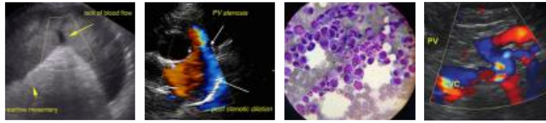


PATIENT

Earl Heying

SPECIES

Feline

BREED

DSH

SEX

MN

AGE

13 yrs

WEIGHT

12.8 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Jenna Walsh, CVT

HOSPITAL NAME
Pawsitive Wellness Veterinary care

REFERRING VET

Dr. Hewitt

INVOICE

14561

DATE

8/10/22

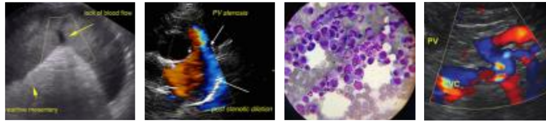
PRESENTING CLINICAL SIGNS

Earl is a 13 yo NM DSH that presented 6/14/2022 for possible constipation. On exam it was noted he had a new heart murmur and mild weight loss. Heart murmur was Grade III/VI L parasternal murmur, no arrythmia/tachycardia. Chem 17, CBC, T4 was unremarkable aside from mild ALT, GGT and Cholestrol elevation (see below) He was noted to be hypertensive (Average BP of 238/168 191). He was started on Amlodipine and repsonded well. He was also having head tremors at home (which resolved with amlodipine) - Recheck 6/21 BP AVG: 118/86 (97) - patient continued to vomit and lose weight, head tremors resolved. O elects monitoring. Heart murmur improved but didn't resolve. Heart murmur Grade I-II/VI L parasternal, no arrythmia/tachyarrythmias noted; - Patient has chronic vomiting that has actually improved recently with no intervention. - Recheck 7/21- patient's chronic vomiting has resolved; however, murmur is persistent and patient has lost more weight. Otherwise O reports patient is normal and well. Heart Rate and Respiratory Rates 160 bpm, 40brpm Blood Pressure Measurments 118/86 (97) (with amlodipine) Current Medications Amlodipine 0.625 mg PO SID, duralactin
Abnormal PE/Chem/CBC/UA Results: 6/14/2022 - ALT 179 U/L - GGT 6 U/L - Cholesterol 239 mg/dL

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		145	0.52	1.7	0.49	58.2	92.6
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	1.5	1.46	1.65		1.0	0.91	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



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Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size and structure. Chamber volume and blood echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented minor irregular age-related changes that are not clinically significant at this time with adequate extension in systole and union in diastole. Minor MR was present on doppler. No evidence of systolic anterior motion (SAM) of the mitral valve was noted. The **left ventricle** presented normal free wall and septal thicknesses with linear contour. Mildly prominent to remodeled papillary muscles were noted. The **myocardium** presented some echogenic remodeling consistent with expected age-related change. **Contractility** of the ventricular walls was adequate and in normal range for this breed and patient size. The **left ventricular outflow** tract demonstrated normal laminar flow with subjectively unremarkable structure. Subjective assessment of the **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated expected findings for this age patient. The **right ventricle** was of normal size (1/3 diameter of LV), echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). No dilation due to cuor pulmonale or pulmonic hypertension was noted. No visible **pericardial** or free pleural fluid was noted. The **mediastinum** was free of masses in the visible window.

Urinary System

The urinary bladder, trigone, and cystourethral junction exhibited normal thickness and tone. Primarily anechoic urine was present in the lumen. Mild, dependent to non-dependent sediment was present without evidence of calculus formation. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic mural changes were noted.

The area of the aortic trifurcation was free of pathology.

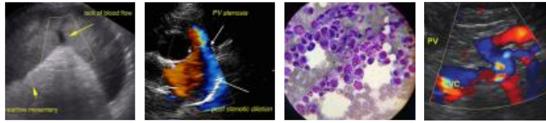
Normal renal size with asymmetrical margination were present in both kidneys. The renal cortex presented uniformly increased in echogenicity with uniform echotexture. The renal cortex appeared to be hypertrophied resulting in an altered cortex: medulla ratio. Mild loss of corticomedullary distinction was also present. The renal medullary volume was subjectively reduced. The left kidney measured 4.4 cm in length. The right kidney measured 4.6 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 0.36 cm width. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.34 cm width.

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.



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Liver/ Gallbladder

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. 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 gastric body wall width measured 0.25 cm.

The small intestine exhibited intact wall layering without evidence of mural hypertrophy yet subjectively prominent generalized muscularis layer. No evidence of loss of intestinal wall layering or intestinal masses was noted. The jejunum wall measured 0.22 cm width. The ileocolic wall measured 0.37 cm width.

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

Pancreas

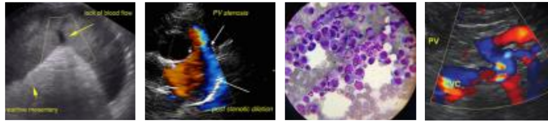
The parenchyma exhibited prominent size with areas of capsule asymmetry. Nonhomogeneous to mildly irregular parenchyma compared to adjacent omentum was noted.

Free Abdomen

No omental masses, lymphadenopathy, or peritoneal effusion were noted.

ULTRASONOGRAPHIC FINDINGS

- Overtly normal cardiac structure and function with mild LV myocardial remodeling
- Normal left atrium
- Minor MR
- Urinary bladder sediment
- Bilateral chronic interstitial nephrosis renal pattern
- Low-grade hepatopathy - subjectively benign
- Prominent nonhomogeneous to irregular pancreas - suspect probable chronic active pancreatitis
- Intact non-thickened yet mildly prominent small bowel walls



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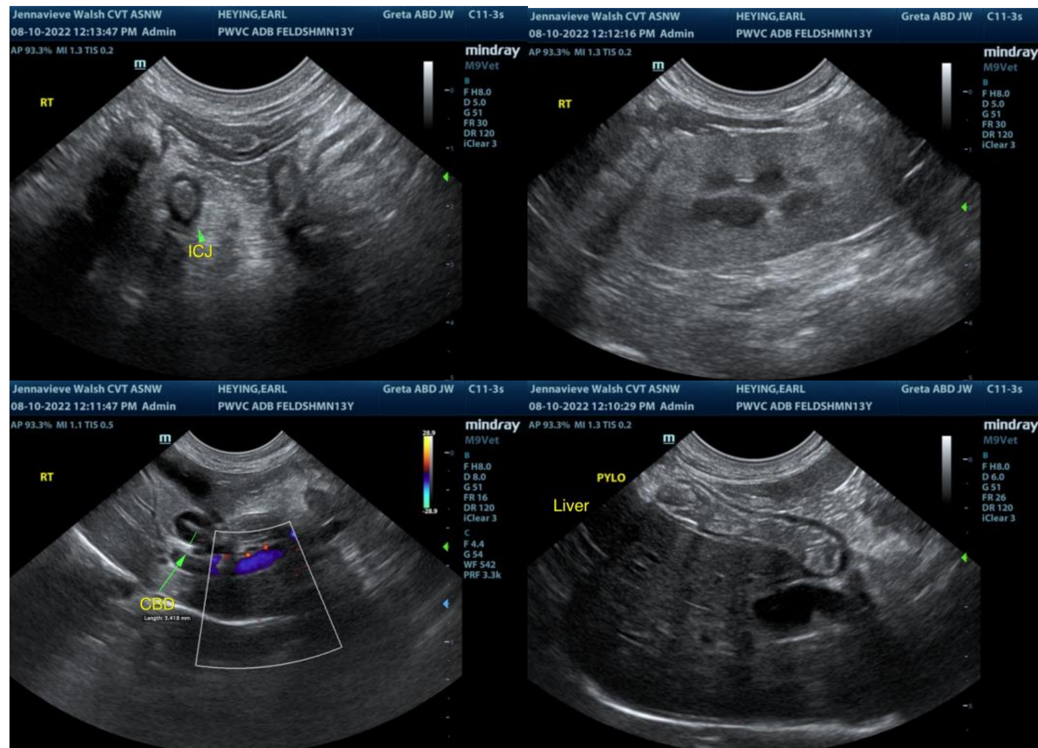
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

No overt evidence of significant structural or functional cardiomyopathy was noted. Mild MR was present yet not suspected to be audible. No other clinical issues such as LV systolic dysfunction, significant valvular Insufficiencies, stenotic disease or clinical pulmonary hypertension were evident. Assuming no evidence of volume changes i.e., dehydration or anemia, a benign physiological flow murmur is considered likely. Regardless, the lack of left or right heart enlargement indicates that the murmur is of low hemodynamic effect. No indication for cardiac medications. Continued monitoring of the murmur is recommended. Recheck echocardiogram is suggested if clinical signs arise or if murmur intensity increases.

The urinary bladder sediment may suggest cellular / crystalline debris or mucus. Cystocentesis for UA +/- C/S if evidence of inflammatory cells is recommended.

The vomiting and weight loss may primarily be owing to chronic active pancreatitis. Potential for Triad Disease is also a consideration In this patient. Further assessment may include a GI panel to include PLI/TLI/Cobalamin/Folate. Three-view chest radiographs are suggested if not done to rule out occult thoracic pathology as a contributing factor to the weight loss.

Empirically, Triad Disease protocol with as-needed gastrointestinal support, monitoring of weight, and assessment of clinical response would be reasonable.



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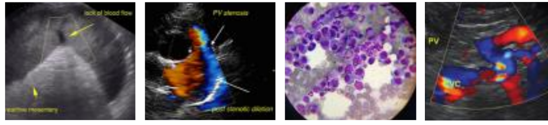

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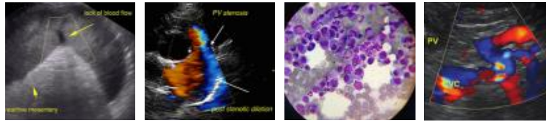

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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