



**PATIENT**

Jasper Bavaro

**SPECIES**

Feline

**BREED**

DSH

**SEX**

Neutered Male

**AGE**

12 Years 11 Months

**WEIGHT**

8 pounds

**INTERPRETED BY**

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

**PRESENTING CLINICAL SIGNS**

- Fluid around heart seen on rads
- Difficulty breathing
- Will soon start Mirataz, Cerenia, Methimazole and Varenzin

Abnormal PE/Chem/CBC/UA Results: SDMA 17, BUN 63, Ph 2.5, Na 158, Protein 6.2, ALP 75, T4 10.3, RBC 4.35, Hgb 7.3, Hct 22.6, Mono 851

**ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN**

FELINE CARDIAC PARAMETERS	BODY WEIGHT (lbs)	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	8.0	NM	0.64	1.56	0.67	45	78
FELINE CARDIAC PARAMETERS	LA/AO (M-mode)	LA/AO HEART BASE (Sisson)	LAD LA MAX 4 Chamber		LVOT VEL. (m/s)	RVOT VEL. (m/s)	IVRT (m/)
NORMAL PARAMETER	<1.5	1.6	0.7-1.7		<1.6	<1.3	40-60
PATIENT	--	1.8	1.8		1.1	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							

**IMAGING PERFORMED BY**

Shari Reffi CVT

**HOSPITAL NAME**

Smithfield Animal Hospital

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**Cardiac Presentation**

The echocardiogram in this patient demonstrated mild increased **left atrial** dimension and sphericity. The cranial and caudal **mitral** valve leaflets presented minor irregular age-related changes that are not clinically significant at this time with adequate extension in systole and union in diastole. Mild eccentric MR on doppler. Potential for indistinct systolic anterior motion (SAM) is not excluded. The **left ventricle** presented increased free wall and septal thicknesses with alinear contour. The **myocardium** presented generalized echogenic remodeling consistent with fibrosis. **Contractility** of the ventricular walls was adequate and in normal range for this breed and patient size. The **left ventricular outflow** tract demonstrated normal laminar flow with subjectively unremarkable structure. Subjective assessment of the **right atrium** and auricle revealed mild increased size with normal structure and content. No evidence of masses was noted. **Tricuspid** valvular assessment demonstrated mild thickening with TR on doppler measuring less than 2.0 m/s. The **right ventricle** was of normal size (1/3 diameter of LV), echogenicity and thickness. **Pulmonic** tract assessment revealed normal valve structure, laminar flow, and diameter (approx. 1:1 pa/ao ratio). There is a mild volume pericardial effusion with concurrent pleural effusion noted on pericardial and transdiaphragmatic views. No overt cardiac pericardial or mediastinal tumors in the visible window. No obvious arrhythmia was present.

**Urinary System**



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The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra 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 change were noted.

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The left kidney was subnormal in size compared to the right kidney. A normal 1:3 cortex / medulla ratio was maintained. The medulla and cortices were uniform in texture with some increased echogenicity and moderate loss of corticomedullary symmetry and definition expected for the age of the patient. Moderately medullary mineral and mild pyelectasia with small cortical cysts were present. left kidney measured 2.5 cm in length. The right kidney measured 3.4 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.

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The right adrenal gland was uniform in size and contour with a uniformly hypoechoic parenchyma. The right adrenal gland measured 0.54 cm width.

**Spleen**

**WEIGHT**

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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.

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**Liver & Gallbladder**

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The liver presented mildly enlarged in size with symmetrical yet swollen contour. The parenchyma exhibited conserved uniform parenchyma with normal echogenicity isoechoic to the spleen and falciform fat. Mild prominent hepatic vasculature, most notable at the level of the hepatic vein / caudal vena cava junction, without evidence of thrombosis. Mildly prominent cranial abdomen caudal vena cava measuring 0.63 cm in diameter. No evidence of vena cava thrombus.

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The gallbladder was non-distended in size with thin walls and primarily anechoic luminal content. The cystic and common bile ducts were normal.

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**Gastrointestinal**

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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.

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Normal visible colon wall layers were present with apparent formed feces in lumen.

**Pancreas**

The pancreas was normal in size and contour with isoechoic to heterogeneous parenchyma compared to adjacent omentum. No signs of active inflammation or neoplasia.



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**Free Abdomen**

No visualized significant omental lymphadenopathy or omental masses were present. Minor peritoneal effusion was present.

**ULTRASONOGRAPHIC FINDINGS**

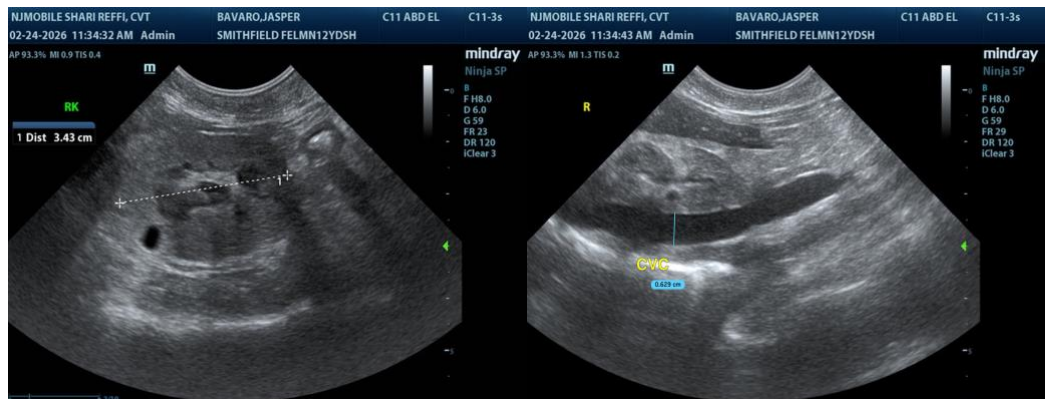
- Thickened remodeled LV with adequate LV contractility.
- Mild bi-atrial enlargement.
- Eccentric MR/TR.
- Mild pericardial effusion with concurrent pleural effusion.
- Mild congested liver.
- Chronic degenerative renal changes exhibiting mild dystrophic mineral, pyelectasia and small cortical cysts.
- Concurrent scant ascites.

**INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS**

Unclassified or Burnout HCM/HOCM are primary differentials with restrictive cardiomyopathy possible secondary to LV fibrosis. Potential for mild pulmonary hypertension is not excluded. Despite lack of significant atrial enlargement, cardiogenic, pericardial and pleural effusion is probable.

Correlation with effusion analysis cytology +/- culture and sensitivity if clinically indicated is recommended. Continue hospitalization with injectable Lasix, as needed respiratory support to stabilize patient is indicated. If stabilized, Lasix 1 to 2 mg/kg POB ID, Clopidogrel 75 mg tab, 0.25 tab PO SID is recommended initially with consideration for Pimobendan 1.25 mg PO BID. Serial monitoring of renal parameters given concurrent azotemia, systemic BP +/- ECG is recommended.

This patient will remain at increased risk for progressive CHF, thrombotic event, arrhythmia or possible sudden death. Recheck echo as needed.





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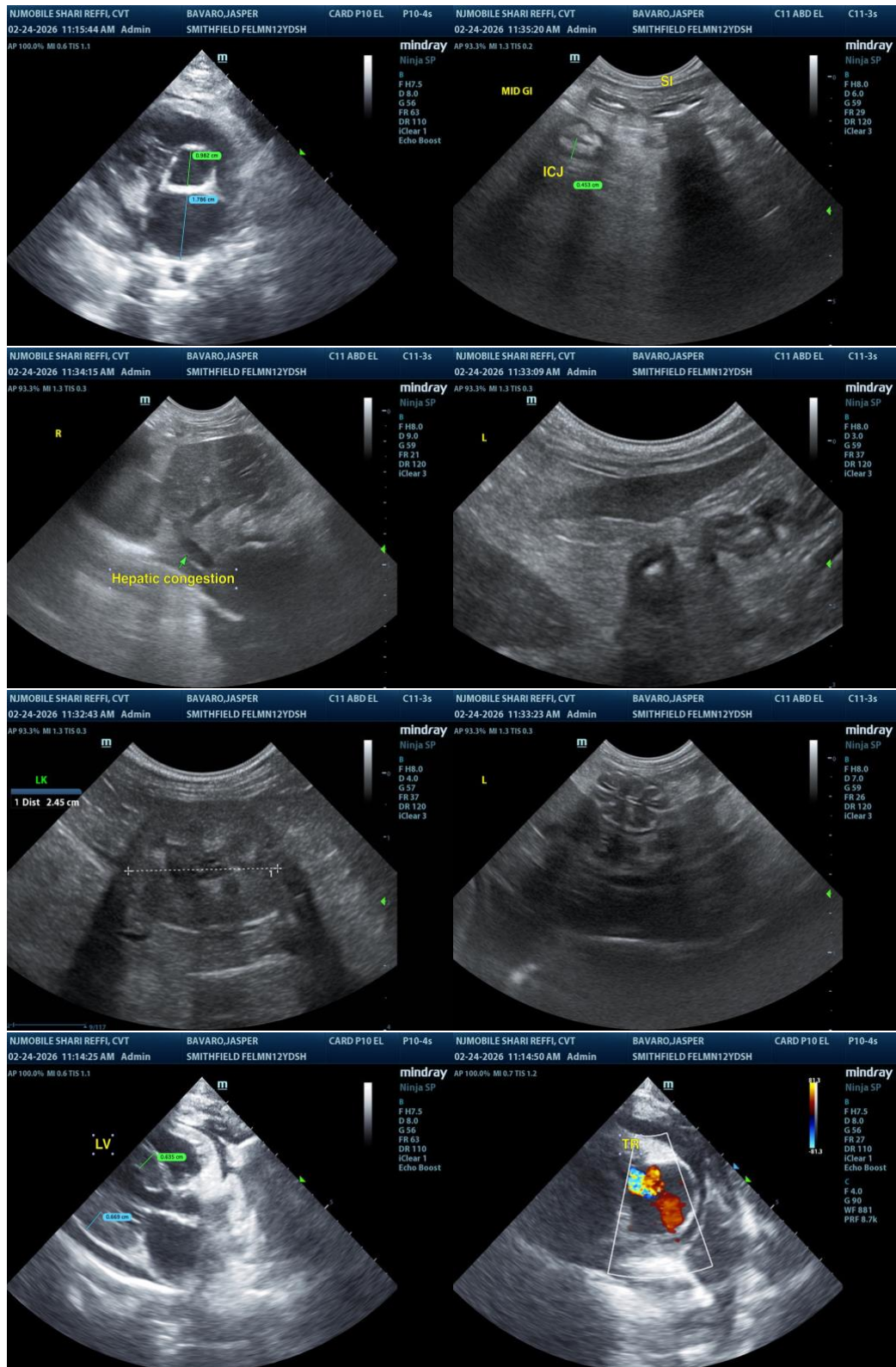
Dr. Boe

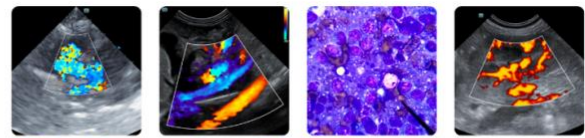
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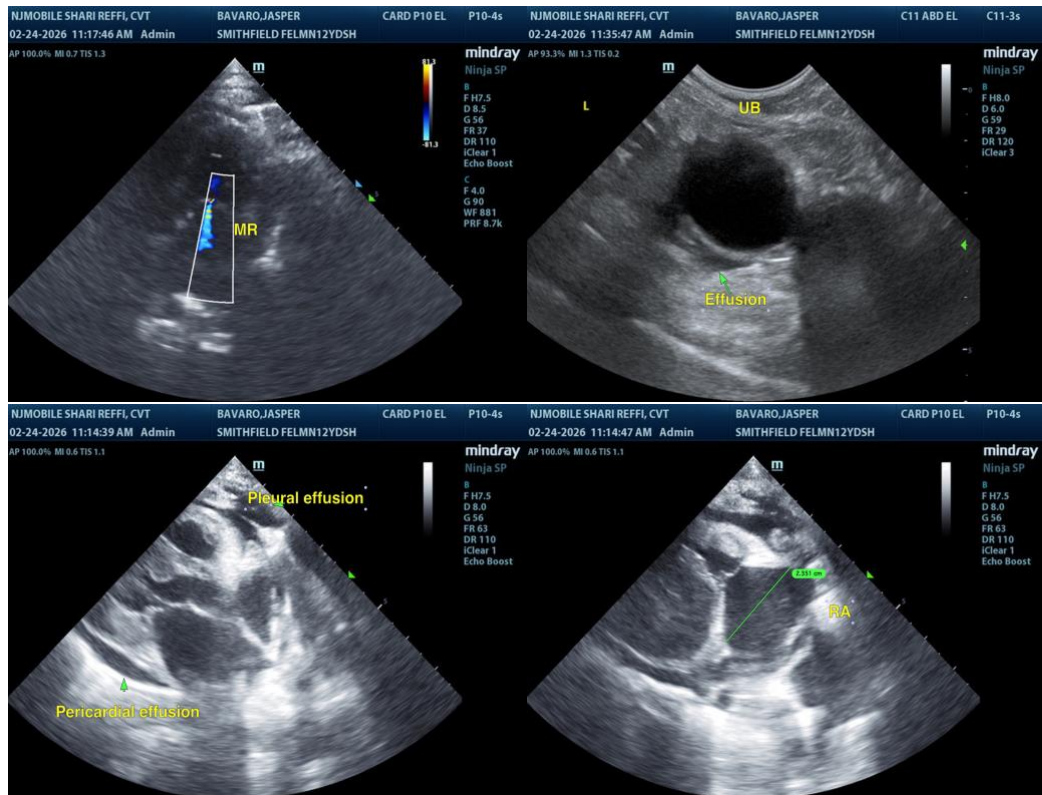
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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

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