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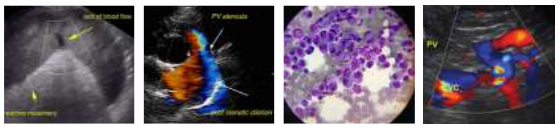


ANIMAL SOUNDS NW
MOBILE VETERINARY ULTRASOUND
IMAGING PERFORMED BY
AnimalSoundsNW.com 541-357-9423

PATIENT
Drake Martin

SPECIES
Canine

BREED
Chihuahua Mix

SEX
MN

AGE
12.5 years

WEIGHT
15 lbs.

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

IMAGING PERFORMED BY
Jenna Walsh, CVT

HOSPITAL NAME
VCA Delta Oaks AH

REFERRING VET
Dr. Lahm; Dr. Schulke

INVOICE
13070

DATE
1/14/22

PRESENTING CLINICAL SIGNS

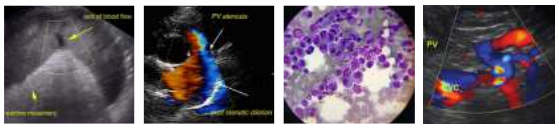
Cough (Chronic) Normal heart sounds. painful L hind (luxating Patella) (Sustained reinjury last weekend after jumping off the bed - and went to EVH 1-3-2022) Enlarged gall bladder (mucocele?) Current Medications On 1. Metacam 0.67 mg SID; 2. Ursodiol BID (250 mg) ; 3. Pimobendan 2.5 mg BID
Abnormal PE/Chem/CBC/UA Results: CBC; T-4 ; Panel 11-24-2021 WNL (Dental done thereafter) CBC ; T-4 ; Panel 1-3-2022 WNL save slight inflammation Leukocytosis @ 22K(Neutrophilia.) U/S at EVH 1-3 -2022 = Enlarged heart, Enlarged gall bladder , mildly distended abdomen

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	5.6		1.4	1.5	46.3	79.4	0.25
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	NM	1.2	0.94		2.7	2.8	

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 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 adequate linear morphology. The **right ventricle** was of



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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

The urinary bladder, trigone, and cystourethral junction 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.

No overt pathology associated with the residual prostate 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 moderate loss of corticomedullary symmetry and definition expected for the age of the patient. Pinpoint areas of medullary mineral were present in both kidneys. No evidence of pelvic dilation was present. The left kidney measured 4.4 cm in length. The right kidney measured 4.8 cm in length.

Adrenal Glands

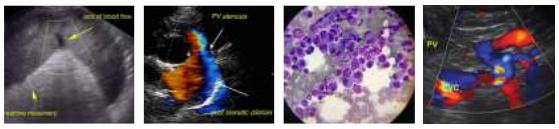
The bilateral adrenal glands exhibited mild subjective prominent size yet no overt evidence of significant hyperplasia or neoplastic criteria. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 1.6 cm length x 0.67 cm width in the caudal pole. The right adrenal gland measured 2.1 cm length x 0.57 cm width in the caudal 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 subjective mild generalized enlargement structure and contour. The liver parenchyma was mildly nonuniform and hypoechoic to the spleen with a moderate coarse echotexture and subjective mild to benign parenchymal remodeling. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non distended in size with echogenic, nonmineralized, non dependent biliary sludge. The biliary sludge was non organized with a hypoechoic to anechoic, irregular to interrupted rim visible between the nondependent sludge and inner wall. No signs of peripheral inflammation. Very subtle subjective



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evidence of increased pericholecystic omentum was present. No overt evidence of peripheral effusion was noted.

Gastrointestinal

The stomach exhibited intact wall layering with subjective nonspecific increased prominence of the gastric mucosa and rugal folds.

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.

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

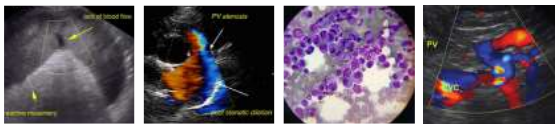
Primary Findings

- Chronic mitral valve disease (ACVIM B1)
- Bilateral chronic renal changes with pinpoint medullary mineral
- Subjective mild prominent bilateral adrenal glands - nonspecific, probable patient or age-related variant If no clinical signs of adrenal disease
- Mild subjective hepatomegaly exhibiting benign parenchymal remodeling
- Partial gallbladder mucocele

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The lack of significant left atrium or left ventricle enlargement indicates that the risk secondary to mitral valve insufficiency is currently low. In a nonclinical patient without evidence of significant left heart enlargement, cardiac medications are not specifically Indicated. However, Pimobendan may prolong cardiac changes associated with mitral valve insufficiency. No other clinical issues such as pulmonary hypertension or systolic dysfunction were noted. Given these findings, the cough in this patient is likely to be noncardiogenic in origin. Recheck echocardiogram is suggested in 6 months, sooner if clinical signs arise.

Given the lack of elevated hepatic enzymes or cholestasis as well as no reported discomfort or pain in the area of the gallbladder, continued medical management Is appropriate at this time.



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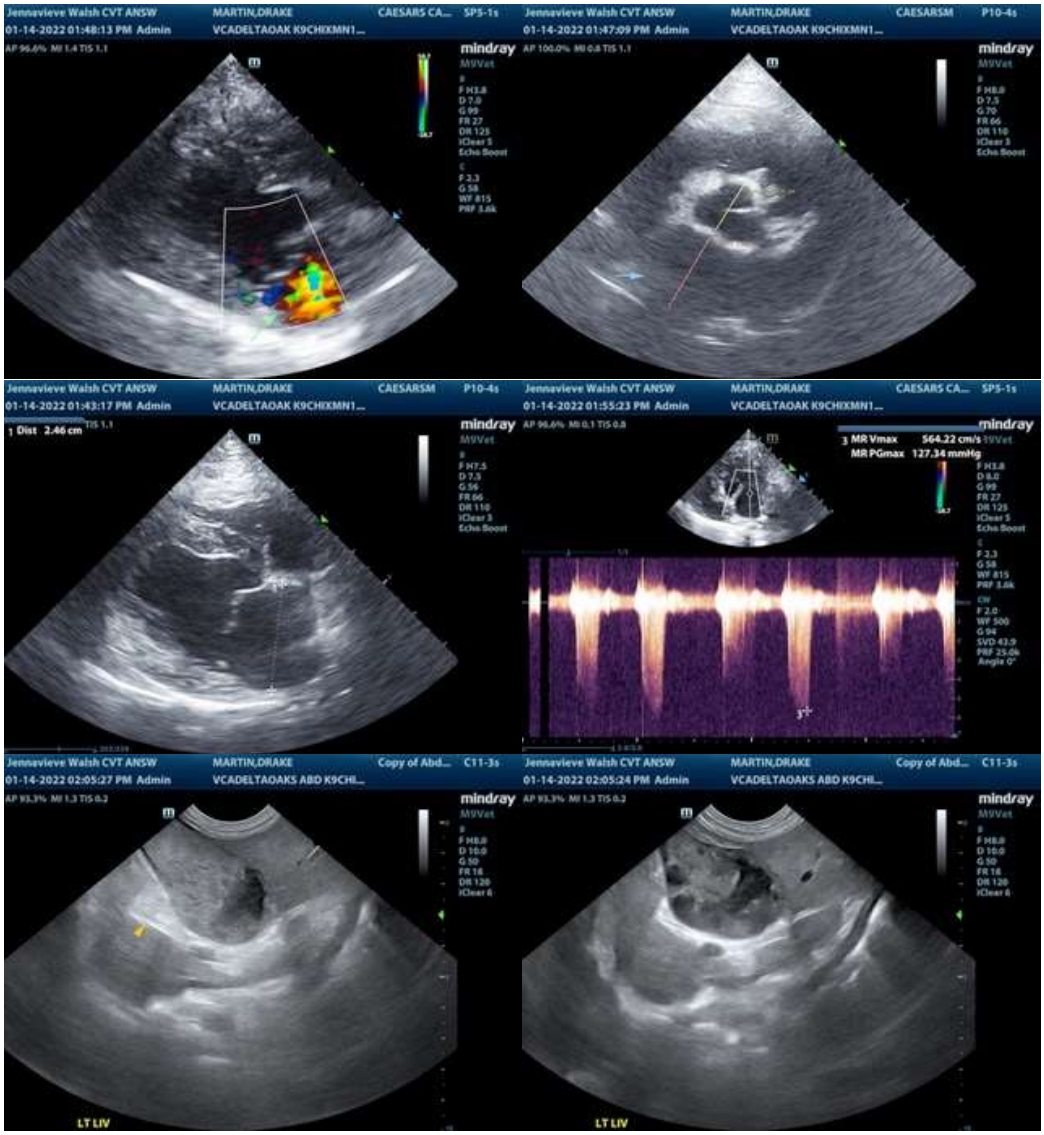
Hepatosupportive medications including Ursodiol are warranted. However, close monitoring for evidence of cranial abdominal or subxiphoid discomfort or pain on palpation associated with the gallbladder, as well as evidence of emerging or progressive cholestasis, is recommended. Recheck sonogram is suggested if these clinical signs are noted.



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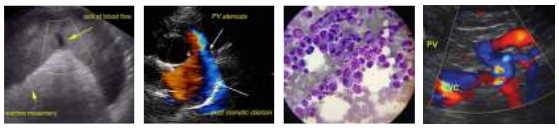

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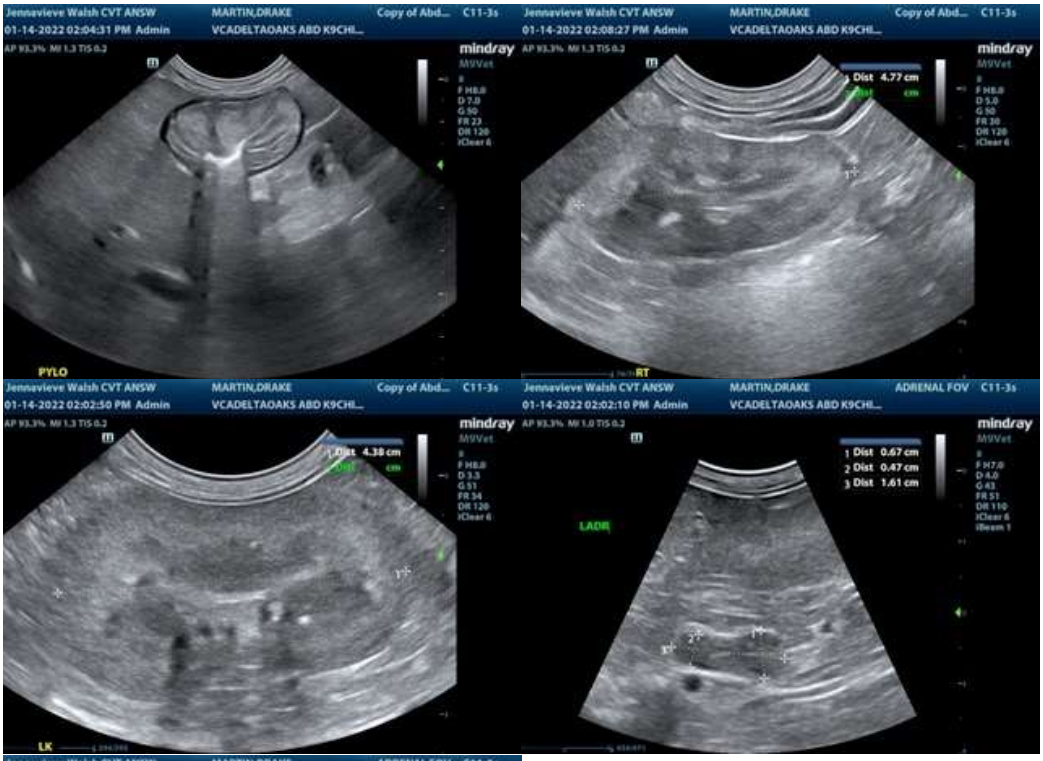

The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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