



PATIENT

Merlin Saniewski

SPECIES

Feline

BREED

Maine Coon

SEX

Spayed Female

AGE

13 Years

WEIGHT

12 lb 13 oz

INTERPRETED BY

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

PRESENTING CLINICAL SIGNS

Hx of HCM. Asymptomatic, grade III/VI heart murmur. Current meds: Clopidogrel (not consistent). Rad consult-cardiac silhouette mildly enlarged. VHS 8.4v (8.1v H); ECG-left bundle branch block pattern (could indicate LV enl. vs N patient variation. Echo-4/2018-Sm. mv regurg jet. turb. Ivot, mild thickened basilar port. of lv free wall. LA upper end of normal size range.

Abnormal PE/Chem/CBC/UA Results: wnl

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

FELINE CARDIAC PARAMETERS	BODY WEIGHT (kg)	HR (BPM)	IVSd (cm)	LVIDd (cm)	LVWd (cm)	FS (%)	EF (%)
NORMAL PARAMETER	-----	150-240	0.3-0.6	1.0-2.1	0.25-0.6	35-67	80-100
PATIENT		195	0.6	1.54	0.61	53	87
FELINE CARDIAC PARAMETERS	LA/AO (Boon)	LA/AO HEART BASE (Sisson)	LA 2D 4-chamber long axis AS to FW (Sisson) (cm)	LVOT VEL. (m/s)	RVOT VEL. (m/s)	IVRT (m/)	
NORMAL PARAMETER	<1.5	0.88-1.79	0.7-1.7	<1.6	<1.3	40-60	
PATIENT	1.4	1.4	1.4	1.2	0.95	NM	
Adapted from June Boon, Veterinary Echocardiography, 1998 Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705							

IMAGING PERFORMED BY

Shari Reffi, CVT

HOSPITAL NAME

Marsh AH

REFERRING VET

Dr. Milwicky

INVOICE

45544

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Cardiac Presentation

The echocardiogram in this patient demonstrated enlarged **left atrial** size based on 3 separate LA measurements. The cranial and caudal **mitral** valve leaflets presented subjective mild thickening, and normal kinetics with mild eccentric MR on doppler. The **left ventricular** septum and free wall revealed adequate contractility and overall normal left ventricular volume, yet some echogenic remodeling of the septum and free wall were noted with borderline increased septal and free wall thickness. This does not appear to be a functional issue at this point and is likely consistent with some level of **myocardial fibrosis**, which may indicate progressive HCM criteria based on history, or central age related myocardial changes. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. Normal measured LVOT velocity. The **right atrium** and auricle revealed increased size and normal content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology and kinetics. No overt 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). Normal measured RVOT velocity. No visible **pericardial** or free pleura fluid was noted or extra cardiac pathology in the visible planes. The cranial **mediastinum and pericardial regions** were free of masses in the visible window. No arrhythmia.



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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 sediment. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were 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 loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 3.6 cm. The right kidney measured 4.0 cm.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.36 cm. The right adrenal gland measured 0.38 cm.

Spleen

The spleen was mildly enlarged with minor medial capsule asymmetry. Subtle parenchymal heterogeneity noted. No splenic masses or nodules. The spleen measured 1.3 cm in width.

Liver

The liver was subjectively normal in size, 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 thin walls and primarily anechoic luminal content. Mild to moderate echogenic non-organized gallbladder debris present. The proximal common bile duct was dilated and tortuous without overt post hepatic obstruction. Common bile duct measured 0.30 cm in diameter. This finding may suggest age related changes or secondary to underlying cholangitis / cholangiohepatitis especially if previous or current liver enzymes elevations have been noted.

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 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 with mild capsule asymmetry. Mild heterogeneous to subtle hypoechoic pancreatic parenchyma compared to adjacent omentum.

Free Abdomen

No omental masses, lymphadenopathy, or peritoneal effusion.



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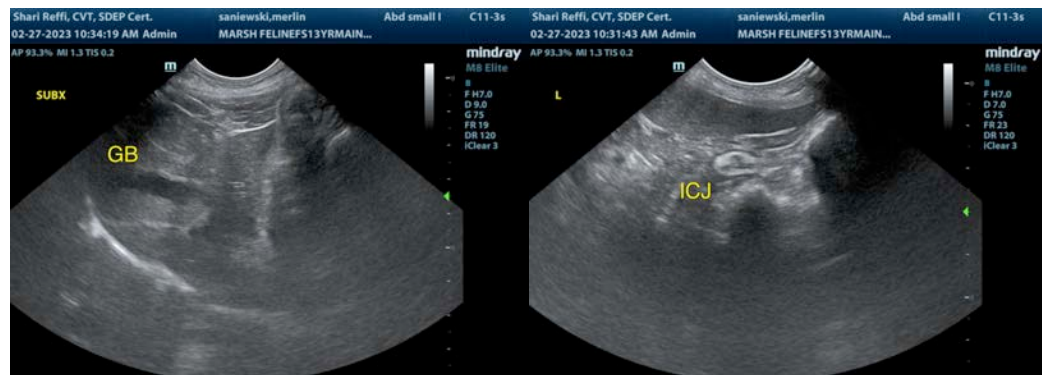
ULTRASONOGRAPHIC FINDINGS

- Borderline LV hypertrophy with evidence of LV myocardial remodeling and possible fibrosis
- Normal LA
- Mild MR
- Non-specific mild splenomegaly – patient variant, splenomegaly owing to sedation (if clinically applicable), incidental hyperplasia, hematopoiesis, splenitis all possible. Potential for infiltrative neoplasia thought less likely yet cannot be excluded.
- Mild chronic renal changes
- Gallbladder debris with mild non-obstructive proximal common bile duct dilation – potential low-grade cholangitis.
- Possible low-grade pancreatitis

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The cardiac presentation is compensated and may suggest progressive LV myocardial remodeling, potential chronic HCM criteria and LV myocardial fibrosis. However, normal LV function appeared to be present with normal left atrial size, indicating that the heart is compensated. No other clinical issues such as evidence of clinical pulmonary hypertension. The hemodynamic effects of the MR appear to be low, given normal LA size. Likewise, the normal LA size indicates that the risk of thrombus formation is low. No overt indication for cardiac medications. Continued monitoring of the murmur with serial echocardiographic monitoring for further prognosis indicated. Assessment of T4 levels as well as systemic BP to rule out contributing factors may be considered.

Given no reported clinical signs consistent with hepatobiliary or pancreatic disease, the gallbladder, common bile duct, and pancreatic presentation are of unclear clinical significance. Assessment for evidence of cranial abdominal subxiphoid discomfort on palpation, which may allude to low-grade pancreatitis, may be considered. Further assessment may include monitoring for evidence of hepatobiliary inflammation +/- spec fPL.





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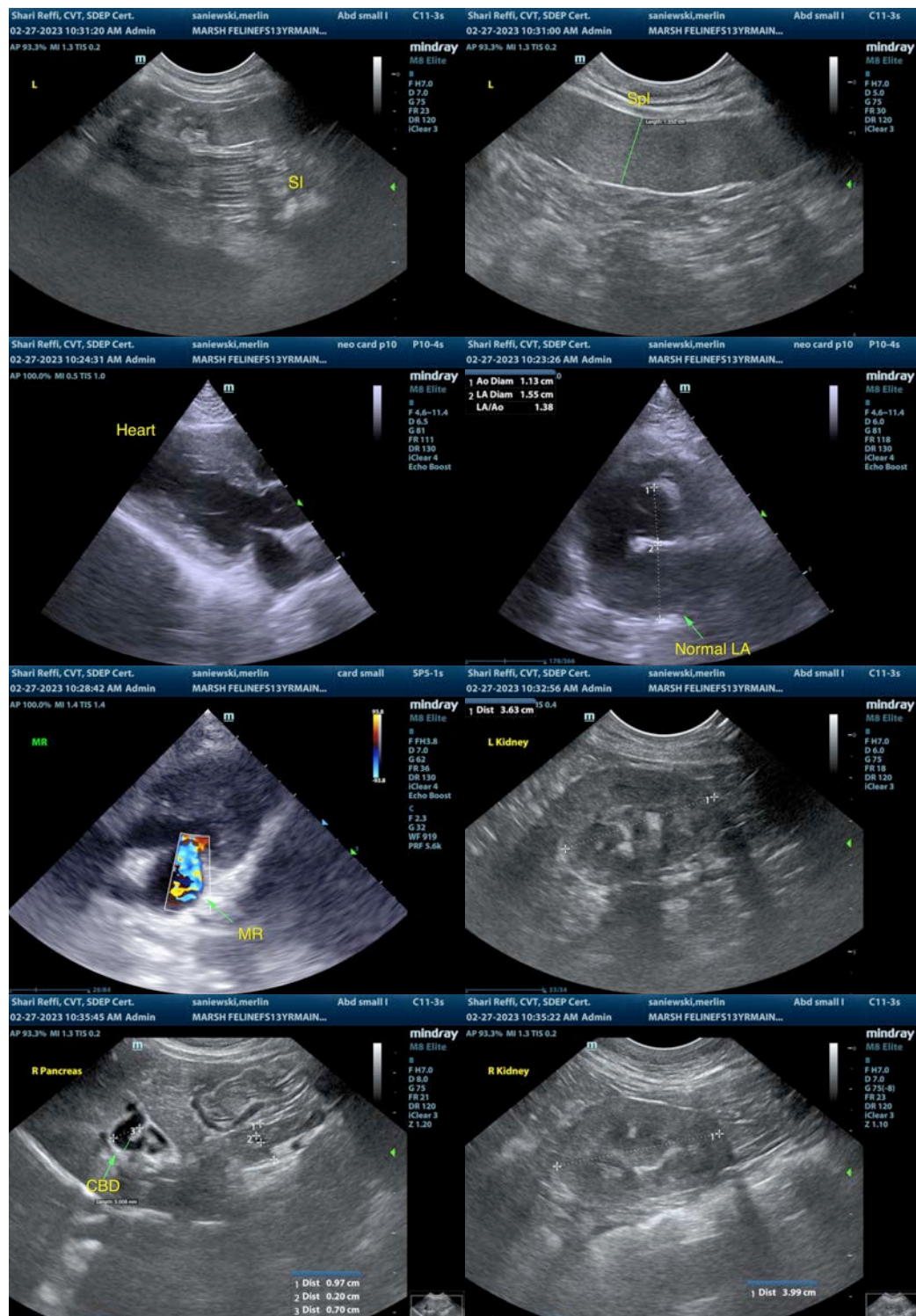
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

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