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Clinical Sonography & Telecytology
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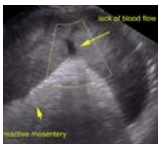
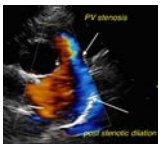
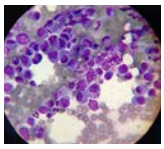
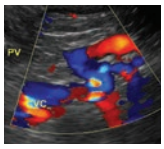





SonoPath.com
1-800-838-4268 info@sonopath.com

PATIENT
Lulu Becker

SPECIES
Feline

BREED
Persian

SEX
Spayed Female

AGE
13 Years

WEIGHT
4.3

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

IMAGING PERFORMED BY
Jenn

HOSPITAL NAME
Rockaway AH

REFERRING VET
Dr. Maniar

INVOICE
25230

DATE
9/8/21

PRESENTING CLINICAL SIGNS

bi cavity effusion weight loss

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		150	0.39	2.0	0.26	28	58.2
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		2.1	1.9		NM	0.8	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

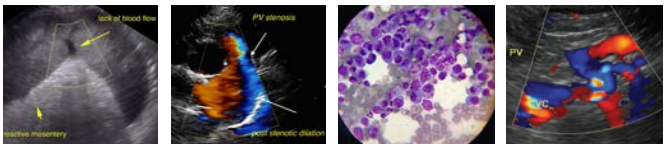
Cardiac Presentation

The echocardiogram in this patient demonstrated moderately enlarged **left atrial** size based on 3 separate LA measurements. Anechoic content was present without overt evidence of spontaneous contrast or emerging thrombus. The cranial and caudal **mitral** valve leaflets presented normal linear structure and kinetics. Color doppler assessment revealed minor insufficiency. The **left ventricular** septum and free wall revealed normal septal and mild subnormal free wall thicknesses, subnormal contractility and increased left ventricular volume, with some echogenic remodeling of the septum and free wall, consistent with potential **myocardial fibrosis**. Prominent papillary muscles were noted within the left ventricular lumen. 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. Color doppler assessment of the tricuspid valve revealed minor insufficiency. The **right ventricle** was enlarged in size with normal chordae structure, myocardial echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx.1:1 pa/ao ratio). Mild free pleural and potential pericardial effusion was present without evidence of extracardiac pathology, cranial mediastinum or pericardial masses in the visible window.

Urinary System

The urinary bladder normal thickness and tone. Primarily anechoic urine was present in the lumen. Moderate non-dependent, particulate 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.

Normal renal size with asymmetrical margination was present in both kidneys. The renal cortex presented uniformly increased in echogenicity with uniform echotexture. The renal cortex appeared to



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be hypertrophied resulting in an altered cortex: medulla ratio. Mild loss of corticomedullary distinction was also present. The renal medullary volume was subjectively reduced.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.50 cm. The left adrenal gland measured 0.50 cm.

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

The liver presented enlarged in size with symmetrical yet swollen contour. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. Prominent cranial abdominal caudal vena cava noted without evidence of thrombosis. Cranial abdominal caudal vena cava width measured 0.68 cm. The gallbladder was non distended in size with mild, echogenic, nonmineralized biliary sludge. The cystic duct and common bile ducts were normal without evidence of dilation.

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 parenchyma of the left limb, body and right limb of the pancreas presented isoechoic to the adjacent omental fat. A normal curvilinear capsule contour of the pancreas was present. The visible pancreatic duct was normal. No signs of active inflammation or neoplastic disease was evident.

Free Abdomen

Concurrent mild, subjectively acellular peritoneal free fluid was present.

ULTRASONOGRAPHIC FINDINGS

- Unclassified cardiomyopathy with systolic dysfunction
- Mild mitral valve and tricuspid valve insufficiency
- Moderate urinary bladder sediment – suspect cellular or crystalline debris
- Bilateral chronic interstitial nephrosis renal pattern
- Congestive hepatopathy pattern

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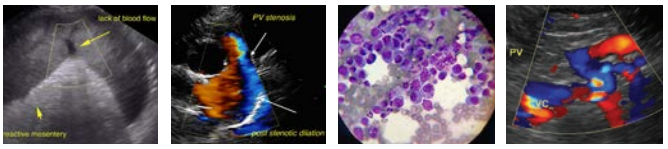

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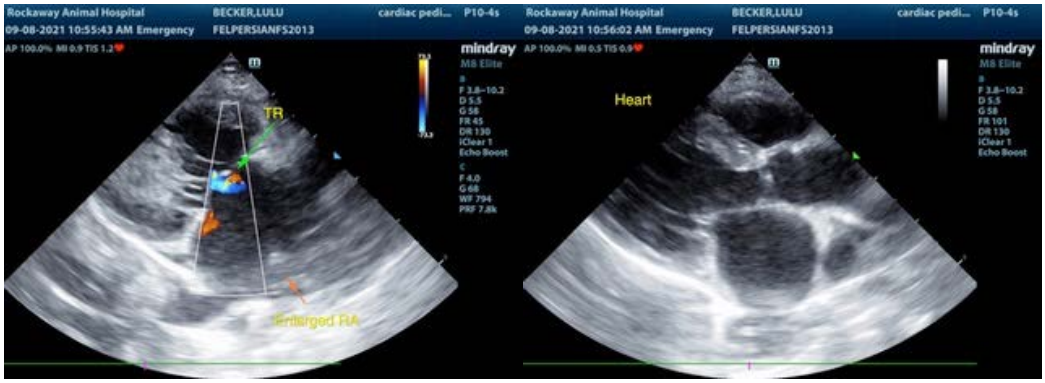
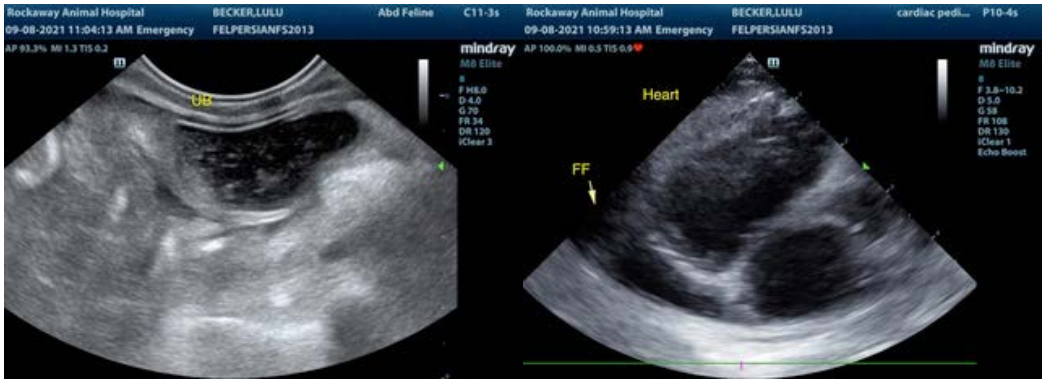
INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The finding of biatrial enlargement in the face of normal to potential subnormal left ventricular wall thicknesses is consistent with unclassified cardiomyopathy. However, restrictive or burnout/end stage (HCM) can have this appearance. Some degree of myocardial remodeling and potential fibrosis in addition to systolic dysfunction (as evidenced by the subnormal fractional shortening) was present. This patient is at increased risk for thrombus formation given the left atrial enlargement. The echocardiographic findings in addition to congestive hepatopathy pattern and bicavitary effusion is consistent with cardiogenic effusion.

Correlation with effusion analysis cytology +/- culture and sensitivity (if clinically indicated) may be considered. Long-term prognosis is likely poor. However, medical therapy, which may include hospitalization with injectable Lasix and as-needed oxygen until the patient is stabilized, Lasix 1-2 mg/kg PO BID, Clopidogrel ¼ 75 mg tab SID, as well as off label Pimobendan at 1.25 mg PO BID, is recommended. Monitoring of blood pressure, renal values, and ideally ECG is recommended. Recheck echocardiogram suggested in 3-6 months, sooner if consistent signs of congestive heart failure are noted.





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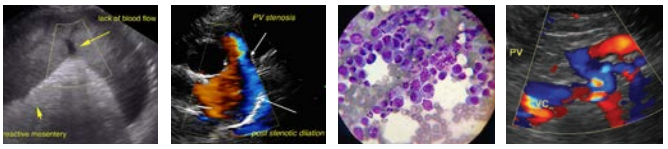

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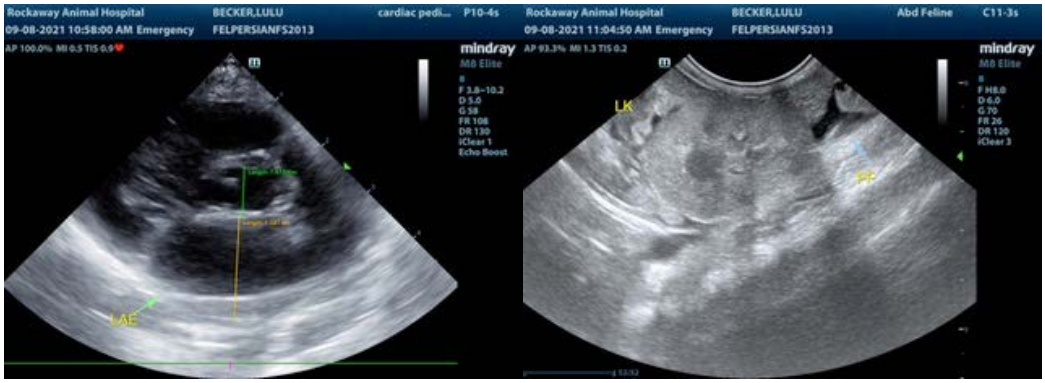

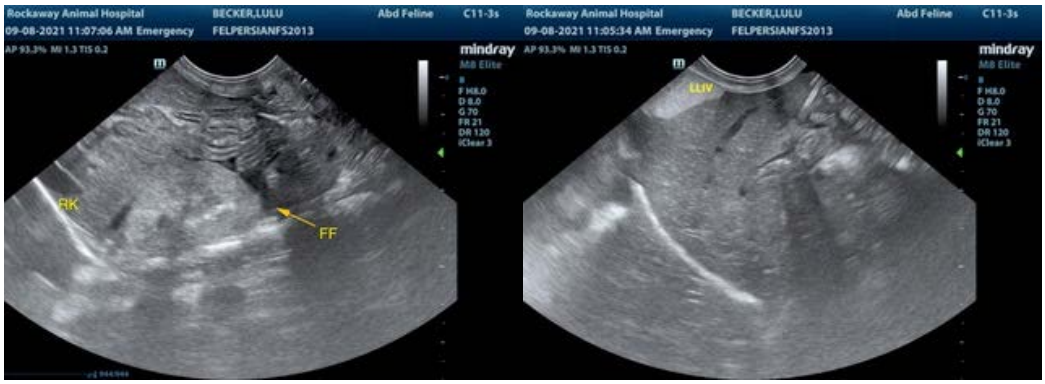

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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