


**PATIENT PRESENTING CLINICAL SIGNS**

Bauer Brooks

-presented for dehydration, anorexia, weakness on Jan 10th. Today Systolic murmur 4/6 acquired, which was previously 1-2/6 on Jan 10th. BP 173/88 - 163/90 - 170/77 pantoprazole, metronidazole, cerenia, KCL in IV bag

**SPECIES**

Canine

Abnormal PE/Chem/CBC/UA Results: increase in liver enzymes mild anemia systolic murmur grade 4/6 - acquired - was grade 1-2 on Jan 10th, today is 4/6. Abnormal gas pattern on rads

**BREED**

Havanese

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN**
**SEX**

MN

**AGE**

13 years

**WEIGHT**

7.65 kg

**INTERPRETED BY**

 R. McKenzie Daniel,  
 DVM, DABVP

CANINE	MR	TR	LA/AO	LA/AO	FS	EF	EPSS
<b>CARDIAC PARAMETERS</b>	<b>VMAX</b> (m/s)	<b>VMAX</b> (m/s)	(Boon method)	(Heart Base; Swe)	(%)	(%)	(cm)
<b>NORMAL PARAMETER</b>	4.5-5.5	<2.7	1.3	<1.6	28-40	40-100	<0.6
<b>PATIENT</b>	4.4	1.5	1.4	1.2	39.3	73.1	0.25
CANINE	HR	AV	PV	BODY WEIGHT	LA	LVIDd	LVIDs
<b>CARDIAC PARAMETERS</b>	(BPM)	<b>VMAX</b> (m/s)	<b>MAX</b> (m/s)	(kg)	2D short axis Base view (cm)	Avg; 2D and m-mode short axis (cm)	Avg; 2D and m-mode short axis (cm)
<b>NORMAL PARAMETER</b>	50-100	0.7-1.7	0.7-1.6	BELOW	BELOW	BELOW	BELOW
<b>PATIENT</b>	94	1.0	0.8		3.0	2.8	

**IMAGING PERFORMED BY**

Crystal Hill

**HOSPITAL NAME**

Headon Forest AH

**REFERRING VET**

Dr. Vanmonsjou

**INVOICE**

13018

**DATE**

1/10/22

**Cardiac Presentation**

The echocardiogram in this patient demonstrated normal **left atrial** size based on 3 different LA measurement methods. Chamber volumes and echogenicity were normal. The cranial and caudal **mitral** valve leaflets presented vegetative thickening consistent with endocardiosis. Doppler indicated measurable eccentric mitral valve insufficiency. No evidence of chordae tendineae rupture or valvular prolapse. The **left ventricle** presented thicknesses with linear contour and was not dilated nor restricted. The **myocardium** presented normal echogenicity without subjective evidence of significant fibrotic or ischemic disease. **Contractility** of the ventricular walls was adequate and in normal range for this patient evidenced by the fractional shortening measurement and subjective evaluation of the different regions of the myocardium. The **left ventricular outflow** tract demonstrated normal laminar flow and subjective structural integrity. The **right atrium** and auricle revealed normal size, structure and content. No evidence of masses was noted or chamber overload. **Tricuspid** valvular assessment demonstrated adequate linear morphology. Mild TV Insufficiency was noted on color doppler assessment. 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



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noted. No echographically detectable evidence of infiltrative disease was visible. The cranial **mediastinum and pericardial regions** were free of masses in the visible window.

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**Urinary System**

The urinary bladder, trigone, and cystourethral junction 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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No overt pathology was noted in the area of the residual prostate.

The area of the aortic trifurcation was free of pathology.

**SEX**

MN

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. A focal cortical cyst was present in the left kidney. No evidence of pelvic dilation was present. The left kidney measured 4.6 cm in length. The right kidney measured 4.9 cm in length.

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**Adrenal Glands**

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The left adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The left adrenal gland measured 0.55 cm width at the caudal pole and 0.41 cm width at the cranial pole.

The right adrenal gland was mild prominent in size with uniformly hypoechoic parenchyma. The right adrenal gland measured 0.77 cm width at the caudal pole and 0.81 cm width at the cranial pole.

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**Spleen**

The spleen exhibited primarily finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Variably sized, well-demarcated to indistinct, echogenic 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. These nodules are not overtly consistent with neoplastic criteria with likely benign myelolipomas, hyperplasia, previous infarctions, or emerging mineralization suspected.

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**Liver/ Gallbladder**

**REFERRING VET**

Dr. Vanmonsjou

The liver exhibited generalized enlargement with symmetrical to mildly swollen hepatic contour and generalized mild yet uniform decreased parenchyma echogenicity. A solitary, mildly expansive, hypoechoic yet nonspecific nodule was noted in the caudate liver lobe, measuring approximately 2.9 cm x 1.8 cm. The gallbladder contained moderate biliary sludge exhibiting mixed echogenicity yet nonorganized. The gallbladder debris occupied the majority of the gallbladder lumen. The gallbladder walls were sonographically unremarkable without evidence of gallbladder or peripheral inflammation. The cystic duct and common bile ducts were normal without evidence of dilation.

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**Gastrointestinal**

The stomach presented intact yet subjective mild prominent wall layering. The lumen of the stomach was empty with mild luminal gas with no signs of ileus, obstruction, or foreign material.



<b>PATIENT</b>	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.
Bauer Brooks	Normal visible colon wall layers were present with apparent formed feces in lumen.
<b>SPECIES</b>	<b><i>Pancreas</i></b>
Canine	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 to generalized primarily cranial abdominal reactive mesentery. No overt evidence of neoplasia.
<b>BREED</b>	
Havanese	<b><i>Free Abdomen</i></b>
<b>SEX</b>	Small pockets of scant peritoneal free fluid were present. No overt lymphadenopathy was present.
MN	<b>ULTRASONOGRAPHIC FINDINGS</b>
<b>AGE</b>	<b><i>Primary Findings</i></b>
13 years	<ul style="list-style-type: none"> <li>• Compensated chronic mitral valve disease (ACVIM B1)</li> <li>• Minor TR - estimated pulmonary pressure gradient not consistent with clinical pulmonary hypertension</li> <li>• Hepatomegaly exhibiting subjective decreased parenchyma echogenicity and nonspecific hypoechoic caudate lobe nodule</li> </ul>
<b>WEIGHT</b>	<ul style="list-style-type: none"> <li>• Pancreatitis</li> <li>• Mild chronic renal changes</li> <li>• Mildly prominent right adrenal gland - nonspecific</li> </ul>
<b>INTERPRETED BY</b>	<ul style="list-style-type: none"> <li>• Generalized primarily mid to cranial abdominal reactive mesentery and mild volume free fluid</li> <li>• Probable benign splenic nodules, no overt evidence of neoplastic splenic criteria</li> <li>• Moderate gallbladder debris - not consistent with clinical mucocele</li> </ul>
R. McKenzie Daniel, DVM, DABVP	
<b>IMAGING PERFORMED BY</b>	
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<b>HOSPITAL NAME</b>	<b><u>INTERPRETATION OF THE FINDINGS &amp; FURTHER RECOMMENDATIONS</u></b>
Headon Forest AH	The cause of the murmur is most likely secondary to chronic degenerative valvular changes and secondary eccentric mitral valve Insufficiency. Potential for changes in murmur intensity may be secondary to volume changes i.e., dehydration. The lack of left atrium enlargement or other clinical Issues such as systolic dysfunction or evidence of clinical pulmonary hypertension indicates that the risk of current complication is low. No indication for cardiac medications was noted at this time. Recheck echocardiogram is suggested in 6 months, sooner If clinical signs suggestive of heart disease initiate.
<b>REFERRING VET</b>	Reactive, vacuolar, inflammatory, or neoplastic hepatomegaly are possible. Ultrasound-guided FNA of the liver, or specifically, the caudate lobe nodule if accessible, assuming normal clotting status and using a 25-gauge needle, is warranted for screening cytology.
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The mildly prominent right adrenal gland was nonspecific and may be secondary to stress hyperplasia, patient variant, without overt evidence of neoplastic criteria. If persistent evidence of hypertension, urine catecholamine levels could be considered.

**SPECIES**

Canine

Empirically, medical therapy for pancreatitis with as-needed gastrointestinal and hepatic support with an assessment of clinical response, is recommended. Recheck sonogram to assess for progressive inflammatory pancreatic, hepatic, or gastrointestinal changes if persistent clinical signs, is recommended.

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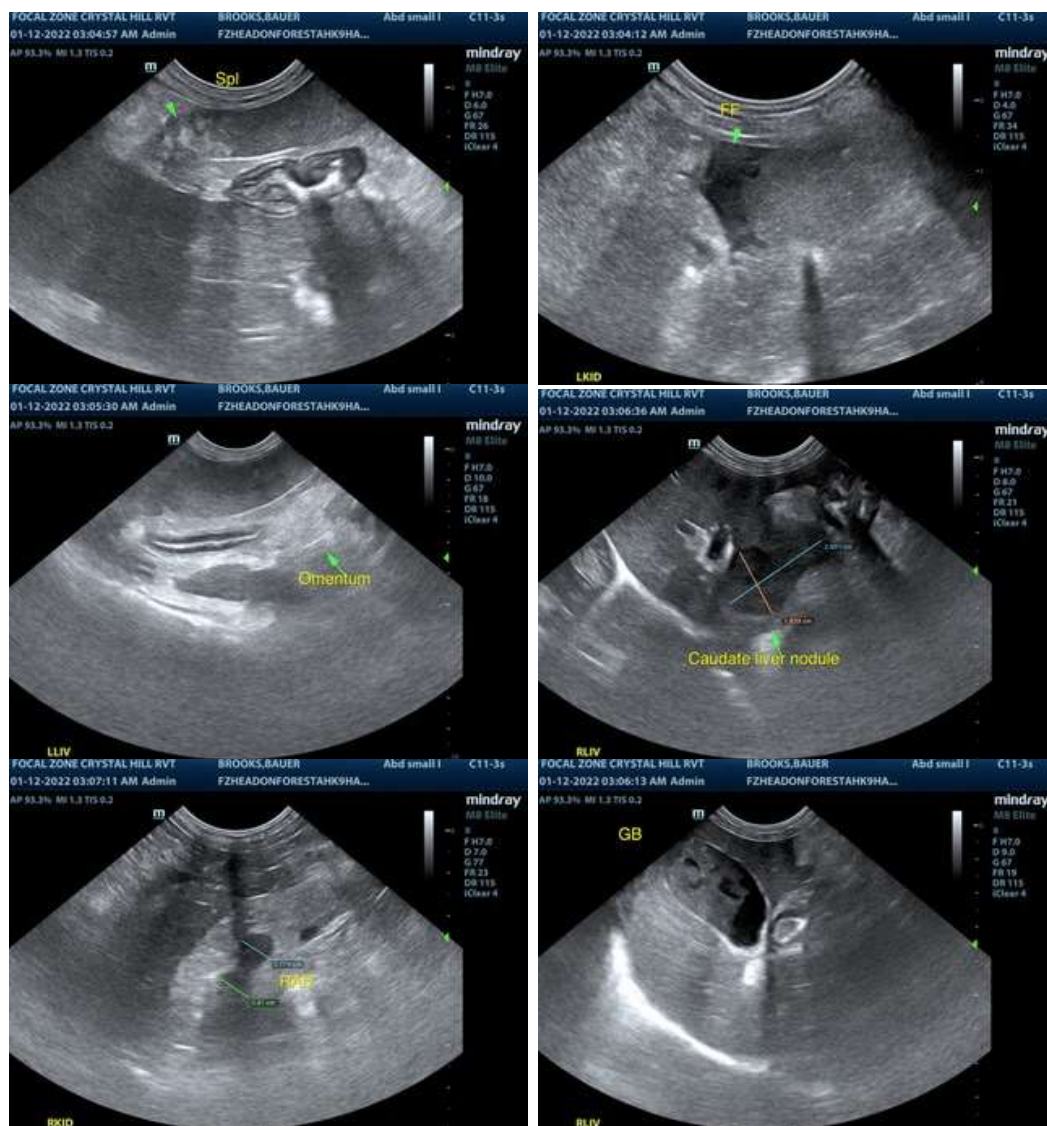
Dr. Vanmonsjou

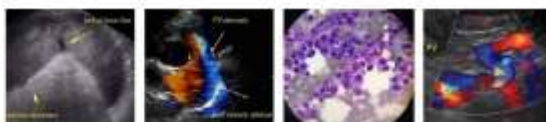
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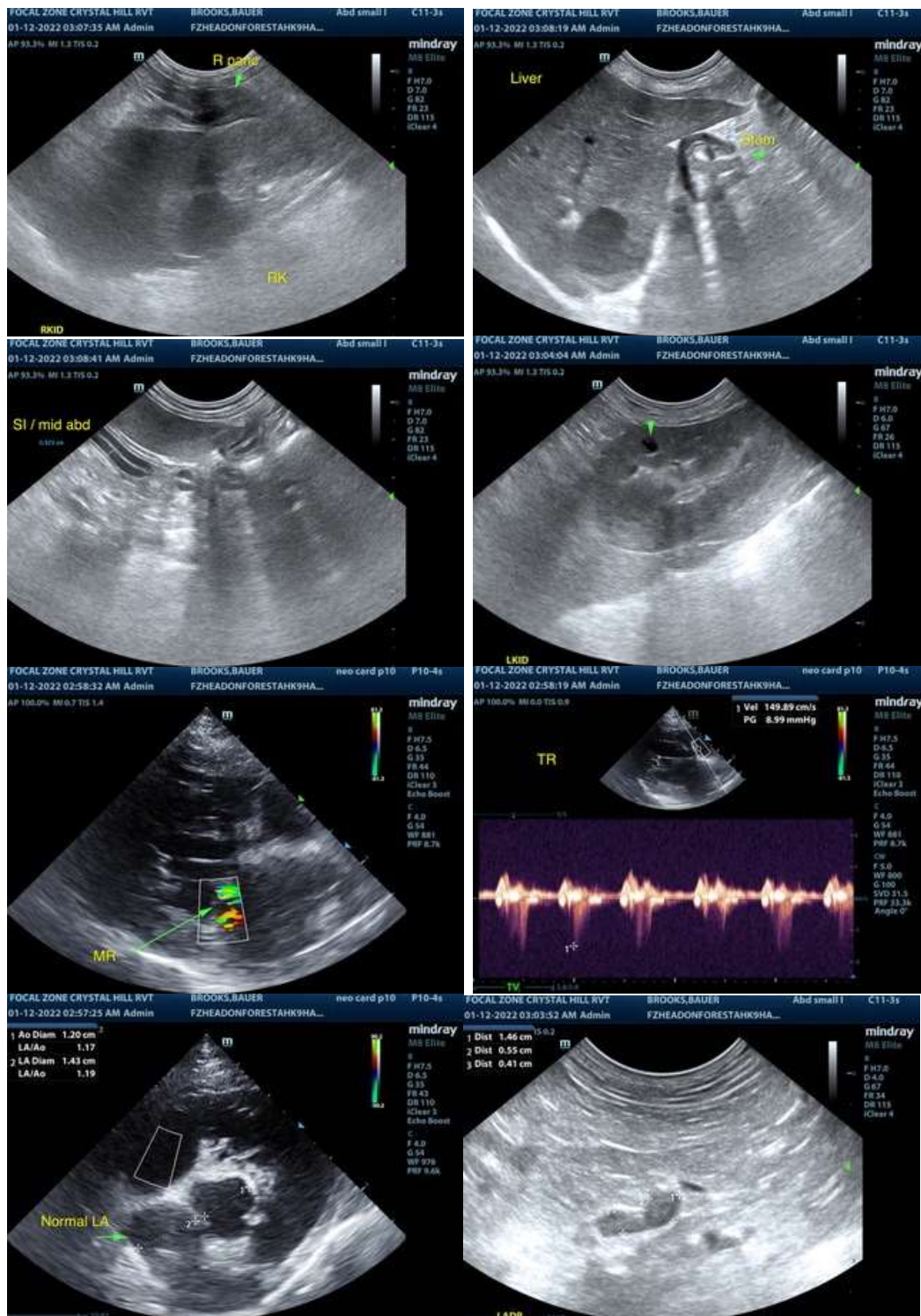
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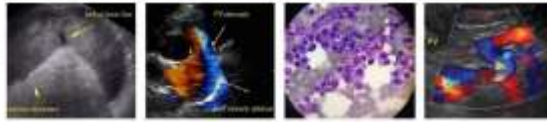
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Bauer Brooks

**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.**

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Canine

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

Havanese

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