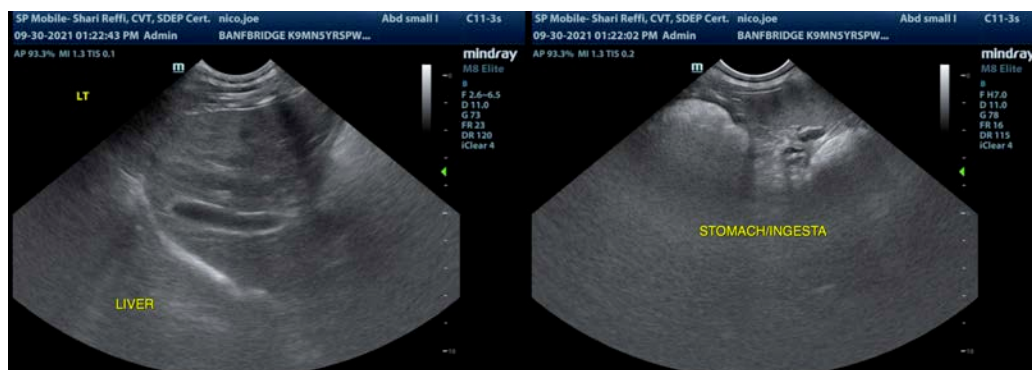
Both adrenal glands are on the smaller side of normal. Recommend screening for atypical Addison's disease (or typical Addison's disease). The kidneys subjectively have slightly decreased corticomedullary distinction for this young of a dog. This could be incidental. Correlate with urinalysis and culture results and urine specific gravity. If early renal disease is suspected, recommend blood pressure evaluation and urine protein levels.

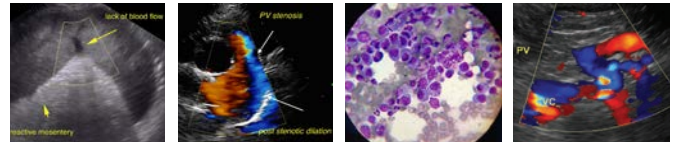
Unfortunately, many causes for diarrhea cannot be definitively diagnosed by ultrasound alone.

- Consider metabolic causes based on bloodwork, ACTH stim results, Liver function testing, Gi panel (TLI/PLI, folate, cobolamine.)
- Consider primary GI causes: Gi parasitism, dietary indiscretion, mild pancreatitis, bacterial dysbiosis, food allergy, IBD and less likely intestinal neoplasia.

In pets with more chronic symptoms, I most strongly consider food allergy, IBD, and intestinal neoplasia:

- Recommend diet trial with a novel protein/hydrolyzed prescription diet
- Recommend GI panel for evaluation of B12 levels etc. (start empirical B12 while waiting for results)
- Recommend probiotic therapy (already doing, consider changing brand)
- If symptoms are progressing consider obtaining GI biopsies





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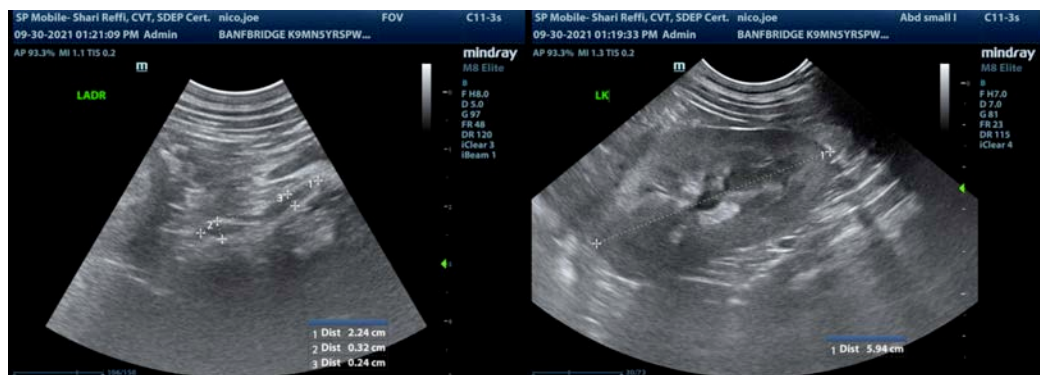
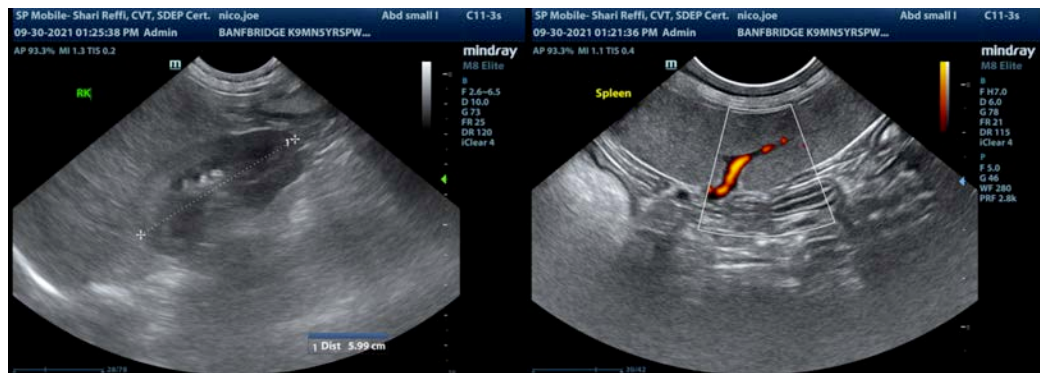
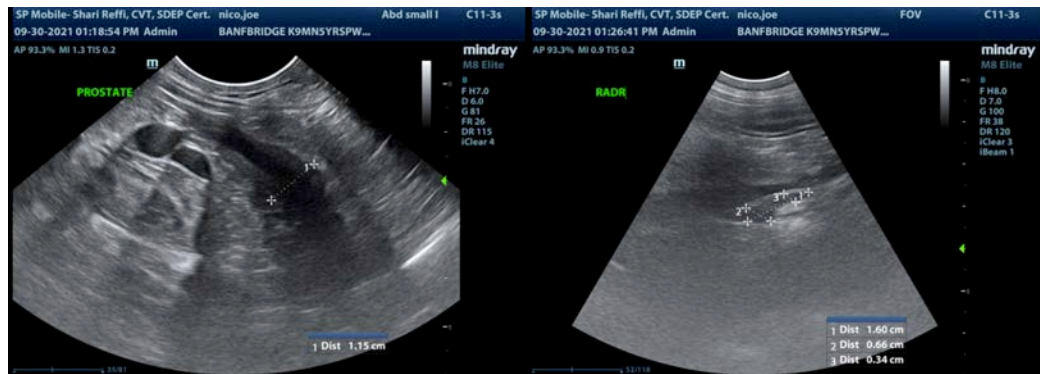
Dr. Baker

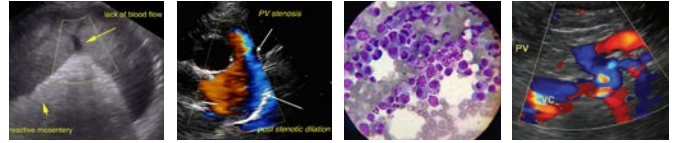
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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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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