



PATIENT

Oliver Mccarty

SPECIES

Canine

BREED

Yorkshire /Mix

SEX

M/N

AGE

8 years

WEIGHT

11

INTERPRETED BY

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

IMAGING PERFORMED BY

Nicole Gotfredson

HOSPITAL NAME

Buffalo VC

REFERRING VET

Garry Gotfredson
DVM

INVOICE

14583

DATE

8/12/22

PRESENTING CLINICAL SIGNS

Referral case, owner does not remember the heart medications he is on. One month ago regular vet diagnosed heart murmur and put on lasix and other meds (owner does not know). No heart murmur appreciated today. Dog is painful in sub xiphoid region.

Abnormal PE/Chem/CBC/UA Results: CPLI-negative

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

| CANINE | MR | TR | LA/AO | LA/AO | FS | EF | EPSS |
|---------------------------|----------------------|----------------------|---------------------|-------------------|---------------------------------|---------------------------------------|---------------------------------------|
| CARDIAC PARAMETERS | VMAX (m/s) | VMAX (m/s) | (Boon method) | (Heart Base; Swe) | (%) | (%) | (cm) |
| NORMAL PARAMETER | 4.5-5.5 | <2.7 | 1.3 | <1.3 | 28-40 | 40-100 | <0.6 |
| PATIENT | | | | 1.4 | 40 | 74 | 0.1 |
| CANINE | HR | AV | PV | BODY WEIGHT | LA | LVIDd | LVIDs |
| CARDIAC PARAMETERS | (BPM) | VMAX (m/s) | MAX (m/s) | (kg) | 2D short axis Base view (cm) | Avg; 2D and m-mode short axis (cm) | Avg; 2D and m-mode short axis (cm) |
| NORMAL PARAMETER | 50-100 | 0.7-1.7 | 0.7-1.6 | | | | |
| PATIENT | NM | | 0.85 | | 2.0 | 2.0 | |

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 subjective increased thicknesses with maintained linear contour without dilation or restriction. 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. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. Minor TR was present on doppler. 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). 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.



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Urinary System

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The urinary bladder, trigone, and cystourethral junction exhibited normal thickness and tone. Anechoic urine was present in the lumen with mild dependent mineral. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes was noted.

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The area of the residual prostate was free of overt pathology.

The area of the aortic trifurcation was free of pathology.

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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 4.6 cm in length. The right kidney measured 4.4 cm in length.

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Adrenal Glands

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The left and right adrenal glands were indistinctly visualized yet without overt pathology or enlargement. The left adrenal gland measured 0.49 cm width at the caudal pole. The right adrenal gland measured 0.56 cm width at the caudal pole and 0.61 cm width at the cranial pole.

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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.

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Liver/ Gallbladder

The liver exhibited potential for mild generalized enlargement. 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 overtly normal in size with primarily anechoic content with mild hyperechoic nonorganized luminal debris. The cystic and common bile ducts were normal.

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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 was empty 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 was empty with no signs of ileus, obstruction, or foreign material.

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



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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 were evident.

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Free Abdomen

No omental masses, lymphadenopathy, or evidence of peritoneal free fluid were noted.

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ULTRASONOGRAPHIC FINDINGS

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- Normal echocardiogram with probable mild LV pseudohypertrophy
- Minor TR - no evidence of clinical pulmonary hypertension
- Mild urinary bladder mineral
- Subjective mild hepatomegaly - overtly benign
- Minor gallbladder debris (non-mucocele)

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

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Overtly normal cardiac structure and function with probable mild LV pseudohypertrophy owing to diuretic therapy. Assessment of systemic blood pressure to rule out hypertension as a contributing factor is recommended. A definitive cause of the murmur was not evident with only mild TR present on valvular doppler assessment. This is not likely audible. Regardless, the lack of left or right heart chamber enlargement indicates that the hemodynamic effects of any potential or previously noted murmur is low. No indication for cardiac medications, given the cardiac presentation. Continued monitoring for recurrent murmur going forward is suggested with potential recheck echocardiogram if persistent or aggressive murmur is documented.

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No overt evidence of significant Intraabdominal pathology as a definitive cause of cranial abdominal or subxiphoid discomfort. Potential for low-grade to chronic pancreatitis may present as sonographically normal yet considered less likely, given negative cPL.

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Hepatosupportive medications including Denamarin and Ursodiol may be considered if evidence of hepatic enzyme elevations or cholestasis.

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Assessment for potential extra abdominal pain i.e., muscular/skeletal pain, may be considered if clinically indicated.

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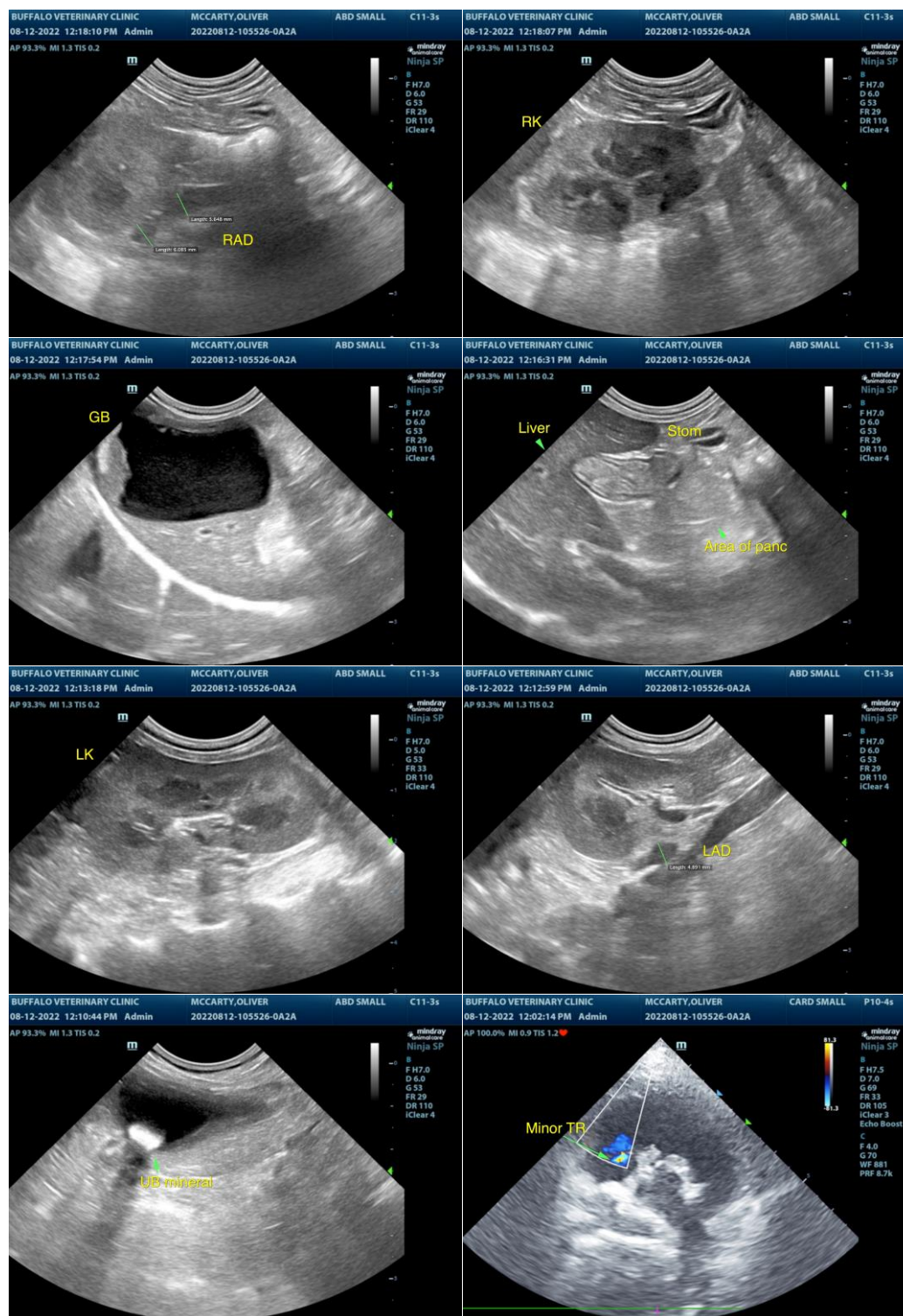
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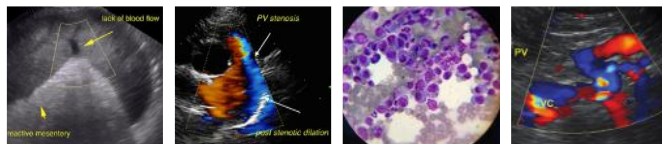
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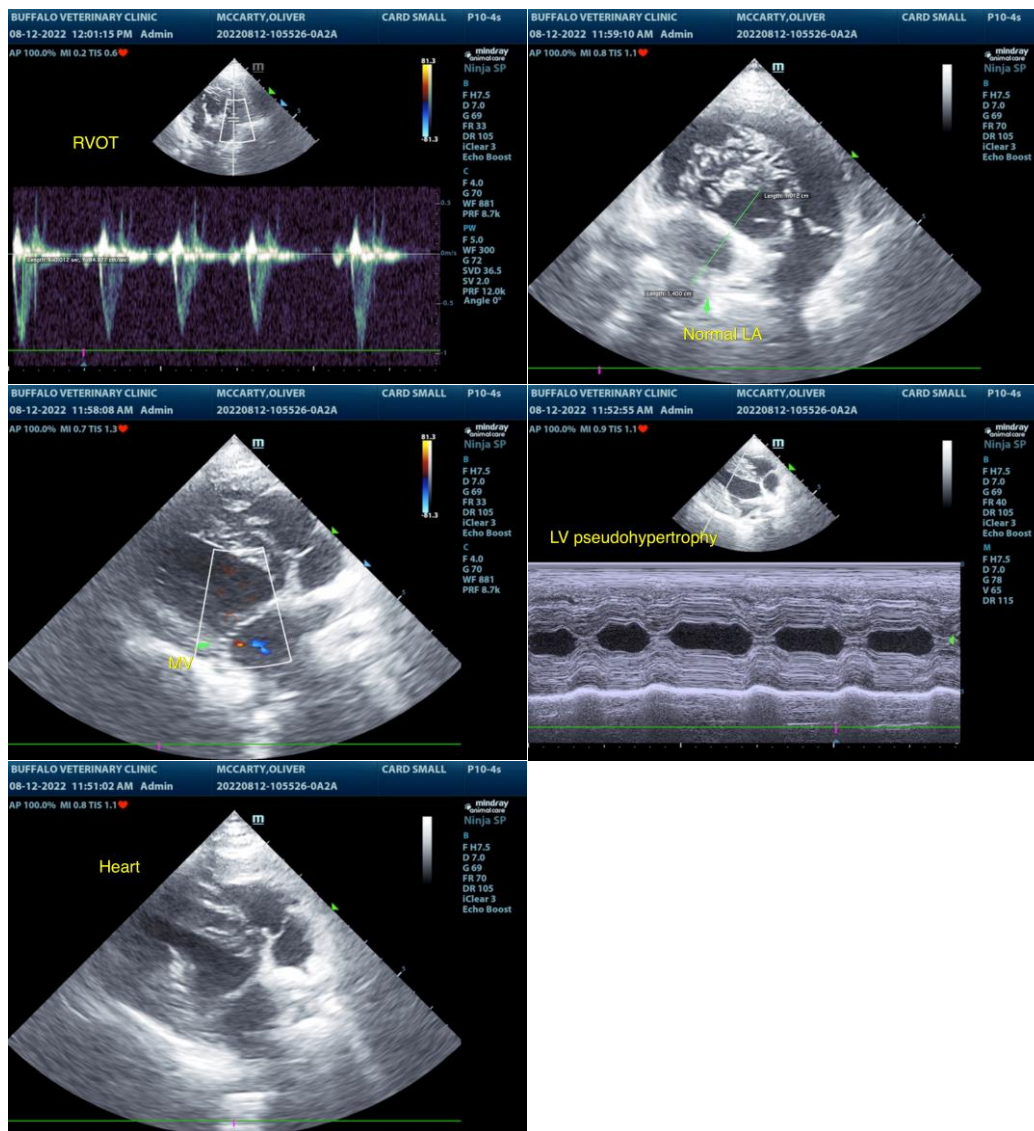
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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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