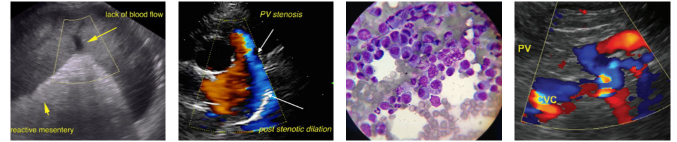
SonoPath
Clinical Sonography & Telecytology
EDUCATIONAL TELECONSULTATION SERVICES™



SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Bella Soderquist

SPECIES

Canine

BREED

Golden Retriever

SEX

Spayed Female

AGE

11 Years

WEIGHT

27.7 kg

INTERPRETED BY

R. McKenzie Daniel, DVM, DABVP (Canine and Feline)

IMAGING PERFORMED BY

Dr. Callihan

HOSPITAL NAME

Animal Emergency Care

REFERRING VET

Dr. Bailey

INVOICE

35189

DATE

1/30/22

PRESENTING CLINICAL SIGNS

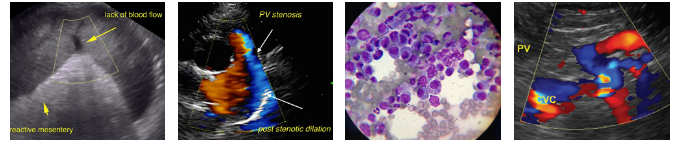
September started coughing (less than now), coughing fits every few days. Vet suspected kennel cough (dry, clearing throat cough), treated as such. Took chest rads and suspected pneumonia, 2 rounds of antibiotics (Doxycycline, maybe Baytril). Multiple follow up rads w/no improvement in cough. Specialist said no pneumonia. Full body rads read as normal from specialist 11/21. Cough suppressant not helpful (Hydrocodone). Intermittent regurgitation, owner wonders about motility issue w/esophagus. Vet treated for GERD -- Omeprazole tried for 2 weeks, helped a little, Pepcid PRN since which helps significantly immediately. Has plan for endoscopy in Seattle. But owner worried about discomfort, vomited after ate this AM. Only coughing now after food and excitement. This AM refused food which is very unusual. Stools normal. Last bloodwork 9/21. History of: Years ago had extensive neck surgery after dog bite wounds No known medical issues or sensitivities Medications: Pepcid 10-20 mg PRN, last dose 2-3 days ago; Diet = Honest Kitchen whole grain chicken or turkey w/grains
Abnormal PE/Chem/CBC/UA Results: O: BAR/aged appearance. Wt = kg, T = 103.2 F, P = 140 bpm, R = 30/min. MM's pale pink, tachy, CRT > 2 sec Oral exam - Grade 2 dental disease EENT - Lenticular sclerosis OU Lymph nodes - No peripheral lymphadenopathy Thoracic auscultation - No obvious heart murmur, lungs clear, pulses synchronous, mildly increased respiratory effort Abdominal palpation - Mildly pendulous Musculoskeletal - Generalized osteoarthritis Neuro - Appropriate mentation; no cranial nerve signs; no ataxia. Integumentary - No wounds; no fleas/flea dirt A: Coughing, pale pink MM, mild increased respiratory effort, febrile, vomiting, anorexia - Bloodwork = HCT 40%; leukocytosis 25,000, neutrophilia 22,000, monocytosis; platelets 282,000, low BUN/Crea 0.7/6; rest of chem/electrolytes WNL - 3 view chest rads = Cardiac silhouette WNL, lungs clear - Doppler B.P. = 120

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT			1.42	1.43	21.4	44.4	0.49
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LA** 2D short axis Base view (cm)	**LVIDd** Avg; 2D and m-mode short axis (cm)	**LVIDs** Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	NM	1.4	0.8		3.6	3.65	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 separate methods of LA evaluation. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole with normal kinesis. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was subnormal, as evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed normal size, structure and



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content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonary outflow** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Trace pulmonic valve insufficiency was present on color doppler. No visible **pericardial** or free pleura fluid was noted. The cranial **mediastinum and pericardial and extra-cardiac regions** were free of masses in the visible window. Brief sonographic assessment of the lung revealed no overt pathology.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of – cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 7.2 cm. The right kidney measured 8.2 cm.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.50 cm at the cranial pole and 0.62 cm at the caudal pole. The right adrenal gland was indistinctly visualized, yet without overt pathology, measuring 0.92 cm at the caudal pole.

Spleen

The spleen exhibited a finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. The capsule was smooth and regular without apparent expansion. The splenic vasculature at the hilus was normal in volume with no evidence of congestion or thrombosis. Acute to chronic inflammatory, neoplastic, or benign parenchyma changes were not noted.

Liver

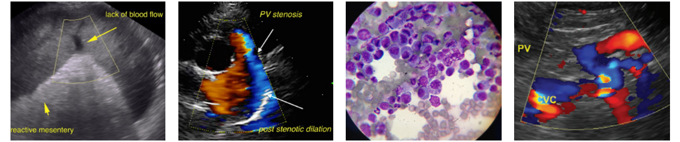
The liver was subjectively normal in size, structure, and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. Mild retained progressively shadowing ingesta as well as mild echogenic fluid to chyme present in the stomach. Ventral gastric body wall measured 0.33 cm.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material. Duodenum wall measured 0.40 cm.

Normal visible colon wall layers were present with apparent formed feces in lumen.



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Pancreas

The parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

Free Abdomen

Intermittent, mildly prominent to enlarged mesenteric and focal medial iliac nodes were present. Example of lymph node measured 2.6 cm x 0.70 cm. These lymph nodes were not consistent with inflammatory or neoplastic criteria, and likely incidental. The lymph node was essentially isoechoic to adjacent omentum without evidence of peripheral inflammation and maintaining a normal width: length ratio (<0.5).

No effusion.

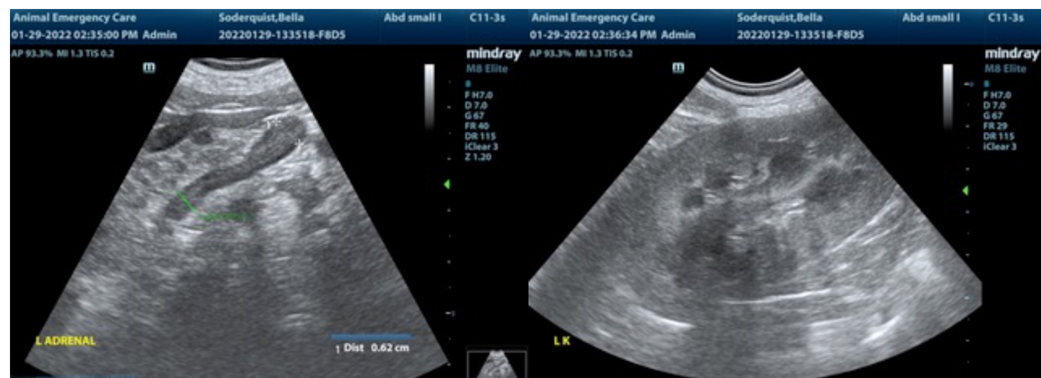
ULTRASONOGRAPHIC FINDINGS

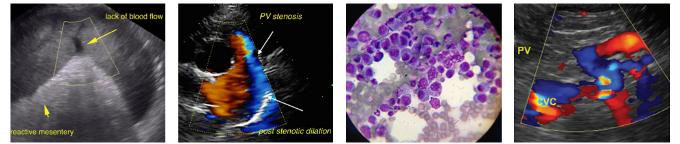
- Normal echocardiogram with LV hypocontractility
- Trace pulmonic valve insufficiency
- Overtly normal to mild geriatric abdomen, mild retained gastric ingesta/chyme

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The LV hypocontractility in this patient is of unclear clinical significance, yet not consistent with DCM criteria. Potential causes of this may include age related or patient variant, athletic state (less likely given patient age), non-specific systemic disease, endocrine disease such as hypothyroidism, or other. Some degree of LV hypocontractility may also potentially be owing to sedation. Given the lack of left or right heart chamber enlargement as well as lack of other clinical issues such as evidence of clinical pulmonary hypertension, non-cardiogenic cough is present. No overt indication for cardiac medications.

The mild retained gastric ingesta and chyme may indicate recent meal ingestion. However, given the patient's history, and if documented NPO, some degree of gastric hypomotility or metabolic delayed gastric emptying may be present. Potentially, dietary hypersensitivity or food intolerance may be a contributing factor in this case. Endoscopy is likely ideal for assessment of upper gastrointestinal tract and potential for biopsies. Empirically, continued gastroprotectants as needed with hydrolyzed diet trial with possible smaller, more frequent feedings may prove beneficial.





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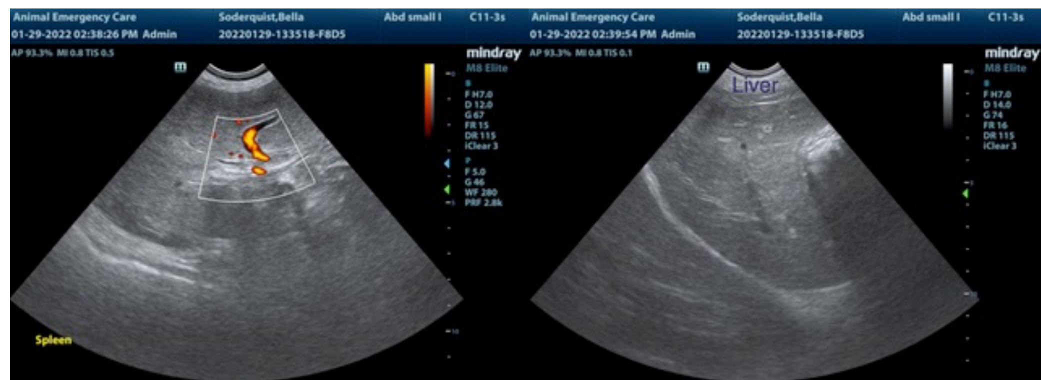

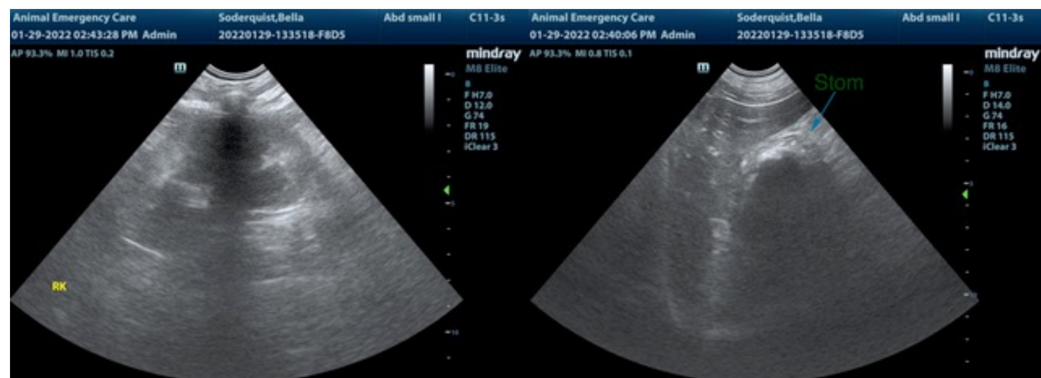

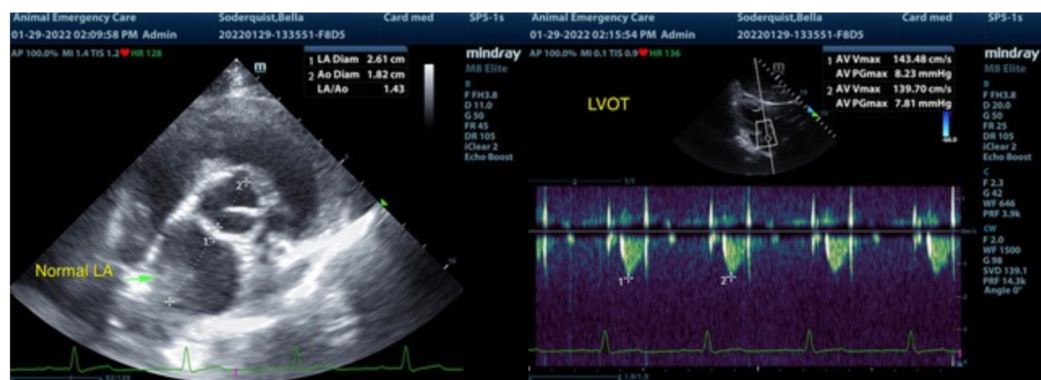

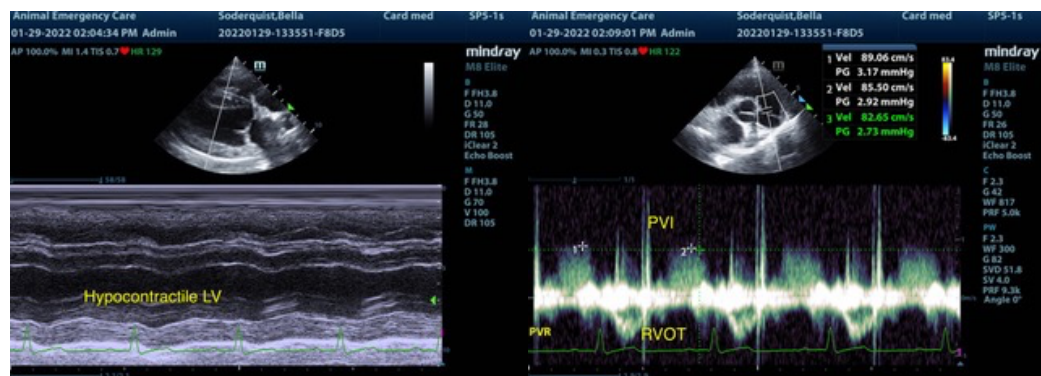

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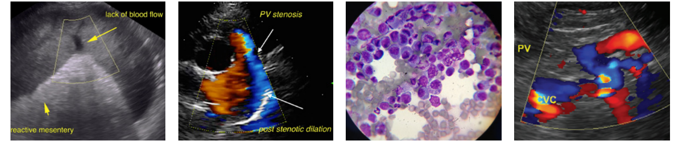

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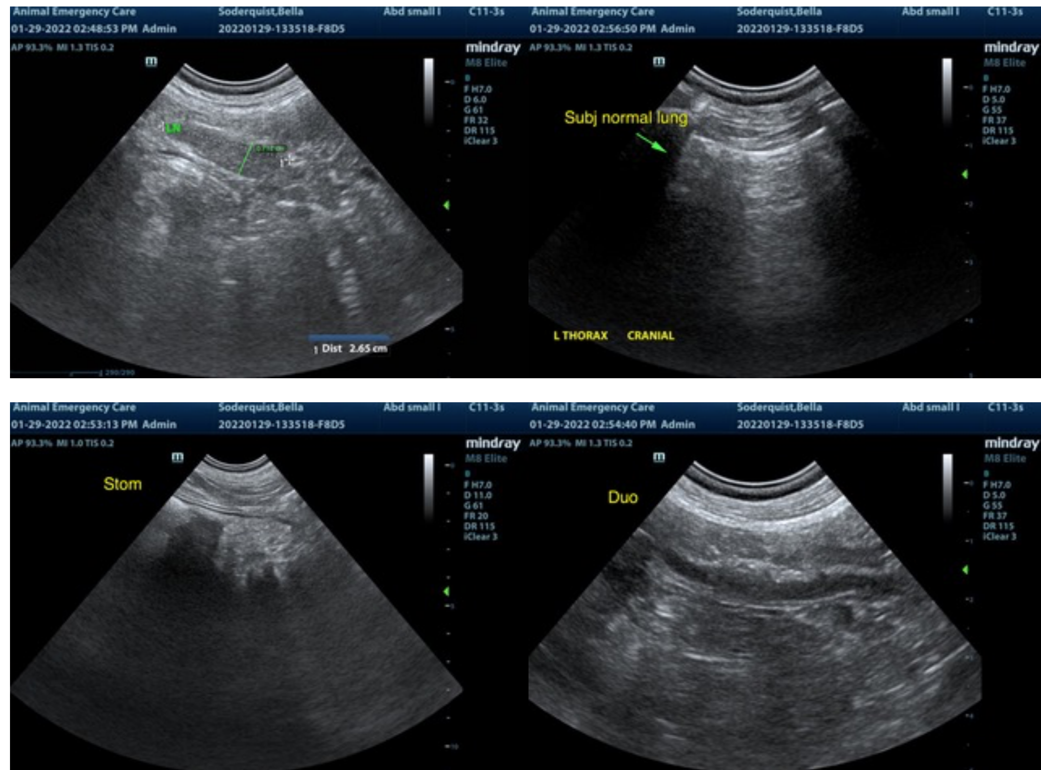

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)

info@SonoPath.com