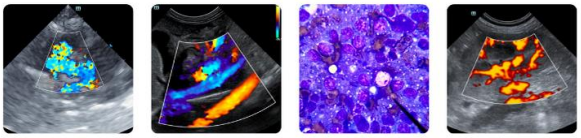


PATIENT

Herbie Vangyia

SPECIES

Canine

BREED

Chihuahua Mix

SEX

Male neutered

AGE

11 years

WEIGHT

23 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Meghan Morse, LVT, CVT

HOSPITAL NAME

Black River VH

REFERRING VET

Dr. Hewitt

INVOICE

10288

DATE

11/4/25

PRESENTING CLINICAL SIGNS

Pre anesthesia cardiac + chronic hepatic enzyme elevation, hematochezia Grade 3/6 murmur, chronic ALP and ALT elevation Current meds: Proviable

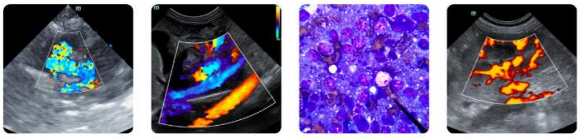
Abnormal PE/Chem/CBC/UA Results: ALT 257, ALP 287, Eosinophilia 1960, GLob 4.7,

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	**MR VMAX** (m/s)	**TR VMAX** (m/s)	**LA/AO** (M-Mode)	**LA/AO** (Heart Base; Swe)	**FS** (%)	**EF** (%)	**EPSS** (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT				1.46	54	84	0.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LAD** LA MAX 4 Chamber	**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	1.7	1.3		3.4	3.1	

Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size based on 2 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented thickening consistent with endocardiosis. Doppler indicated moderate 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 adequate linear morphology. 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 cardiac / pericardial tumors was visible.



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Urinary System

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

No evidence of pathology in the area of the aortic trifurcation.

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 to moderate loss of corticomedullary symmetry and definition expected for the age of the patient. 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 were normal in size. Mild parenchyma heterogeneity and mild capsule asymmetry was present without suspicion for overt neoplasia. The left adrenal gland measured 0.49 cm width in the caudal pole. The right adrenal gland measured 0.50 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 was mildly enlarged in size with normal 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 thin walls and primarily anechoic luminal content. 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 without evidence of retained ingesta, fluid, or foreign material.

The small intestine presented intact borderline prominent wall layering exhibiting propensity for mildly prominent submucosa layer. The duodenum wall measured 0.49 cm width. The jejunum wall measured 0.43 cm width.

Normal visible colon wall layers were present with semi-formed fecal matter.

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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

- Chronic mitral valve disease (B1)
- Chronic hepatopathy - subjective benign
- Normal gallbladder
- Remodeled pancreas
- Age-related renal / adrenal changes
- Possible enteropathy with semi-formed fecal matter in colon

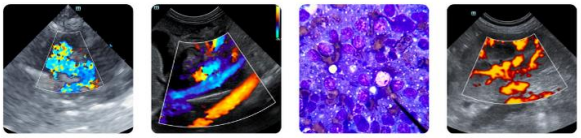
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cause of the murmur is chronic degenerative valvular changes with secondary eccentric mitral valve insufficiency. The lack of left atrial enlargement implies that the risk of complications secondary to mitral valve insufficiency is low at this time and, without current clinical signs, indicates that medical therapy is not required. Prognosis is considered variable and sonographic monitoring is recommended. Recheck echocardiogram is suggested in 6-12 months, sooner if clinical signs arise. Anesthetic risk is considered mild yet not contraindicated.

The appearance of the liver was nonspecific but most consistent with benign hepatopathy. Considerations for the liver may include benign vacuolar hepatopathy, inflammatory/infectious/immune mediated disease, hyperplasia, hematopoiesis, toxic hepatopathy (i.e. copper), other with neoplasia thought less likely. Ultrasound guided FNA of the liver using a 25-gauge needle and assuming normal coagulation parameters would be warranted for screening cytology. Hepatosupportive medications such as Denamarin or Vitamin E as well as Ursodiol due to its antioxidant and immunomodulatory effects within the liver would be warranted, although these medications may not result in decreased hepatic enzyme levels. Leptospirosis titers / PCR may be considered if clinically indicated. Core or surgical biopsy likely required for definitive diagnosis.

There was no evidence of overt adrenal pathology as an obvious contributing factor in conjunction with nonreported clinical signs. Adrenal screening could be considered if clinical signs suggestive of adrenal disease arise. A GI panel to include PLI/TLI/Cobalamin/Folate is recommended. In conjunction with probiotic, a dietary trial such as hydrolyzed diet may prove beneficial.

Suggested anesthetic protocol may include opioid or Benzodiazepine pre-med, induction with Propofol or Alfaxalone, and appropriate gas anesthesia with avoidance of alpha 2 agonists.



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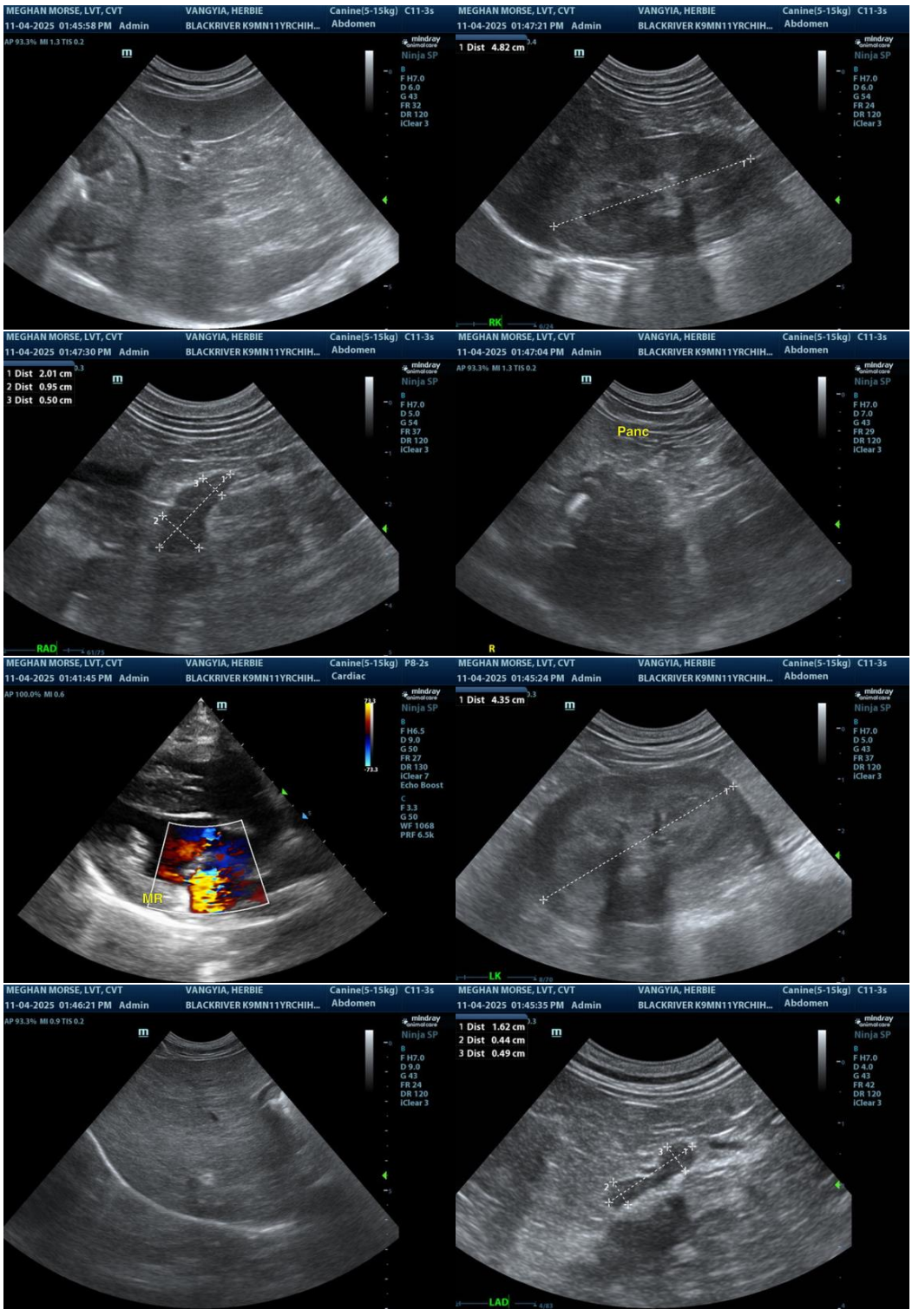

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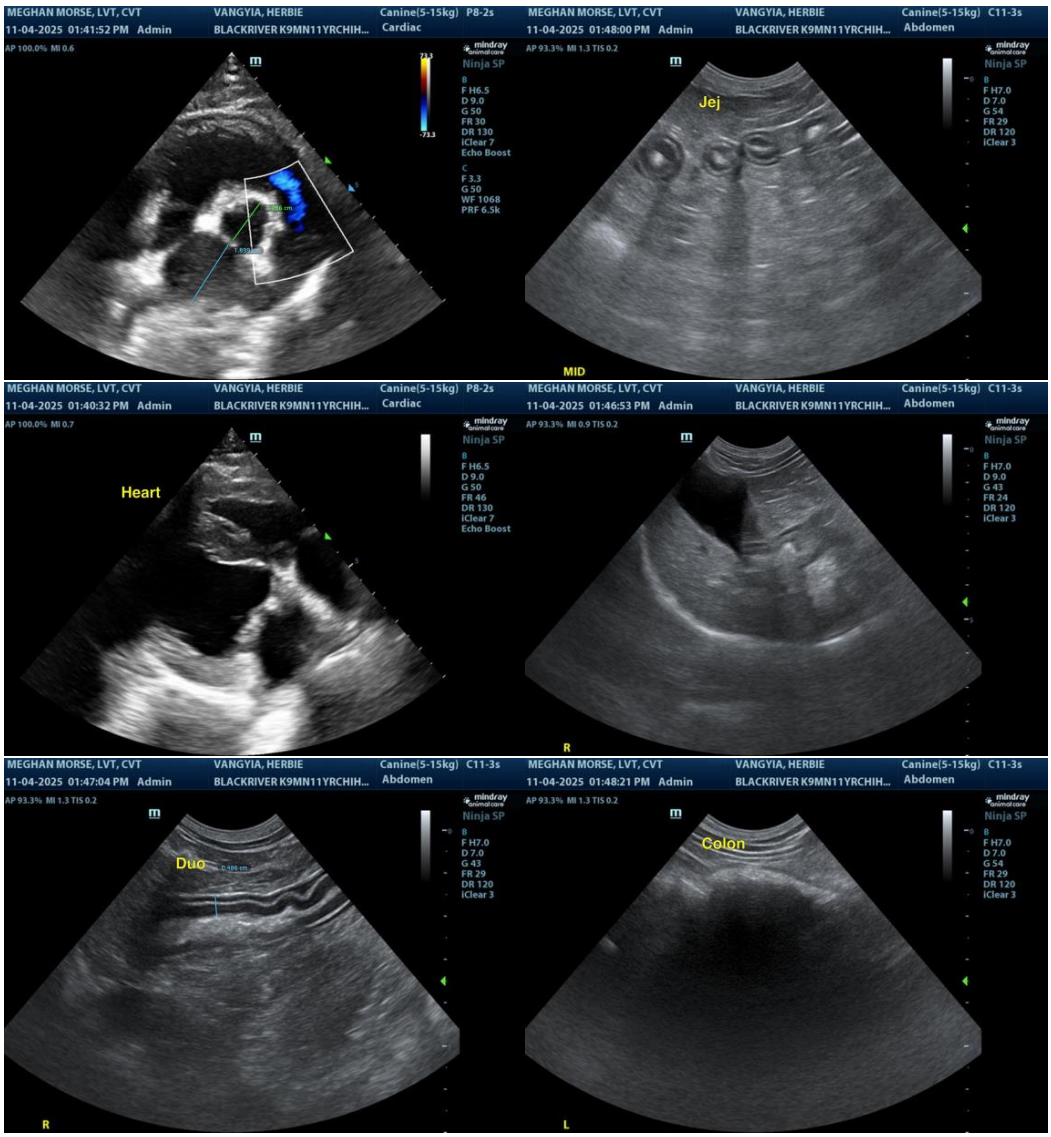

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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