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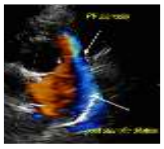
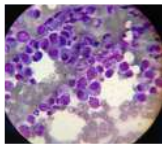
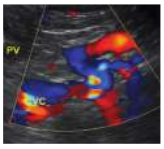




SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT

Zoey Kini

SPECIES

Canine

BREED

Chihuahua

SEX

Spayed Female

AGE

13 years

WEIGHT

8.6 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

DIane McFadden

HOSPITAL NAME

Newton VH

REFERRING VET

Dr. Pierson

INVOICE

12137

DATE

8/17/21

PRESENTING CLINICAL SIGNS

possible Cushings; elevated liver values per referring DVM; grade 3 heart murmur; diarrhea. not on any meds.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

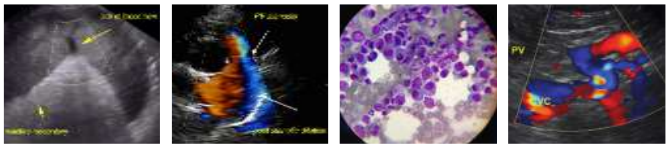
CANINE CARDIAC PARAMETERS	**MR VMAX** (m/s)	**TR VMAX** (m/s)	**LA/AO** (Boon method)	**LA/AO** (Heart Base; Swe)	**FS** (%)	**EF** (%)	**EPSS** (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
PATIENT			1.47	1.52	53.4	85.6	0.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV 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	BELOW	BELOW	BELOW	BELOW
PATIENT	147	1.4	1.6		2.0	2.3	

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 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. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinesis. 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.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3.0 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.

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 was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and mild loss of corticomedullary symmetry and definition expected for the age of the patient. Pinpoint dystrophic medullary mineralization was present. No evidence of pelvic dilation was present. The left kidney measured 3.9 cm in length. The right kidney measured 4.7 cm in length.

Adrenal Glands

Bilateral symmetrical adrenal gland enlargement with uniformly hypoechoic parenchyma was present. The left adrenal gland measured 1.9 cm length x 0.88 cm width at the caudal pole. The right adrenal gland measured 2.0 cm length x 0.79 width at the caudal pole.

Spleen

The spleen exhibited primarily finely textured parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Mild generalized parenchyma heterogeneity was present without evidence of nodular changes. 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. The parenchymal heterogeneity is likely consistent with benign changes such as extramedullary hematopoiesis or age-related remodeling with minor potential for inflammatory or neoplastic disease.

Liver/ Gallbladder

The liver presented mild enlargement. The parenchyma of the liver was increased in echogenicity compared to the spleen and renal cortices with nonuniform to patchy echotexture. Reduced distinction and visualization of the portal structures was present. The gallbladder was non distended in size with echogenic, nonmineralized, non dependent biliary sludge. The biliary sludge exhibited emerging organization with generalized hypoechoic to anechoic, irregular to interrupted rim visible between the nondependent sludge and inner wall. No overt signs of mural or peripheral inflammation.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. The lumen of the stomach contained mild, retained, echogenic, nonshadowing ingesta and chyme most consistent with post prandial presentation without signs of ileus, obstruction or foreign material. The gastric body wall width measured 0.40 cm.

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. The jejunum wall width measured 0.40 cm. The duodenum wall width measured 0.40 cm.

Normal visible colon wall layers were present with subjective semi-formed to soft feces in lumen.

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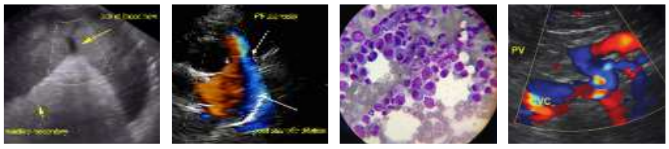

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Pancreas

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

No overt lymphadenopathy or peritoneal effusion was present.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Overtly normal cardiac structure and function
- Bilateral mild to chronic renal changes with pinpoint to focal dystrophic medullary mineralization
- Chronic hepatopathy - subjectively benign, vacuolar hepatitis - steroid hepatopathy, chronic active hepatitis, cholangiohepatitis, early fibrosis, cirrhosis, or other hepatopathy possible
- Partial gallbladder mucocele
- Bilateral prominent adrenal glands
- Gastroenterocolitis
- Heterogeneous pancreas - suspect age-related pancreatic changes without overt inflammation

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overtly normal cardiac structure and function without an obvious cause of the murmur identified. No evidence of systolic dysfunction, significant valvular insufficiencies, or stenotic disease. In the absence of dehydration or anemia, potential causes may include a physiologic flow murmur only present with elevated heartrate or small flow abnormality or valvular insufficiency i.e., mild chronic mitral valve disease not seen here. Regardless, the lack of structural cardiac changes indicate that the risk of future complication is low and that cardiac medications are not indicated. Conservative monitoring of the murmur would be appropriate at this time with recheck echocardiogram suggested in 6 months, sooner if clinical signs consistent with heart disease develop or if murmur intensity increases.

Full adrenal workup with LDDST is recommended, given the presentation of the bilateral adrenal glands.

Continued monitoring for evidence of increasing cholestasis as well as evidence of cranial abdominal or subxiphoid discomfort associated with the gallbladder is recommended. Immediate recheck ultrasound is suggested if these clinical signs are noted. Hepatosupportive medications including Denamarin and Ursodiol may prove beneficial.

Fresh fecal analysis to assess for parasitic ova / Giardia, as well as as-needed therapy for gastroenterocolitis, would be appropriate.

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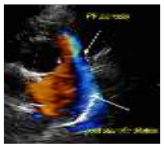
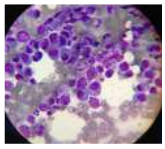
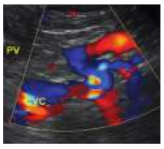

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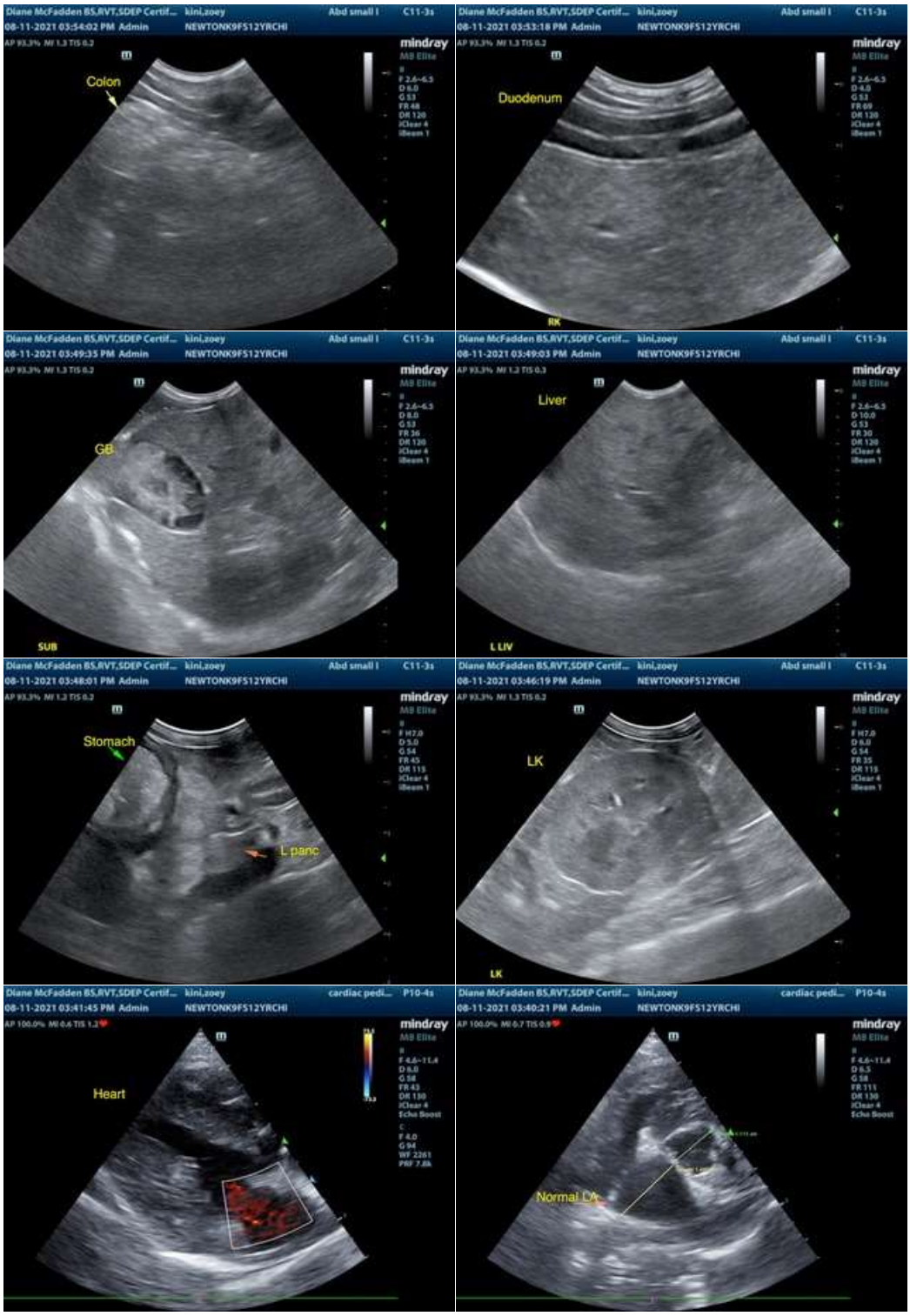

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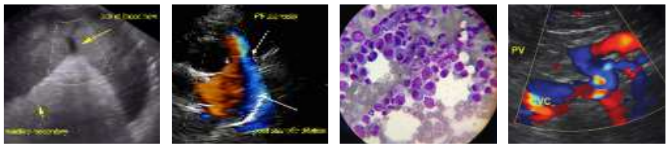

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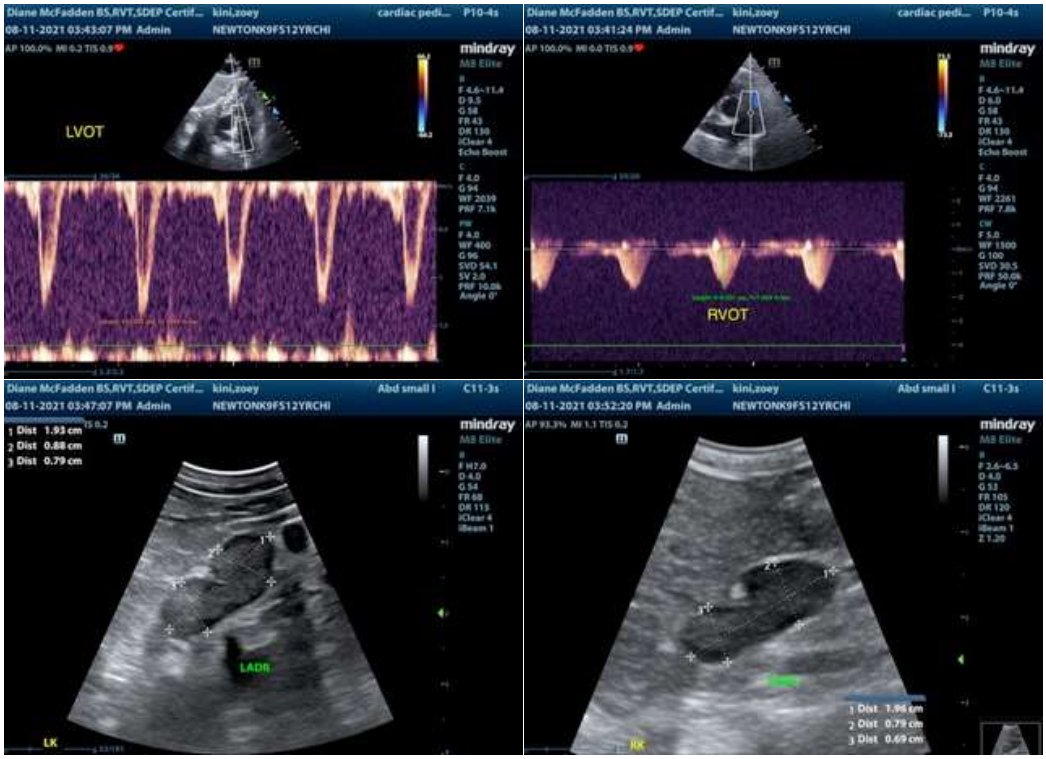

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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