



PATIENT PRESENTING CLINICAL SIGNS

Mollie Elkovich History: heart murmur, weak, possible syncopal episode
 Abnormal PE/Chem/CBC/UA Results: WBC 2.17, neuts 1.51, lymphs 0.44, eos 0.04

SPECIES

Feline

BREED

Domestic Shorthair

SEX

Intact female

AGE

6 years

WEIGHT

8 lbs

INTERPRETED BY

Eric Lindquist, DMV
 DABVP, Cert. IVUSS

IMAGING PERFORMED BY

Diane McFadden, RVT

HOSPITAL NAME

Newton VH

REFERRING VET

ULTRASONOGRAPHIC EXAMINATION OF THE HEART

The **left atrium** was at the upper limits of normal. The cranial and caudal **mitral** valve leaflets appeared mildly thickened with some insufficiency noted on Doppler. **Left ventricular** hypertrophy was noted. The **myocardium** presented essentially normal echogenicity without immediate signs of fibrotic or ischemic disease. **Contractility** of the ventricular walls was considered excessive for this patient evidenced by the elevated fractional shortening measurement. The **left ventricular outflow** tract demonstrated turbulent laminar flow. Subjective assessment of the **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. Mild **tricuspid** insufficiency was noted. The **right ventricle** was of normal size with normal chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter. No visible **pericardial** or free pleura fluid was noted. No echographically detectable evidence of infiltrative disease was visible. The **mediastinum** was free of masses in the visible window.

FELINE CARDIAC PARAMETERS	BODY WEIGHT	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	8 lbs	NM	0.64	1.22	0.78		
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	1.9	1.5		1.1	1.0	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

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN
Urinary System

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The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes was noted. Ureteral papillae were normal.



PATIENT

Mollie Elkovich

The **kidneys** were swollen, yet technically within normal limits with normal structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The right kidney measured 4.33 cm. The left kidney measured 3.97 cm.

SPECIES

Feline

Adrenal Glands

BREED

Domestic Shorthair

Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The right adrenal gland measured 0.43 cm.

SEX

Intact female

Spleen

AGE

6 years

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes was noted.

WEIGHT

8 lbs

Liver

INTERPRETED BY

Eric Lindquist, DMV
DABVP, Cert. IVUSS

The **liver** images submitted revealed subjectively normal liver size, contour, and structure. Parenchymal echogenicity was naturally coarse and hypoechoic to the spleen. Vascular and biliary tracts were of normal volume with no evidence of congestion. The gallbladder presented acceptably thin walls with primarily anechoic content. Tortuous cystic duct was noted.

IMAGING PERFORMED BY

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Gastrointestinal

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Examination of the **gastrointestinal tract** revealed an unremarkable stomach and small intestine regarding structure. There were minor areas of luminal fluid noted. There was no evidence of obstructive pattern. Curvilinear patterns were retained throughout the gastrointestinal tract. Areas of hyperperistalsis were noted. This is consistent with response to irritation. The colon was unremarkable.

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Pancreas

The **pancreas** was hypoechoic and irregular in the left limb.

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PATIENT ULTRASONOGRAPHIC FINDINGS

Mollie Elkovich

Compensated left ventricular hypertrophy, hypertrophic cardiomyopathy phenotype, yet the left atrial size was borderline normal.

SPECIES

Gastroenteritis and pancreatitis pattern with swollen kidneys.

Feline

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

BREED

I recommend treatment for gastroenteritis and pancreatitis in this patient. However, fluid therapy should be not more than 1.3-1.4 maintenance and the respiratory rate should be monitored. Full urinalysis is warranted as well to assess for any inflammation associated with the kidneys given the swollen contour. There was no overt evidence of neoplasia.

Domestic Shorthair

SEX

The heart is not in failure at this time; however, there is heart disease. I am more concerned about the gastrointestinal and pancreatic presentation.

Intact female

AGE

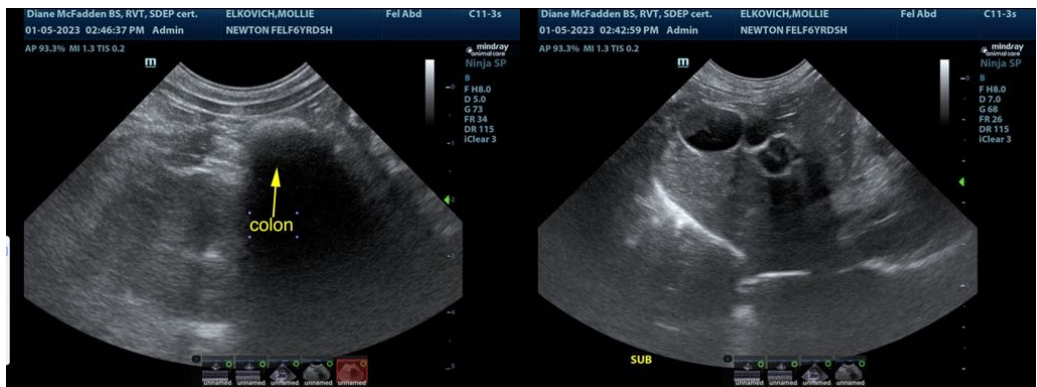
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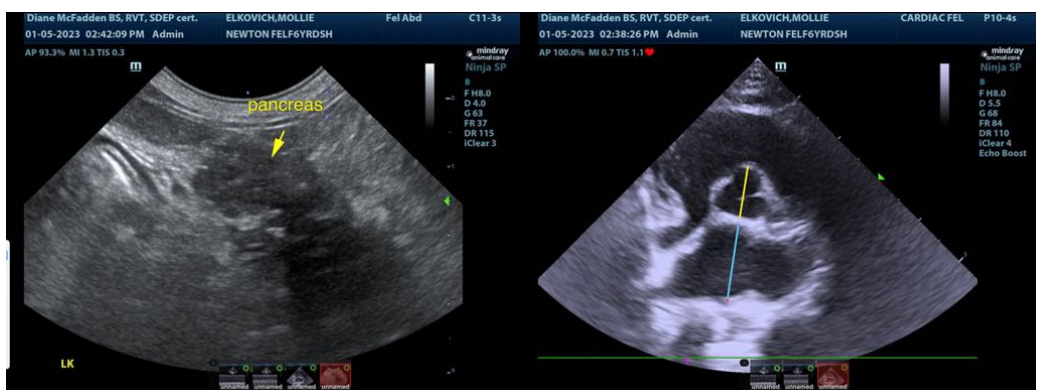
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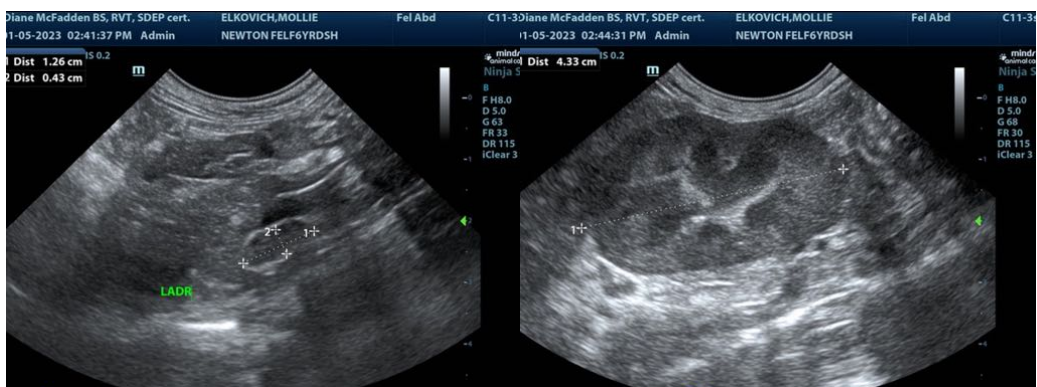
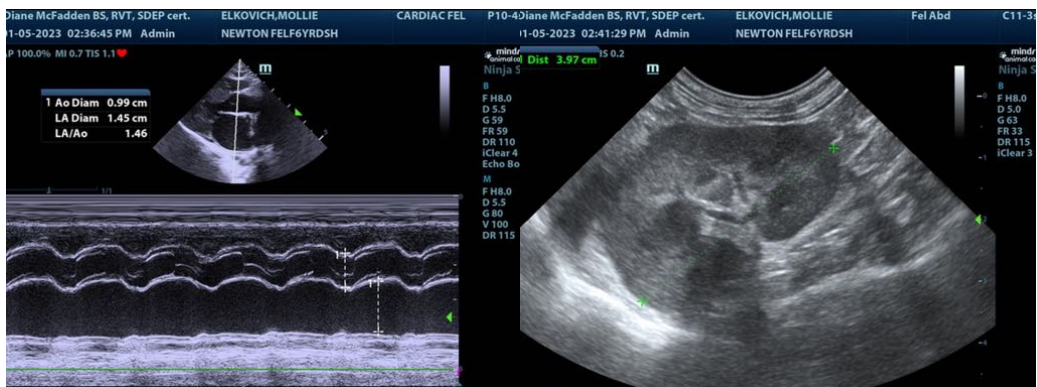
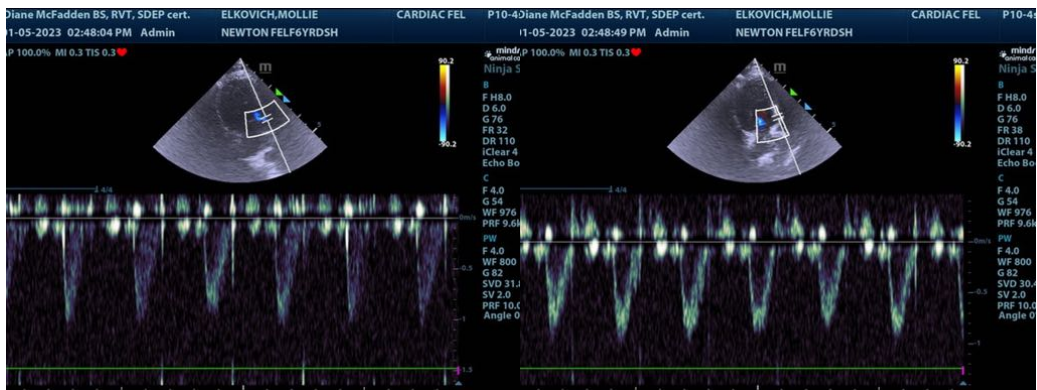
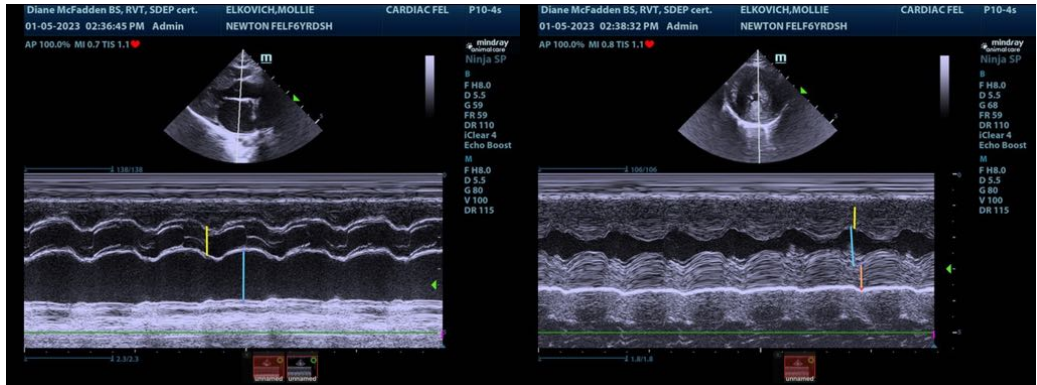
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Mollie Elkovich

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.

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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.

BREED

Domestic Shorthair

Eric Lindquist, DMV, DABVP, Cert. IVUSS, CEO of SonoPath.com
Info@SonoPath.com

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