


**PATIENT PRESENTING CLINICAL SIGNS**

Willy Cork History: 10/2020: splenic histiocytic sarcoma. Owners treated with lomustine. Grade 3 heart murmur, currently on vetmedin 5mg 1/2 BID. Owner does report coughing. Diarrhea for the past 3 weeks.

**SPECIES** Abnormal PE/Chem/CBC/UA Results: HCT-312., retics-137.7, RBC=4.9, ALKP: 313

**Canine ULTRASONOGRAPHIC EXAMINATION OF THE HEART AND ABDOMEN**
**BREED**

King Charles Cavalier

**SEX**

MN

**AGE**

12 years

**WEIGHT**

25 lb

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	5.1	2.5	1.45	1.88	40.5	74.6	0.22
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	1.6	0.9		4.8	4.2	

**INTERPRETED BY**

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

**IMAGING PERFORMED BY**  
 Nicole Gotfredson

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**REFERRING VET**

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**Cardiac Presentation**

The echocardiogram for this patient presented excessive left atrial size expressed both in the LA/AO and LA max measurements Mild deviation if the intra atrial septum towards the right atrium indicative of mild increased left atrial pressure was present. The cranial and caudal mitral valve leaflets presented vegetative thickening consistent with endocardiosis. Minor prolapse of the anterior leaflets was present. Doppler indicated measurable moderate eccentric insufficiency. The left ventricle presented thicknesses with linear contour with subjective increased left ventricle volume. The myocardium presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. Contractility of the ventricular walls was adequate and in normal range for this patient 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 content. No evidence of masses was noted or chamber overload. Tricuspid valvular assessment demonstrated mild thickening with mild TR 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). No visible pericardial or free pleura fluid was noted. No echographically detectable evidence of infiltrative disease was visible. The cranial mediastinum and pericardial regions were free of masses in the visible window.

**Urinary System**



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Willy Cork

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra 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.

**SPECIES**

Canine

Normal size and margination was present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices exhibited some increased echogenicity and mild loss of corticomedullary symmetry and definition expected for the age of the patient. Several corticomedullary cysts present in the left kidney. No evidence of pelvic dilation was present. The left kidney measured 5.0 cm in length. The right kidney measured 4.8 cm in length.

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The area of the aortic trifurcation was free of pathology.

**Adrenal Glands**

**SEX**

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The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.52 cm width at the caudal pole and 0.46 cm width at the cranial pole. No overt pathology in the area of the right adrenal gland.

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**Spleen**

The spleen was not visualized owing to suspected splenectomy. No evidence of pathology in the area of the spleen.

**WEIGHT**

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**Liver**

The liver presented mildly enlarged in size. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non distended in size with echogenic, nonmineralized primarily dependent biliary sludge. The cystic duct and common bile ducts were normal without evidence of dilation. No evidence of gallbladder inflammation.

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**Gastrointestinal**

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The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained mild amount of nonshadowing ingesta/chyme with no signs of ileus, obstruction or foreign material.

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The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. The lumen of the small intestine contained minor segmental chyme with no signs of ileus, obstruction or foreign material. The duodenum wall measured 0.43 cm in width. The jejunum wall measured 0.38 cm in width.

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The colon wall layers were intact, yet potential prominent wall layering was present with apparent non formed feces in lumen.

**Pancreas**

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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**

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No overt lymphadenopathy or peritoneal effusion was present. No evidence of intra-abdominal metastatic disease.



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## ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B2)
- Mild TR-estimated pulmonary pressure gradient approximately 25mmHg, not consistent with clinical pulmonary hypertension
- Bilateral chronic renal changes with left kidney cysts
- Vacuolar hepatopathy pattern
- Nonorganized gallbladder debris (non-mucocele)
- Overtly normal GI tract with gastric and segmental small intestinal ingesta-likely post prandial presentation
- Suspect mild colitis

## INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The lack of LA enlargement or evidence of left heart volume overload indicate that the heart appears to be stable at this stage although prognosis is highly variable. Continued Pimobendan is warranted as this medication may help prolong cardiac changes associated with mitral valve insufficiency. Serial sonographic monitoring is required for further prognosis. Recheck echocardiogram is suggested in 6 months, sooner if clinical signs arise. No evidence of cardiac neoplastic criteria or metastatic disease was noted. Baseline monitoring of resting respiration rate is recommended.

No evidence of abdominal metastatic disease was visualized. Dietary indiscretion, occult parasitism or structurally insignificant inflammatory enterocolopathy is possible. Empirically, a limited antigen or hydrolyzed diet trial with potential long term dietary therapy, prophylactic deworming (Panacur 50 mg/kg SID x 5 consecutive days with repeat protocol in 3 weeks even if fecal testing is negative), high colony count probiotic (Proviabile or Visbiome), antibiotic trial and as needed gastrointestinal support with assessment of clinical response may prove beneficial.



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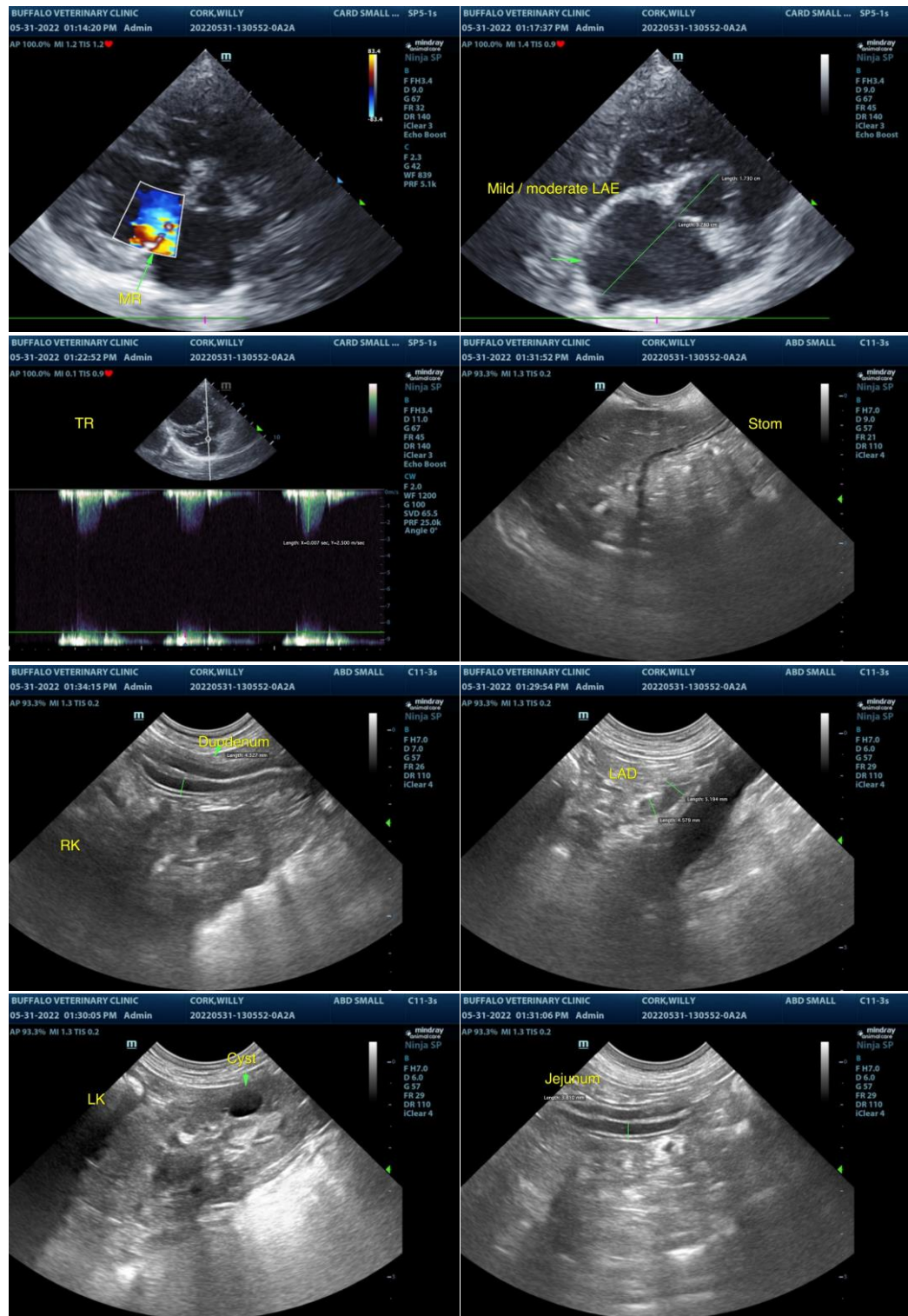
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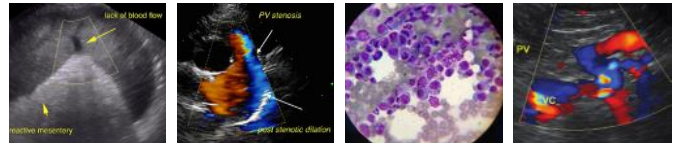
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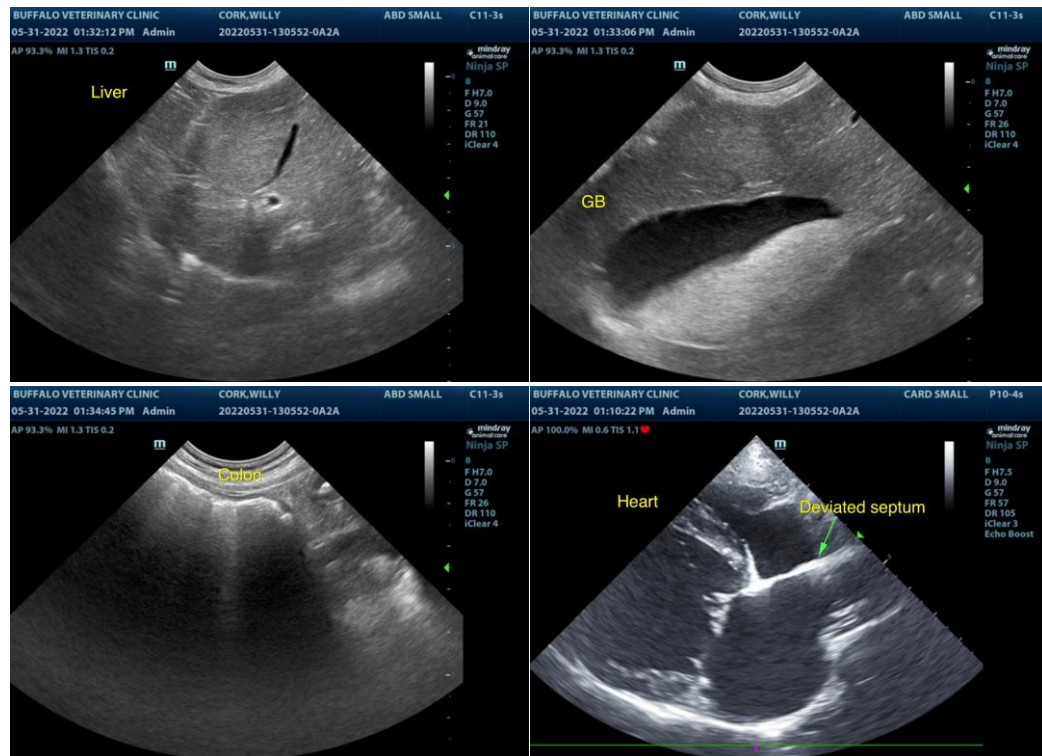
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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