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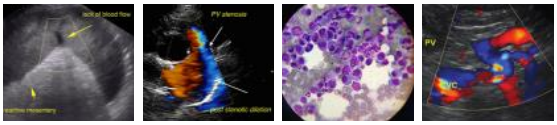


ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

PATIENT
Marly Jones

SPECIES
Canine

BREED
Coton de Tulear

SEX
MN

AGE
9yr

WEIGHT
12.72lb

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

IMAGING PERFORMED BY
Jenna Walsh CVT

HOSPITAL NAME
Cottage Grove Veterinary Clinic

REFERRING VET
Dr. Damewood

INVOICE
11364ag

DATE
08/15/2022

PRESENTING CLINICAL SIGNS

History: History of probable IBD and food allergies. Hydrolyzed diet since 2017 Had probable petite or partial seizure 8/7. Rt. sided systolic murmur 2/5 Partial anorexia Current Medications Topical zymox hydrocortizone prn. Primary Question/Differential to Be Answered in This Exam Why are the liver enzymes elevated, and what is the functional status of the heart?

Abnormal PE/Chem/CBC/UA Results: Elevated liver enzymes: ALT 848, AST 103 ALP 404.

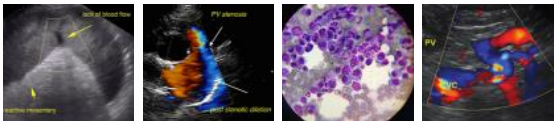
ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN AND HEART

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	5.8	2.5	1.0	1.0	42.3	76	0.2
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	1.3	0.75		2.3	2.2	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal left atrial size based on 3 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal mitral valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable eccentric insufficiency. 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 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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The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3 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 was present in the kidneys. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some mild increased echogenicity and mild loss of corticomedullary symmetry and definition expected for the age of the patient. Bilateral areas of pinpoint medullary mineralization were present. No evidence of pelvic dilation was present. The left kidney measured 4.2 cm in length. The right kidney measured 4.2 cm in length.

The area of the aortic trifurcation was free of pathology.

The residual prostate was free of pathology.

Adrenal Glands

The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.46 cm width at the caudal pole and 1.9 cm length. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.39 cm width at the caudal pole and 1.3 cm length.

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. Generalized non-homogeneous mildly echogenic parenchyma exhibiting evidence of minor parenchyma remodeling and intermittent uniform hypoechoic nodules was present. An example of a nodule measured 2.1 cm in diameter. The hepatic and portal vasculature were normal in appearance without signs of congestion.

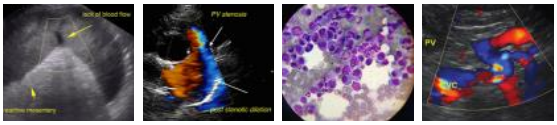
The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content with minor non-dependent mildly hyperechoic sediment. The cystic and common bile ducts were normal.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained moderate variably echogenic nonshadowing ingesta with no signs of ileus, obstruction or foreign material.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. Segmental propensity for mildly prominent to echogenic submucosa layer along with subtle increased mucosa echogenicity was present. The lumen of the small intestine was empty with no signs of ileus, obstruction or foreign material. The small intestine wall measured 0.32 cm in width.

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

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM B1)
- Mild TR-estimated pulmonary pressure gradient ~ 25 mmHg, not consistent with clinical pulmonary hypertension
- Hepatopathy exhibiting non-homogeneous nodular parenchyma
- Mild gallbladder debris (non-mucocele)
- Early age related renal changes with pinpoint medullary mineral
- Variably echogenic gastric ingesta
- Chronic enteropathy pattern

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is secondary to chronic degenerative valvular changes with eccentric mitral valve and mild tricuspid valve insufficiency. The risk of complication is low. No other clinical issues such as LV systolic dysfunction were present. In a nonclinical patient, cardiac medications are not indicated. Conservative monitoring of the murmur is recommended. Recheck echocardiogram in 6 months is suggested, sooner if clinical signs arise.
Overall the liver was nonspecific with considerations including vacuolar hepatopathy, inflammatory disease i.e. cholangeohepatitis with areas of nodular to regenerative hyperplasia, hematopoiesis with neoplastic criteria considered less likely. Assuming normal clotting status and using a 25g needle a hepatic FNA is recommended for screening cytology. Hepatosupportive medications including Denamarin and Ursodiol may prove beneficial.
The presence of gastric ingesta is suggestive of post prandial presentation. A GI panel to include PLI/TLI/Cobalamin/Folate is recommended.

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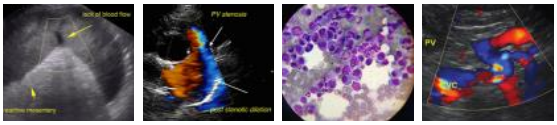

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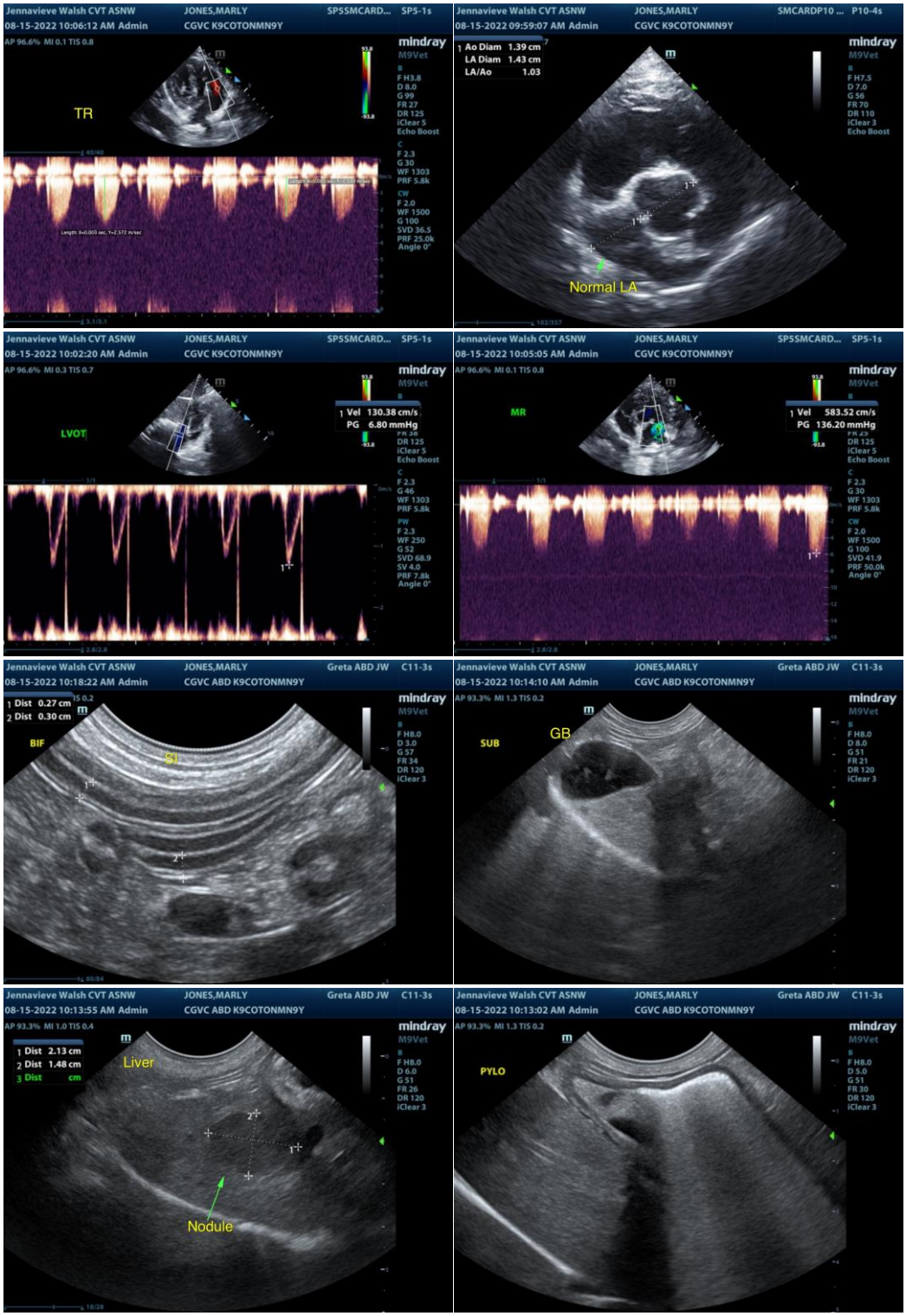

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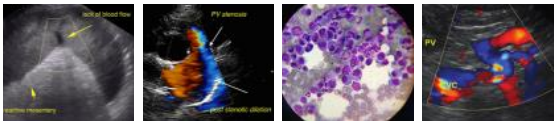

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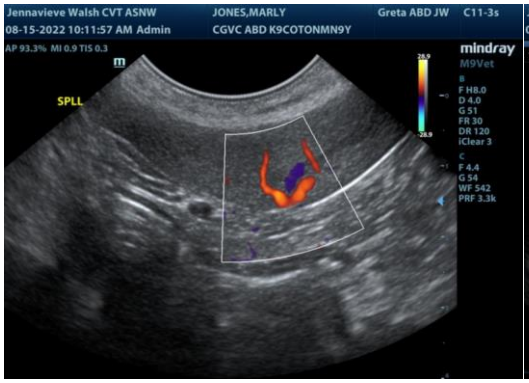

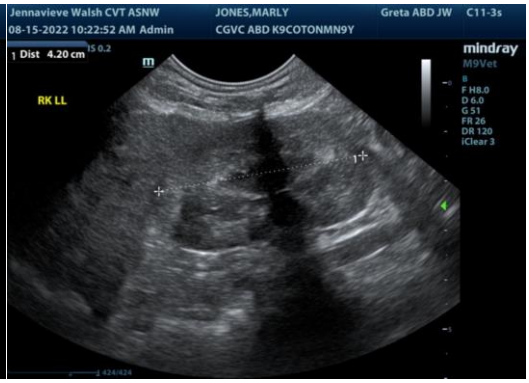

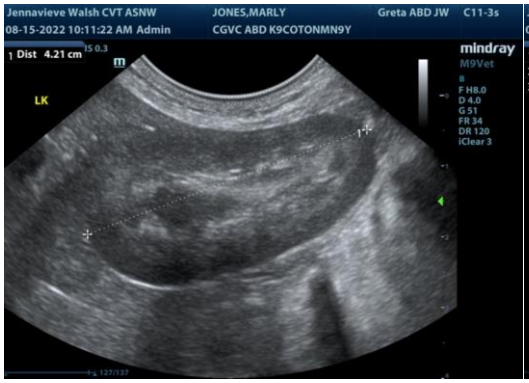

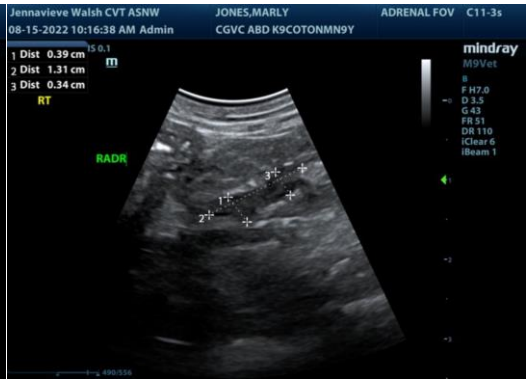

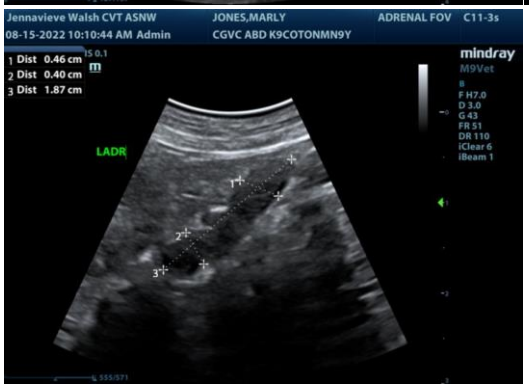

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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