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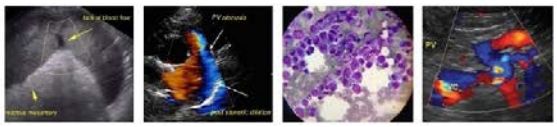


THE FOCAL ZONE
IMAGING PERFORMED BY
289-808-2608 info@thefocalzone.com

PATIENT

Finian Kingston

SPECIES

Feline

BREED

DSH

SEX

Neutered Male

AGE

14 Years

WEIGHT

3.2 kg

INTERPRETED BY

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

IMAGING PERFORMED BY

Crystal Hill

HOSPITAL NAME

Hamilton Region EC

REFERRING VET

Dr. Rubino

INVOICE

26596

DATE

10/22/21

PRESENTING CLINICAL SIGNS

History of hyperthyroidism, not well controlled, current levels 194. 3-4day history of sudden onset not eating and open mouth breathing. Has Uveitis being treated for as well. Heart murmur grade 3-4/6 and body condition 2/5. Was being treated with transdermal methimazole. Currently on IVF,Ampicillin, Methadone, Felimazole, Baytril, Cerenia and Alfaxan.
Abnormal PE/Chem/CBC/UA Results: Nothing obvious on rads, could not obtain VD thorax due to distress.

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		180	0.60	1.25	0.66	47.2	84.6
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		1.2	1.42		1.3	0.94	NM

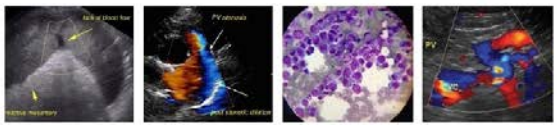
Adapted from June Boon,Veterinary Echocardiography,1998
Sisson D et al. JVIM 1991; 5: 232, Jacobs et al. Am J Vet Res 1985; 46:1705

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 some insufficiency noted on Doppler. The **left ventricle** presented mild excessive free wall and septal thicknesses with hypertrophic thicknesses compared to normal for this species. Prominent papillary muscles were present in the left ventricular lumen. 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. **Tricuspid** valvular assessment demonstrated linear morphology. Tricuspid regurgitation velocity of 1.2. 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. Primarily anechoic urine was present in the lumen. Non-dependent to mildly congealed yet mobile particulate sediment was present without evidence of calculus formation.



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The ureteral papillae were normal. The ureters were not visible which is normal. No evidence of inflammatory or neoplastic mural changes were noted.

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 loss of corticomedullary symmetry and definition expected for the age of the patient. No evidence of pelvic dilation was present. The left kidney measured 3.6 cm. The right kidney measured 4.0 cm.

The area of the aortic trifurcation was free of pathology.

Adrenal Glands

The adrenal glands were uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.42 cm in width. The right adrenal gland measured 0.32 cm in 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 0.96 cm in width.

Liver

The liver was normal in size with mild generalized yet uniform increased parenchyma echogenicity compared to falciform fat. The echotexture of the liver parenchyma was uniform with a mild coarse echotexture. The capsule of the liver was symmetrical in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non-distended in size with primarily anechoic luminal content. The proximal common bile duct was dilated (0.20 cm diameter) and did not appear to extend to the level of the duodenal papilla. This finding may suggest age related changes or secondary to underlying cholangitis / cholangiohepatitis especially if previous or current liver enzymes elevations have been noted.

Gastrointestinal

The stomach presented intact wall layering with a normal wall layer ratio. Minor retained anechoic pyloric fluid present. Pylorus wall measured 0.24 cm.

The small intestine presented intact wall layering with 1:3 muscularis/mucosa ratio. Segmental minor metabolic jejunal ileus was present. No evidence of mechanical obstruction. Ileocolic wall measured 0.35 cm. Jejunum wall measured 0.23 cm.

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

Intermittent, mildly prominent to enlarged mesenteric nodes were present. Example measured 1.5 cm x 0.44 cm. The lymph node was essentially isoechoic to adjacent omentum without evidence of peripheral inflammation and maintaining a normal width: length ratio (<0.5).

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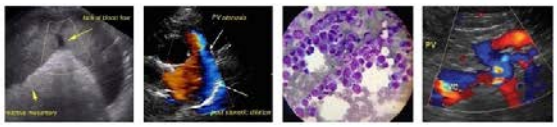

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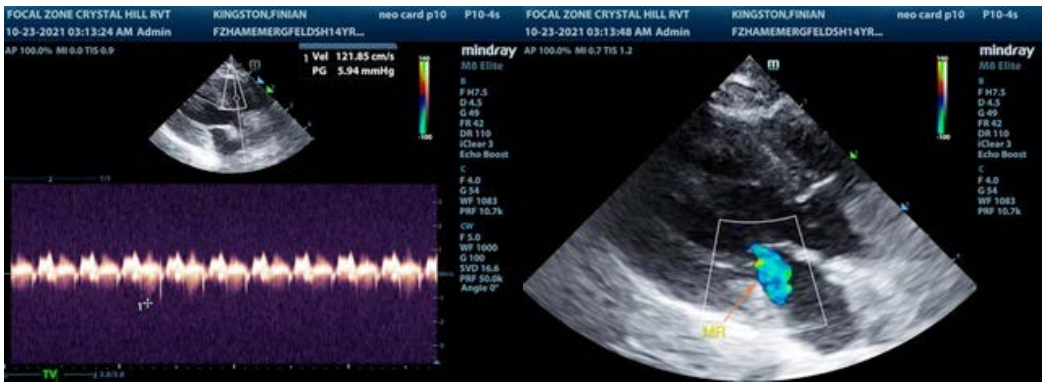
ULTRASONOGRAPHIC FINDINGS

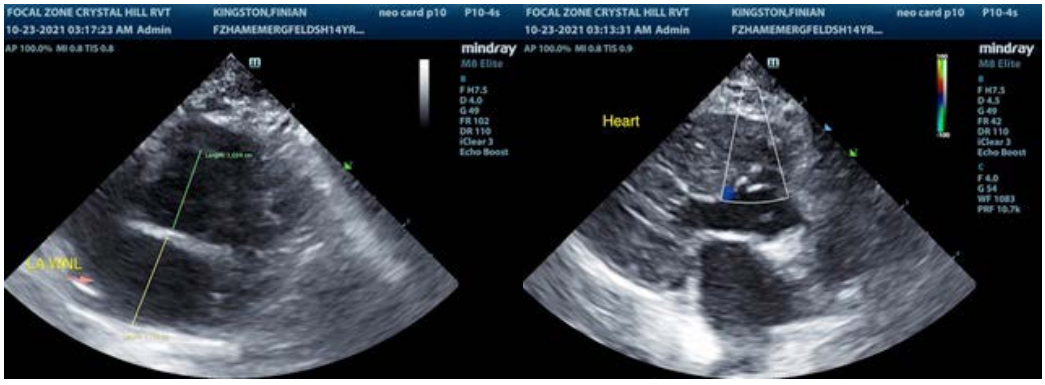
- Compensated, subjectively mild HCM with mild mitral regurgitation
- Normal left atrium – no evidence of thrombus formation
- Moderate urinary bladder sediment – likely cellular or crystalline debris with potential mucus
- Moderate chronic renal changes
- Mild retained pyloric fluid and segmental mild metabolic jejunal ileus – potential for mild gastritis, gastric stasis, and segmental jejunitis.
- Mild uniform echogenic liver with mild proximal non-obstructive common bile duct dilation
- Intermittent, subjectively benign/reactive mesenteric lymph nodes

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The lack of left atrial enlargement not conducive with thrombus formation as well as no evidence of systolic dysfunction or clinical pulmonary hypertension may suggest that the open mouth breathing in this patient may be non-cardiogenic in origin. The exception to this rule may include iatrogenic or stress induced decompensation, which may be seen with normal left atrial dimensions. If clinically indicated, an appropriate diuretic trial may be considered with assessment of clinical response, specifically if evidence of pulmonary edema is noted.

The appearance of the liver and proximal common bile duct may suggest some degree of hepatobiliary inflammation if previous history of hepatic enzyme elevations. Urinalysis +/- urine culture and sensitivity suggested if evidence of inflammatory cells. Continued as needed gastrointestinal support indicated.





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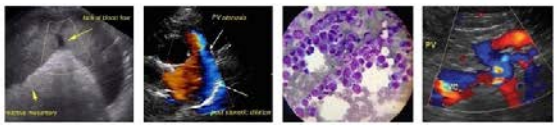

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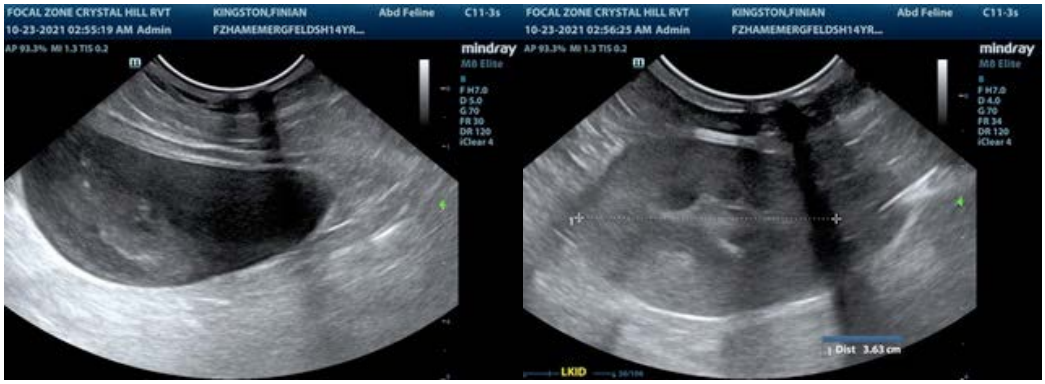

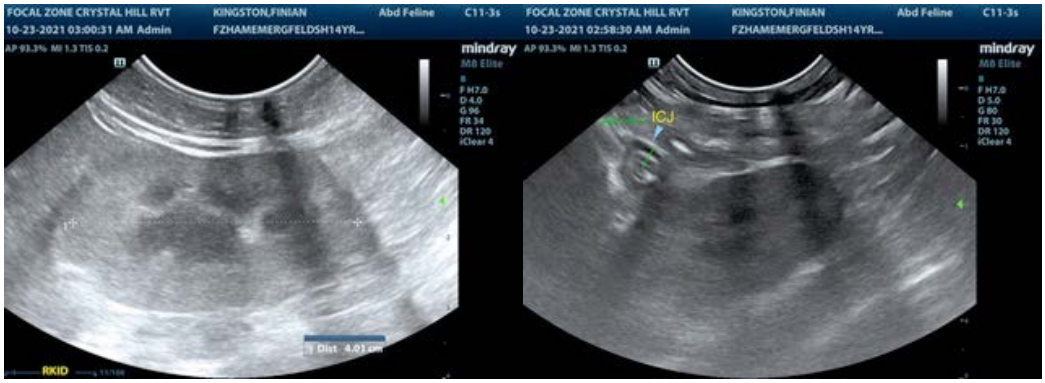

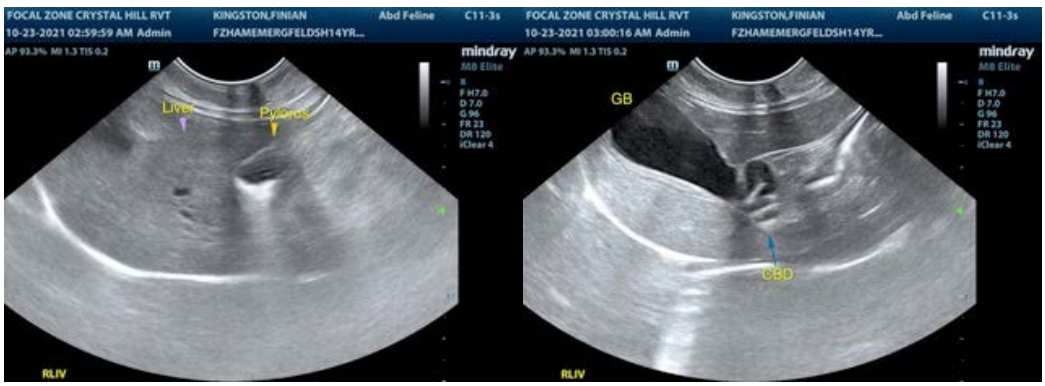

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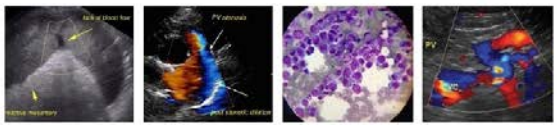

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The information and recommendations provided are based on the images presented by the referring veterinarian. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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