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Clinical Sonography & Telecytology
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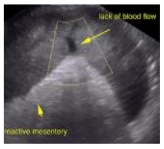
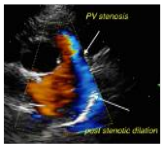
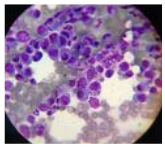
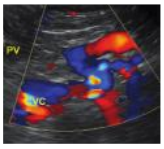





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Chloe Heavener

SPECIES

Canine

BREED

Chihuahua

SEX

FS

AGE

9 y 7 mo

WEIGHT

6.8 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Newton Vet

REFERRING VET

Dr. Wyman-Greenwald

INVOICE

15576

DATE

12/2/22

PRESENTING CLINICAL SIGNS

Losing weight, pu/pd, not eating well.

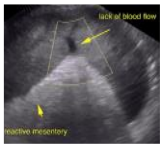
Abnormal PE/Chem/CBC/UA Results: AST 116, ALT 149, ALKP 475, GGTP 16, TBILI 0;4, GLU 535, CA 8.2, TRIG 368, PLS 182

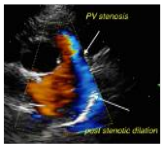
ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

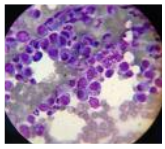
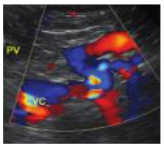
CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (Boon method)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.3	28-40	40-100	<0.6
PATIENT				1.5	32	67	0.33
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LA** 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	125	1.3	0.6		2.2	2.5	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 different LA measurement methods. The cranial and caudal **mitral** valve leaflets presented mild thickening consistent with mild endocardiosis. Doppler indicated measurable moderate eccentric insufficiency. The **left ventricle** presented thicknesses with linear contour with borderline increased LV volume. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate yet borderline subnormal as evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the LV myocardium. The **left ventricular outflow** tract demonstrated normal laminar systolic flow and subjective structural integrity. Mild aortic insufficiency was 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 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. No arrhythmia was noted.





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

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 was maintained. Mild uniform increased cortex echogenicity with mildly enhanced corticomedullary border demarcation. No pyelectasia was noted. The left kidney measured 3.8 cm in length. The right kidney measured 4.0 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 0.51 cm width at the caudal pole and 0.45 cm width at the cranial pole. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.47 cm width at the caudal pole and 0.63 cm width at the cranial 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/ Gallbladder

The liver exhibited generalized increased size. The parenchyma of the liver was generalized increased in echogenicity compared to the spleen and renal cortices. The echotexture of the liver parenchyma was uniform with a moderate coarse echotexture. Maintained capsule contour was noted. The hepatic and portal vasculature were normal in appearance without signs of congestion. No masses or nodules were noted. The gallbladder was non-distended in size containing primarily anechoic content with moderate, mildly congealed yet nonorganized, echogenic luminal gallbladder debris. Suspect concurrent mucus along the peripheral lumen. No evidence of peripheral gallbladder inflammation 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 was empty with no signs of ileus, obstruction, or foreign material.

The small intestine presented intact wall layering and primarily maintained a 1:3 muscularis/mucosa ratio with segmental duodenojejunal mucosal speckling and mild mucosal hyperechogenicity. No evidence of loss of intestinal wall layering or intestinal masses was noted.

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

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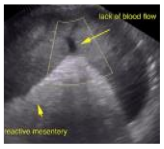

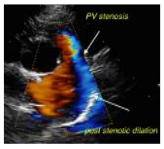

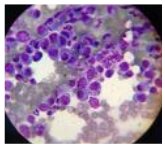
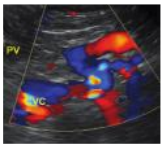

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Pancreas

The pancreas was subtly prominent in size with a maintained symmetrical capsule contour and primarily uniform, mildly hypoechoic parenchyma compared to adjacent omentum.

Free Abdomen

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM Mild B-2) with adequate to mildly borderline LV contractility
- TR - no evidence of clinical pulmonary hypertension
- Aortic insufficiency
- Hepatopathy exhibiting generalized parenchyma hyperechogenicity - vacuolar hepatopathy, chronic hepatitis / cholangiohepatitis, lipidosis, fibrosis, or other hepatopathy possible with round cell hepatic neoplasia considered a less likely differential diagnosis
- Moderate gallbladder debris, possible very early non-inflamed mucocele
- Mild hypoechoic pancreas - patient variant, potential for low-grade pancreatitis
- Overtly normal bilateral kidneys / adrenal glands
- Intact gastrointestinal wall layering with mild nonspecific intestinal mucosal speckling to increased mucosal echogenicity

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No indication for cardiac medications at this stage. Serial sonographic monitoring is required for further prognosis. Potential borderline LV hypocontractility possibly owing to systemic disease is possible. Assessment of systemic BP for evidence of hypertension, given the presence of aortic insufficiency, is recommended.

Assuming normal clotting status and with vitamin K pretreatment, hepatic FNA cytology is warranted for further assessment.

A GI panel to include PLI/TLI/Cobalamin/Folate is recommended.

Full urinary workup including urinalysis, C/S, and baseline UPC, if evidence of proteinuria, +/- Leptospirosis titers / PCR if potential exposure, is recommended.

Potential for diabetes and secondary diabetic hepatopathy is possible. Fructosamine level is recommended if persistent hyperglycemia.

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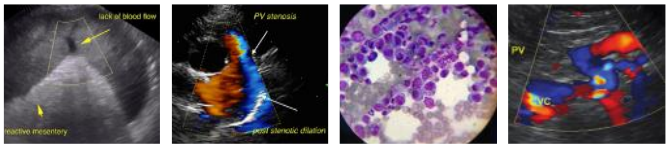

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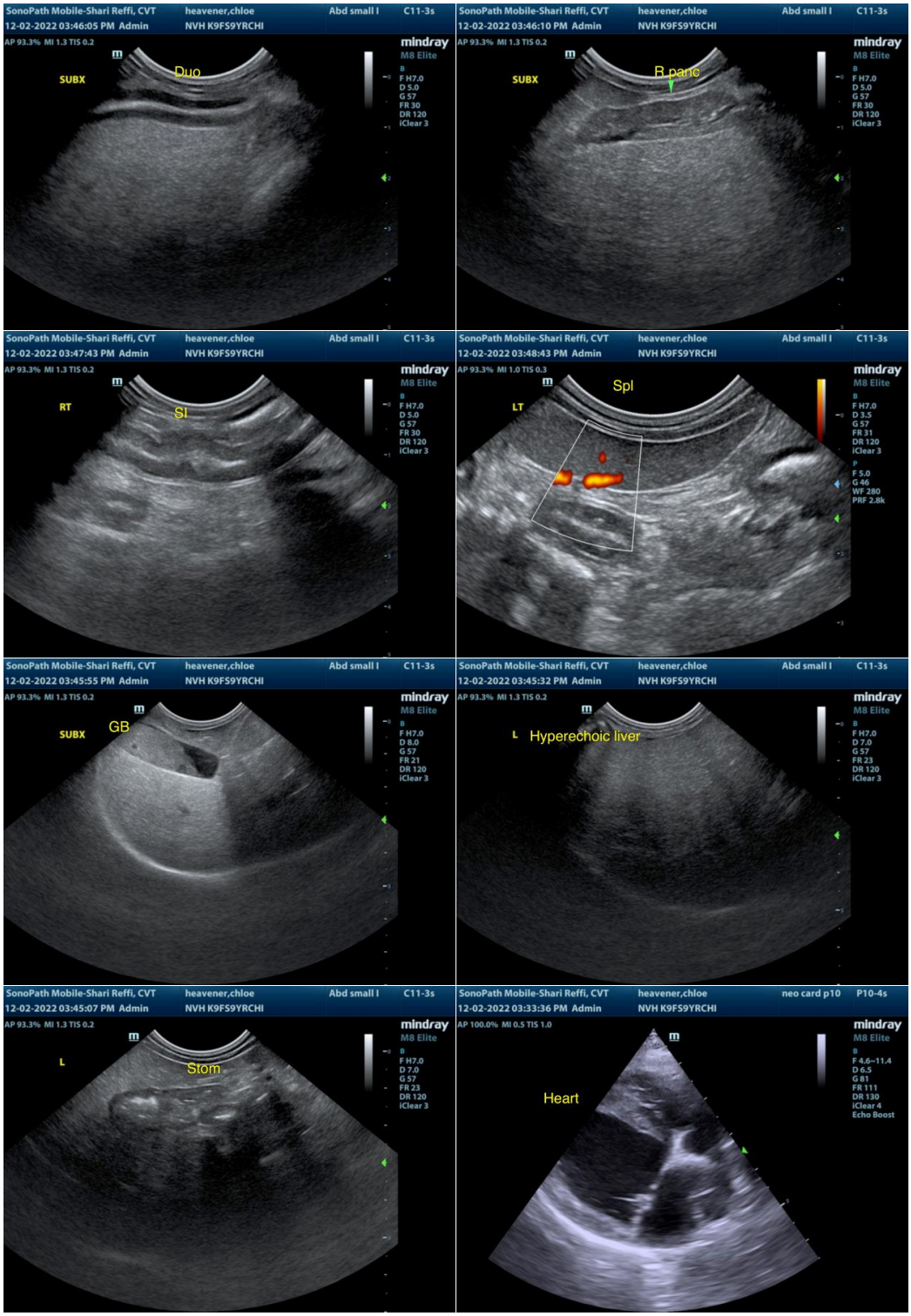

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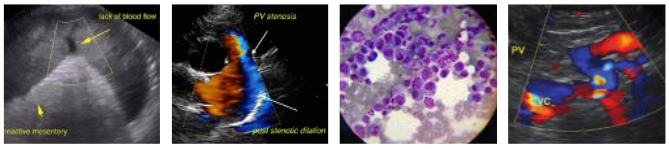

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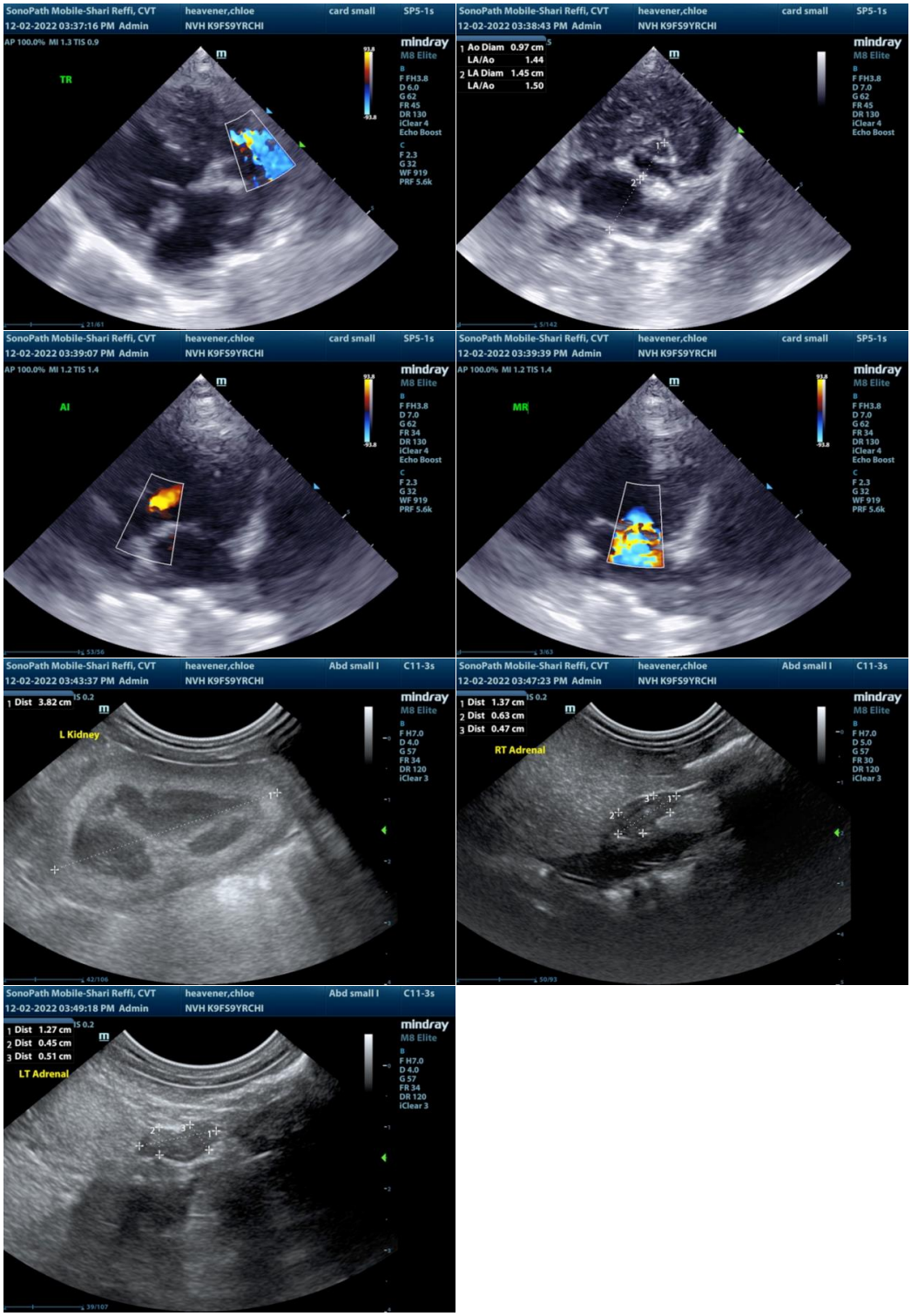

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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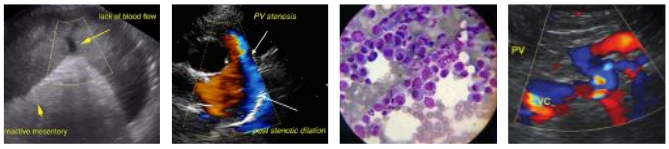

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Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com