



PATIENT

Isabel Foltzer

SPECIES

Feline

BREED

DSH

SEX

FS

AGE

12 years

WEIGHT

9 lbs.

INTERPRETED BY

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

IMAGING PERFORMED BY

Kelly Vazquez

HOSPITAL NAME

The Gentle Vet

REFERRING VET

Dr. Linda Dulude

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DATE

4/7/23

PRESENTING CLINICAL SIGNS

Chronic vomiting, weight loss, grade 2/6 heart murmur; mitral.
Abnormal PE/Chem/CBC/UA Results: ProBNP: 138. U/A: 2+ blood, USG 1.024.

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		143	0.39	1.54	0.39	65	95
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	1.2	1.3	1.3	1.0	1.1	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							

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 normal linear structure and kinetics. Minor MR was noted on Doppler. The **left ventricular** septum and free wall revealed normal thicknesses, reduced contractility and mildly reduced left ventricular volume with subjective reduced diastolic filling. Some echogenic remodeling of the septum and free wall was present. This is most consistent with some level of **myocardial fibrosis**. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. 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. 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 or extra cardiac pathology in the visible planes. The cranial **mediastinum and pericardial 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 2.0 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 was noted.



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The area of the aortic trifurcation was free of pathology.

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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. No evidence of pelvic dilation or pyelectasia was present. Minor medullary mineral to nonobstructive renolithiasis was noted in both kidneys. The left kidney measured 3.5 cm in length. The right kidney measured 3.9 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 0.40 cm width. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.35 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. The spleen measured 0.77 cm width at the level of the hilus.

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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.

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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.

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The small intestine presented intact segmentally indistinct generalized prominent wall layering owing to propensity for prominent muscularis layer. No evidence of intestinal masses or mechanical / metabolic ileus was noted. The duodenum wall measured 0.30 cm width. The jejunum wall measured 0.27 cm width. The ileocolic wall measured 0.31 cm width.

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

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Pancreas

The left limb, right limb, and base of the pancreas presented hypoechoic to heterogeneous echogenicity compared to adjacent omental fat. Mild asymmetrical capsule margination was present with mild variable parenchymal swelling and mild peripancreatic reactivity / inflammation. No overt evidence of neoplasia.



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Free Abdomen

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Mid-abdominal mesenteric lymph nodes were present. These lymph nodes were homogenous, mildly hypoechoic and smoothly marginated. A normal width: length ratio was maintained (<0.5). Evidence of perilymphatic inflammation was evident. An example of lymph node size was 3.2 cm x 0.6 cm. No omental masses or peritoneal effusion was noted.

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ULTRASONOGRAPHIC FINDINGS

- LV myocardial remodeling
- Normal LA
- Minor MR
- Infiltrative enteropathy pattern with associated mesenteric lymphadenopathy
- Chronic pancreatitis
- Chronic renal changes with nonobstructive medullary mineral / renolithiasis

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INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Overall, structurally and functionally normal heart for age with suspect physiologic / flow murmur. The lack of left or right heart chamber enlargement with normal LV function indicates that the heart is compensated. No indication for cardiac medications. Conservative monitoring of the murmur at this stage is recommended.

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Chronic inflammatory enteropathy i.e., IBD / eosinophilic enteritis with associated mesenteric hyperplasia or reactive lymphadenitis is suspected. Potential for neoplastic infiltrative enteropathy with round cells, i.e., lymphoma with early neoplastic lymphadenopathy which may present in a similar sonographic manner is possible. Triad Disease is also a consideration if previous history of hepatic enzyme elevations. Definitive diagnosis would require full-thickness intestinal and lymphatic biopsies.

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A GI panel to include PLI/TLI/Cobalamin/Folate is recommended. Empirical IBD protocol with as-needed gastrointestinal support would be reasonable. Further renal staging to include urine C/S and protein:creatinine ratio on sterile urine sample may be considered.

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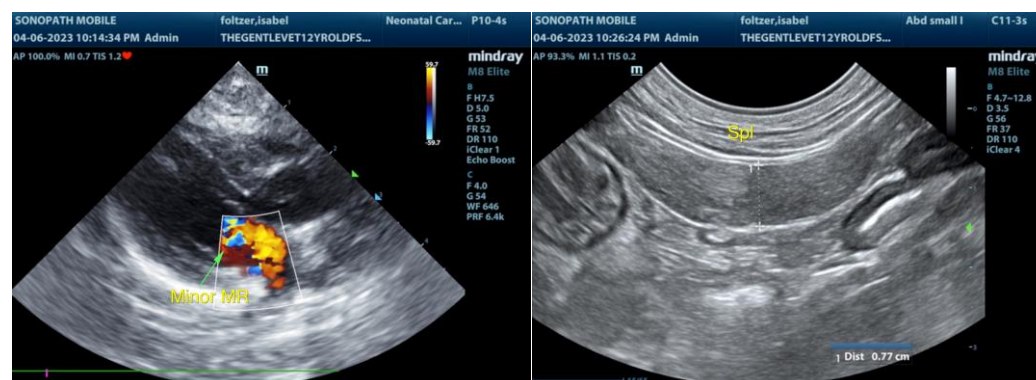
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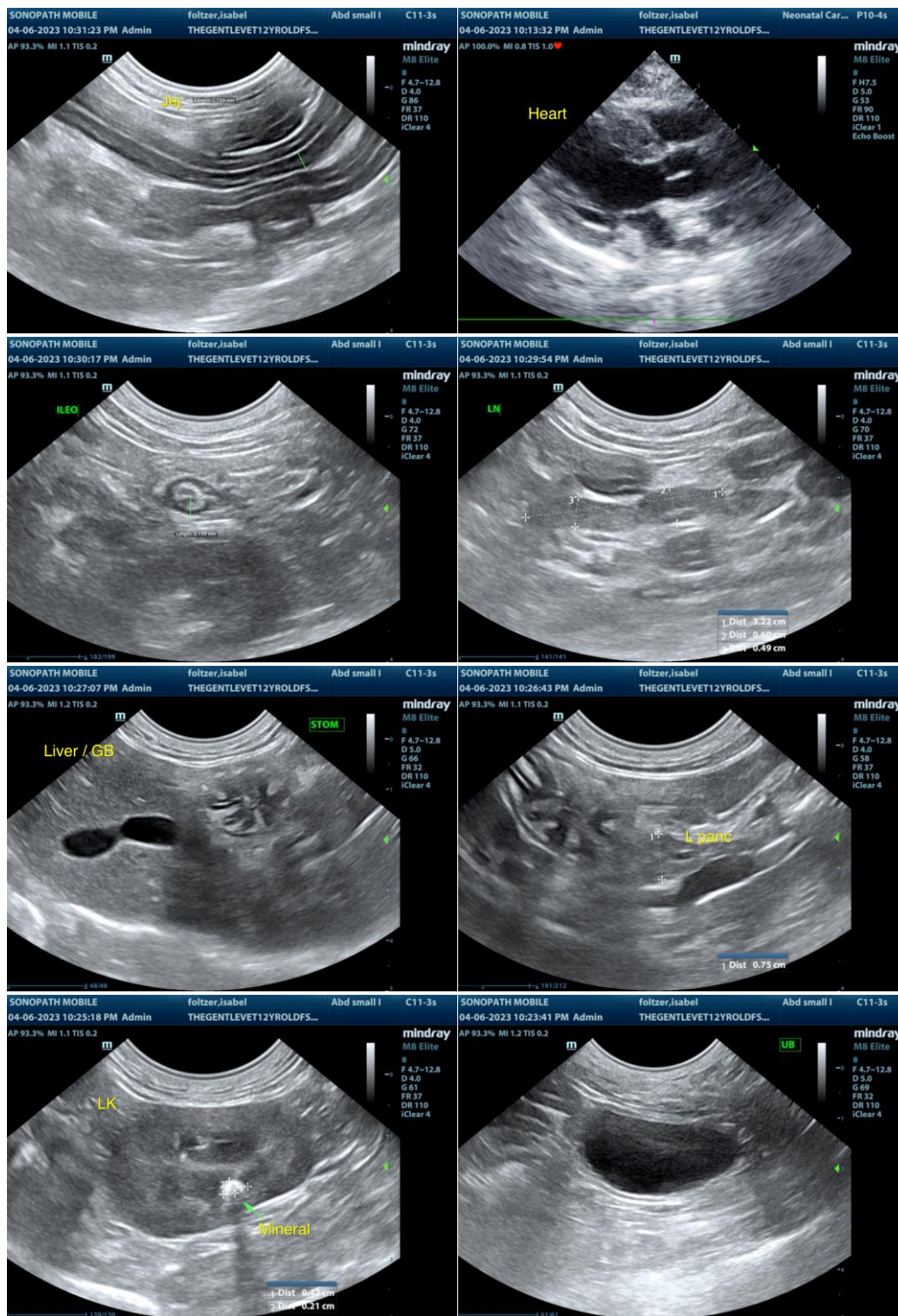
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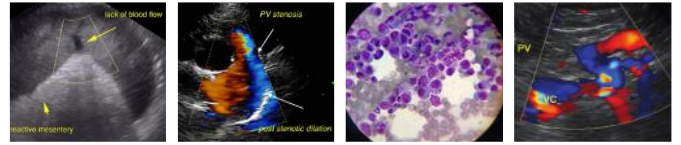
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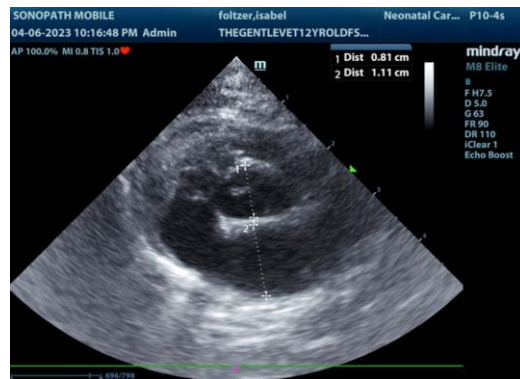
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

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