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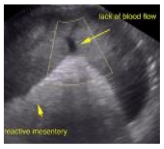

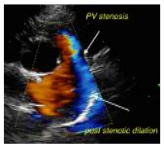

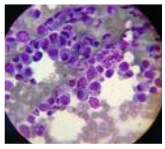
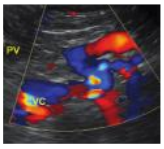

SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Whatever Bathgate

SPECIES

Canine

BREED

Rottweiler

SEX

MN

AGE

7 years 6 months

WEIGHT

86.3 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Jessica Miller

HOSPITAL NAME

Newton VH

REFERRING VET

Dr. Verhalen

INVOICE

13889

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5/17/22

PRESENTING CLINICAL SIGNS

Chronic liquid diarrhea- no improvement w/ meds. Weight loss. Peripheral limb edema (hind limbs)
Suspect PLE
Abnormal PE/Chem/CBC/UA Results: TS 2.2, Albumin <1

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

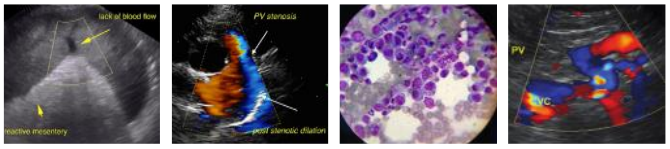
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT			1.0	1.0	10	22	1.0
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**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	118	1.1	1.0		4.8	5.6	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on based on 3 different LA measurement methods. Chamber echogenicity was normal. The cranial and caudal **mitral** valve leaflets presented normal linear structure, extension in systole, and union in diastole. Subjective moderate primarily centralized MR was present on doppler. The **left ventricle** demonstrated excessive volume (LVIDd measurement below). Ventricular function was subnormal expressed by the fractional shortening measurement. **Myocardium** appeared subjectively thin typical of DCM. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity with minor aortic insufficiency present on doppler. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology. Minor TR was present on doppler. The **right ventricle** was of normal size (1/3 diameter of LV), chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Minor pulmonary insufficiency was present on doppler. No visible **pericardial** or free pleura fluid was noted. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or



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sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

No overt pathology was noted in the area of the residual prostate.

The area of the aortic trifurcation was free of pathology.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. The left kidney measured 7.6 cm in length. The right kidney measured 6.9 cm in length.

Adrenal Glands

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 3.2 cm length x 0.50 cm width at the caudal pole.

A non-expansive, uniform echogenic nodule was present in the mid parenchyma of the right adrenal gland. The nodule did not exhibit signs of mineralization or vascular invasion. The nodule measured 0.64 cm in diameter. The overall right adrenal gland measured 2.6 cm length x 0.66 cm width.

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/ Gallbladder

The liver exhibited potential for mild enlargement yet no evidence of hepatic vascular congestion with normal 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. The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. No evidence of gallbladder wall edema was noted. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained moderate, nonshadowing ingesta most consistent with post prandial presentation without signs of ileus, obstruction or foreign material.

The small intestine presented intact yet generalized prominent wall layering with segmental to generalized increased mucosa echogenicity to mucosal fogging. Segmental nonobstructive duodenojejunal ileus was present. The duodenum wall width measured 0.52 cm. The jejunum wall width measured up to 0.58 cm.

The colon walls presented intact yet mild to moderate prominent wall layering with mild to moderate thickened to echogenic submucosa. Nonformed feces, consistent with diarrhea, was present in the colon lumen with lumen dilation. The descending colon wall width measured 0.34 cm.

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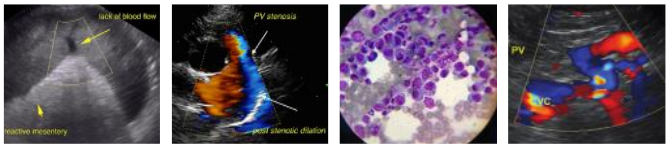

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Pancreas

The pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia.

Free Abdomen

Mild volume peritoneal free fluid was present. Mild, primarily peri intestinal, reactive mesentery was present. No overt lymphadenopathy was noted.

ULTRASONOGRAPHIC FINDINGS

- Gastric ingesta - suspect post prandial presentation, potential for mild nonobstructive gastric hypomotility if documented NPO
- Enteropathy with segmental to generalized increased mucosa echogenicity / mucosal fogging and segmental nonobstructive duodenojejunal ileus - suggestive of PLE, considerations may include inflammatory bowel disease, lymphangiectasia, Infiltrative intestinal disease i.e., neoplasia, etc.,
- Concurrent colitis
- Nonspecific right adrenal nodule - suspect adenoma
- Mild volume peritoneal free fluid and peri intestinal reactive mesentery
- DCM-like cardiomyopathy with LV systolic dysfunction
- MR / TR
- Minor aortic and pulmonic valve insufficiency

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cardiac presentation may be primary in nature, i.e., DCM, or potentially secondary to taurine deficiency, systemic or metabolic disease, i.e., hypothyroidism, myocarditis, while the possibility of infiltrative disease such as lymphoma cannot be excluded. In a large breed dog, primary DCM Is certainly a reasonable diagnosis. Diet history could be obtained if clinically indicated. Thyroid status Is suggested If not recently done +/- troponin level if clinically indicated.

The lack of significant right heart enlargement, as well as evidence of clinical pulmonary hypertension and lack of hepatic congestion, indicate that the peritoneal free fluid is noncardiogenic in origin and likely secondary to decreased oncotic pressure secondary to hypoalbuminemia. This finding in conjunction with patient history and intestinal presentation is consistent with PLE. Endoscopic intestinal biopsies would be required for a definitive diagnosis yet contraindicated without albumin levels (<2.0).

A GI panel to include PLI/TLI/Cobalamin/Folate is recommended. Pimobendan 0.3 mg/kg PO BID +/- diuretic therapy, if clinically indicated such as evidence of pulmonary edema, is recommended. Serial sonographic monitoring is required for further prognosis with an initial recheck in 4-6 months, sooner If clinical signs suggestive of heart disease arise. Concurrent empirical PLE therapy would be reasonable with an assessment of clinical response. A guarded long-term cardiac prognosis is indicated.

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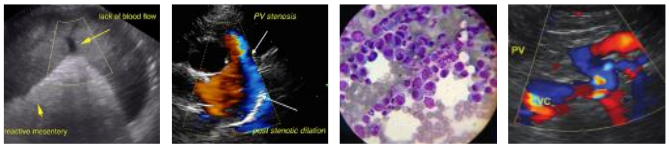

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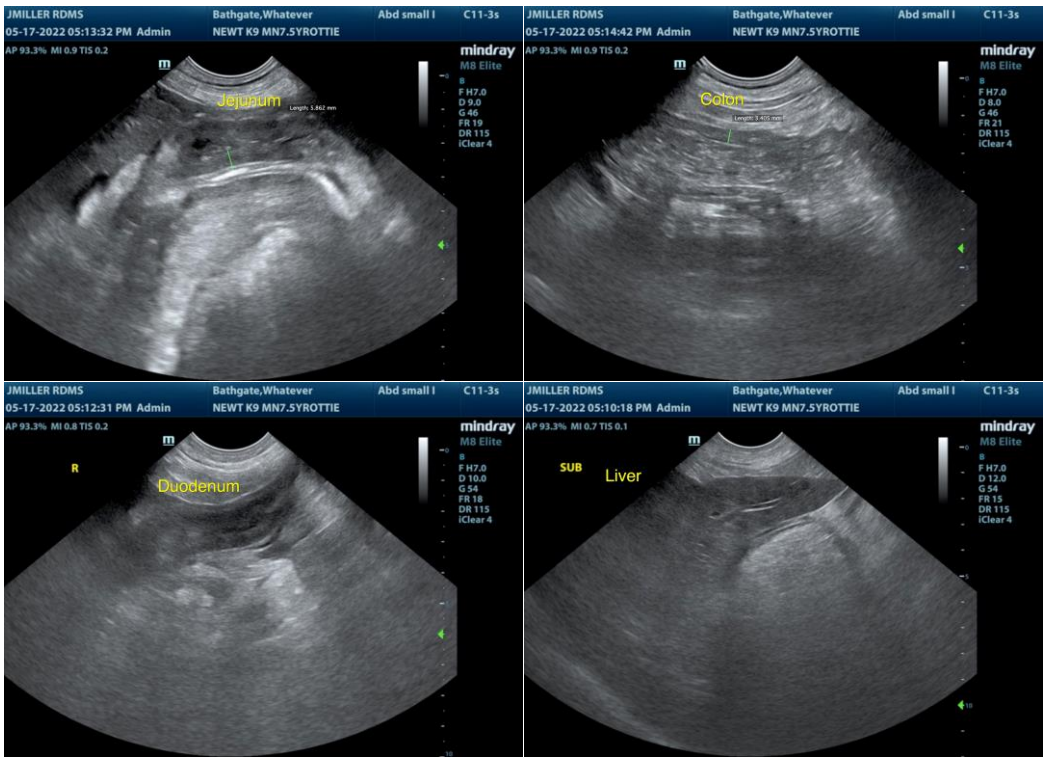
Part or all of this protocol may be considered based on your clinical impression of the patient:
OBJECTIVE: keep albumin levels > 2 g/dl, avoid thromboembolism and cavitary effusions, monitor concurrent PLN (Wheaton Terrier PLE/PLN) and liver disease:
Plasma 10 mL / kilogram IV over 4 hours
Or **Human albumin** 2 ml/kg/h over 10 hours. Total daily volume 20.l/kg/day
And Colloids/Hetastarch
10 to 20 mL per kilogram per day and dogs
10 to 15 mL per kilogram per day cats
(Can bolus first 1/3 of dose over 15 minutes)
& maintain on LRS maintenance otherwise.
Metronidazole (10-20 mg/kg po bid)
Famotidine 1 mg/kg Iv Im po dc Sid /bid
Sucralfate 0.5-1 g po tid dogs, 0.5 g bid cats in slurry **Or Misoprostol** 1-5 ug/kg po tid
Diet: Highly digestible high quality protein, low fiber, low fat diet (< 15% of dry matter). Hydrolyzed protein or novel protein. Purina HA or Royal Canine HP or similar.
Prednisone or prednisolone 2 mg/kg bid x 3-5 days then 2 mg/kg sid. **Chlorambucil** in refractive severe IBD/alimentary lymphoma cases (monitor cbc for rare bone marrow suppression) 4 mg/m^2 Q 24-48 hours.
Cobalamine (B12) 250-1500 ug/dog weekly x 6 weeks.
Calcium supplementation if necessary.
Aspirin 0.5-1 mg/kg/day **or Clopidrel** (Plavix) 1-5 mg/kg/day.



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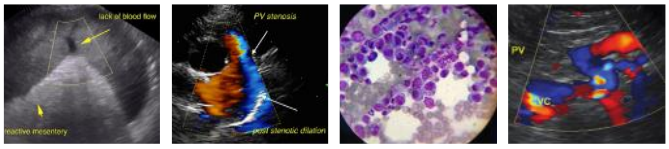

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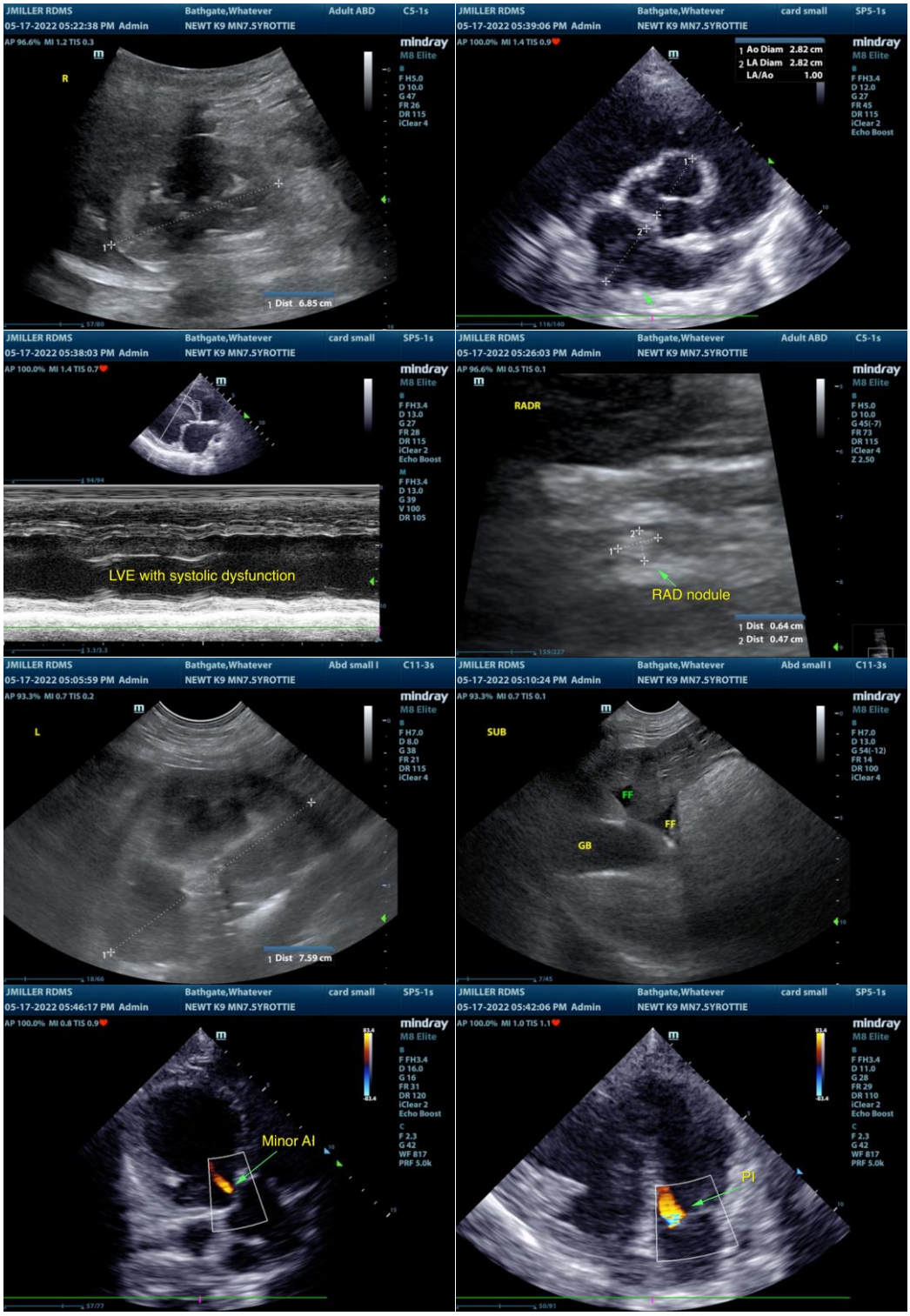

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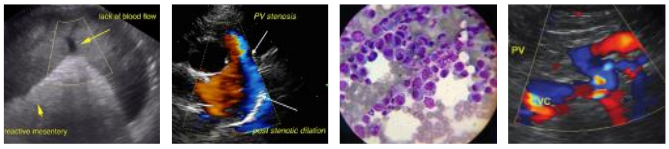

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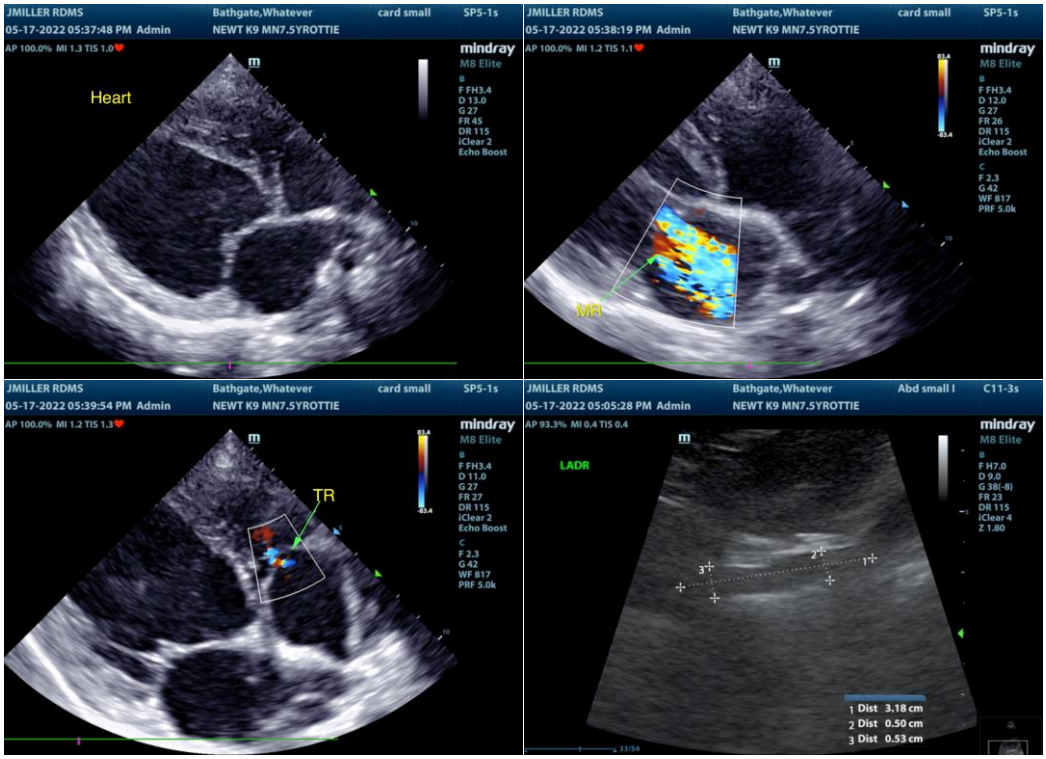

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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