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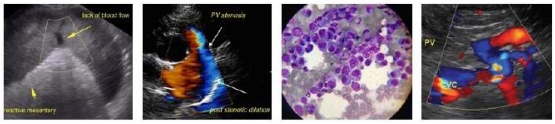


THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT

Shmily Rose

SPECIES

Feline

BREED

DSH

SEX

MN

AGE

17 Years

WEIGHT

9.1kg

INTERPRETED BY

R. McKenzie Daniel, DVM, DABVP

IMAGING PERFORMED BY

Kelly Reshny, RVT

HOSPITAL NAME

Halton Peel AH

REFERRING VET

Walters

INVOICE

50724

DATE

3-4-22

PRESENTING CLINICAL SIGNS

anorexia, lethargy, kidney disease, heart murmur
Abnormal PE/Chem/CBC/UA Results: Please see attached BW

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		167	0.83	1.28	0.71	57.8	92.2
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	1.2	1.0	1.4		1.6	1.2	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

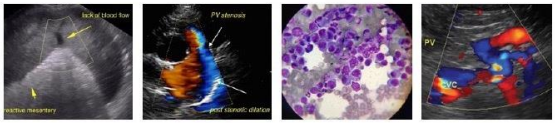
Cardiac Presentation

The echocardiogram in this patient demonstrated normal **left atrial** size and structure with no evidence of "smoke" or thrombi. The cranial and caudal **mitral** valve leaflets appeared mildly thickened with trace insufficiency noted on Doppler. Potential for mild systolic anterior motion (SAM) of the mitral valve. The **left ventricle** presented excessive free wall and septal thicknesses with evidence of hypertrophy, increased endocardium echogenicity with potential for fibrosis. **Contractility** of the ventricular walls was considered excessive for this patient evidenced by the elevated fractional shortening measurement. The **left ventricular outflow** tract demonstrated mild turbulent to dynamic flow. Subjective assessment of the **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated linear morphology. 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.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 2.0 cm exhibited normal thickness and tone. Mild to moderate dependent mineral / sand present. Anechoic urine was present in the lumen. The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic changes were noted.

No evidence of pathology in the area of the aortic trifurcation.



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Normal renal size with asymmetrical margination was present in both kidneys. The renal cortex presented uniformly increased in echogenicity with uniform echotexture. Increased medullary echogenicity with areas of mineralization to small renoliths. 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. Small cortical infarcts present in both kidneys but most prominent in the right kidney. The left kidney measured 3.4 cm in length. The right kidney measured 3.6 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 0.3 cm. The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.24 cm.

Spleen

The spleen exhibited primarily finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Intermittent small hyperechoic nodules were present throughout the cranial to caudal 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 or neoplastic changes were not noted. The echogenic nodules tend to trend benign and are most consistent with benign hyperplasia or myelolipomas. The spleen measured 0.9 cm width.

Liver

The liver was subjectively normal in size, structure, and contour. Intermittent parenchymal cysts to cystic nodules were present. 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. Minor retained nonshadowing ingesta/chyme was present. No evidence of ileus, obstruction or foreign material. The gastric body wall measured 0.25 cm width.

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. The jejunum wall measured 0.22 cm width.

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

No overt lymphadenopathy or peritoneal effusion was present.

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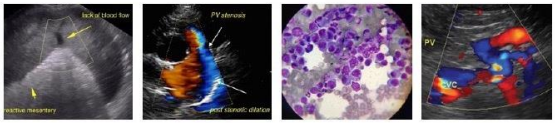

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ULTRASONOGRAPHIC FINDINGS

Primary

- Compensated HCM with potential minor systolic anterior motion of the mitral valve (HOCM).
- Normal left atrium.
- Trace MR.
- Mild to moderate dependent urinary bladder mineral/sand.
- Bilateral chronic degenerative renal changes with medullary mineral/nonobstructive renolithiasis and cortical infarcts.
- Overtly normal gastrointestinal tract.
- Small likely benign splenic nodules - consistent with probable myelolipomas, nodular hyperplasia, previous infarct.
- Intermittent hepatic cyst to cystic nodules - subjectively benign, suspect benign cystic biliary adenomas.

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Hypertrophic cardiomyopathy is a rule out diagnosis assuming the patient is euthyroid (present in this case) and normotensive. Assessment of the blood pressure recommended to rule out contributing factor. The source of the murmur may essentially equate to a physiologic or flow murmur although some degree of minor dynamic LVOT obstruction secondary to minor SAM could be present. The measured LVOT velocity was not overtly consistent with significant obstruction if present. Regardless, the lack of left atrium enlargement in overall normal cardiac functionality indicate that the risk of current complication is low. No overt indication for cardiac medications. Recheck echocardiogram suggested in 6 months to assess for progression, sooner if clinical signs arise.

Further renal staging to include urine C/S and protein: creatinine ratio on sterile urine sample may be considered.

Potential for low grade pancreatitis or structurally insignificant gastrointestinal disease, both of which may present sonographically unremarkable, cannot be excluded. Further assessment may include a GI panel to include PLI/TLI/Cobalamin/Folate.

Empirically, CRD therapy with as needed gastrointestinal support recommended.

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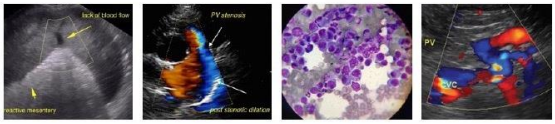

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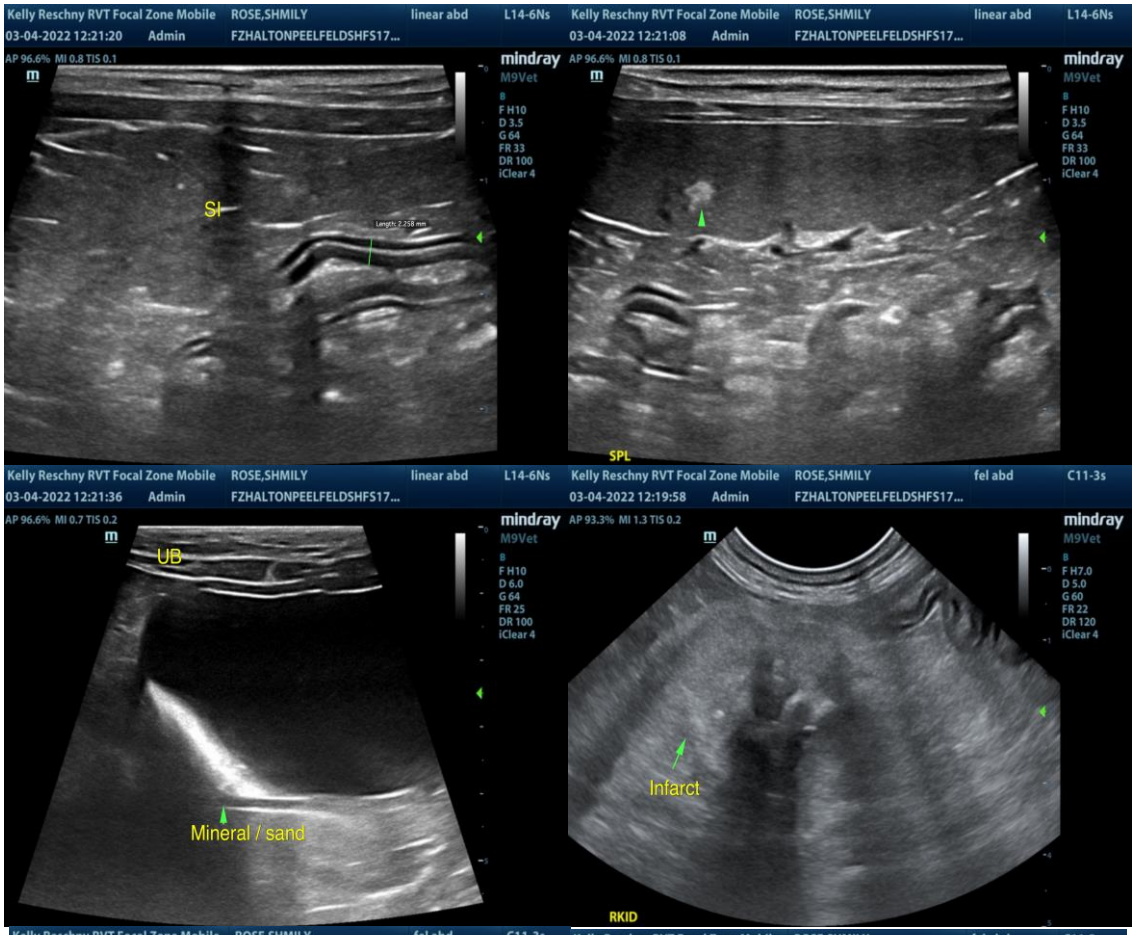

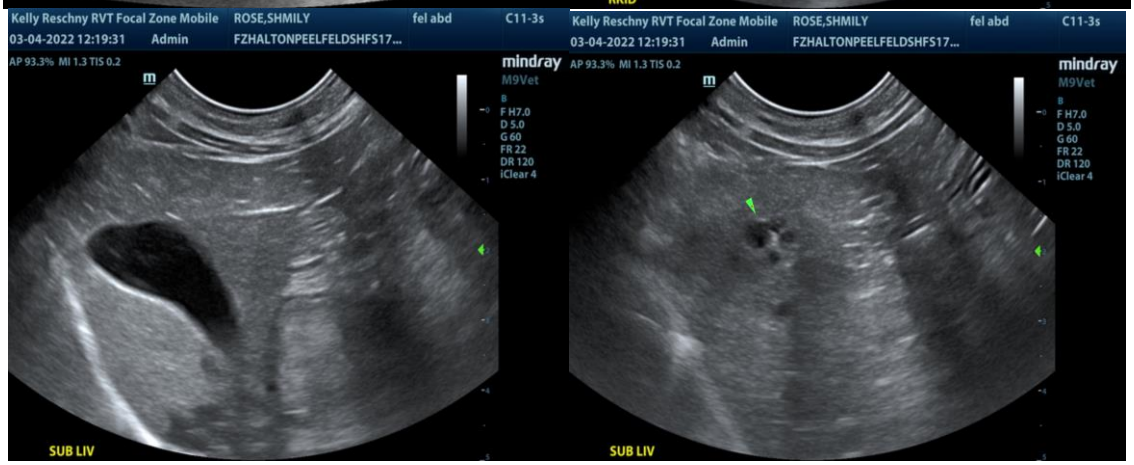

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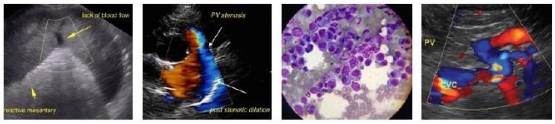

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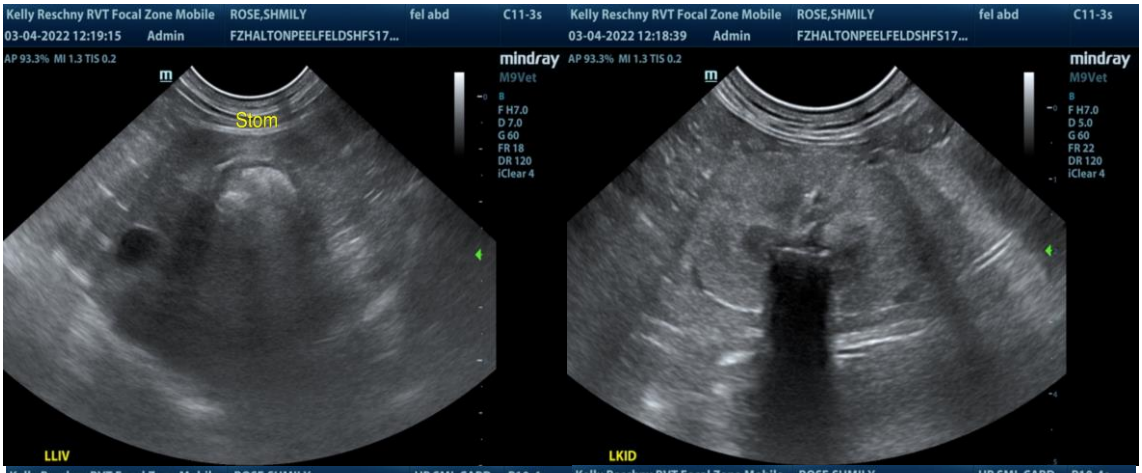

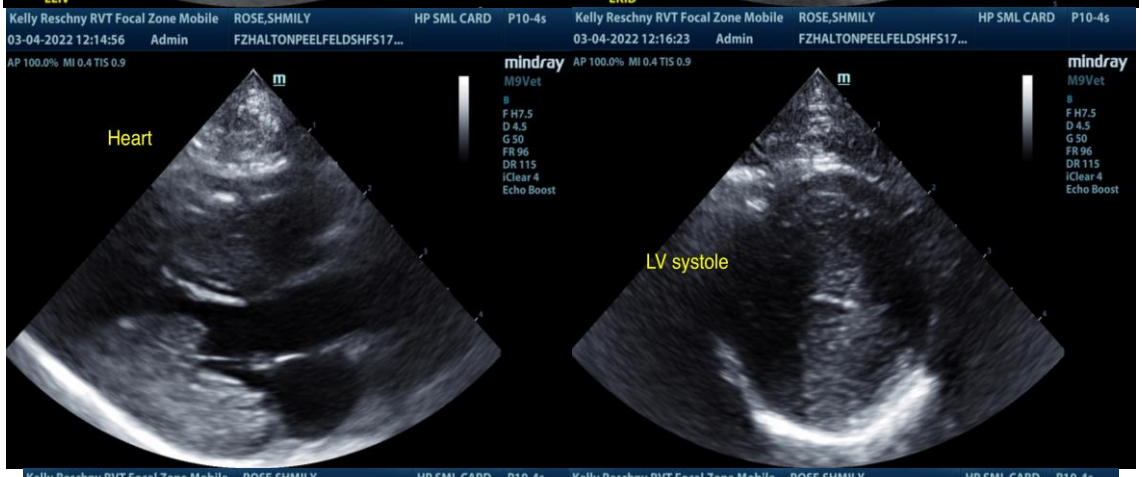

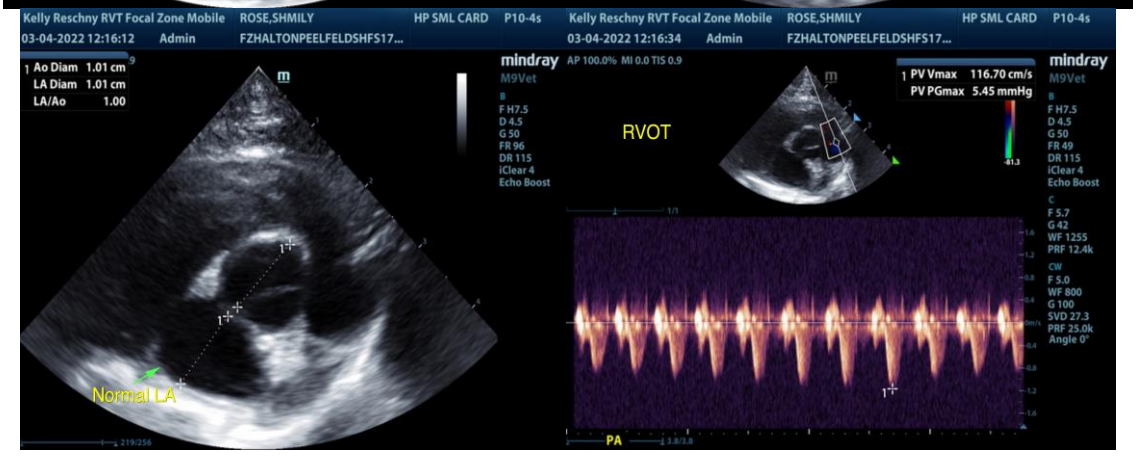

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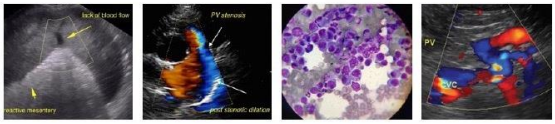

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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.

R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)

info@SonoPath.com