PATIENT

Kitty Rivera

SPECIES

Canine

BREED

Shih Tzu

SEX

Female Spayed

AGE

13y 10m

WEIGHT

17.43 lbs

INTERPRETED BY

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

IMAGING PERFORMED BY

Vincent Ravancho, CVT

HOSPITAL NAME

Animal Paradise Hospital

REFERRING VET

Dr. Elshafie

INVOICE

13357

DATE

4/1/26

PRESENTING CLINICAL SIGNS

History: Stage disease and assess need for therapy. Markedly louder murmur on auscultation compared to prior visits - loud systolic heart murmur.

ULTRASONOGRAPHIC EXAMINATION OF THE HEART & ABDOMEN

CANINE CARDIAC PARAMETERS	MR VMAX (m/s)	TR VMAX (m/s)	LA/AO (M-Mode)	LA/AO (Heart Base; Swe)	FS (%)	EF (%)	EPSS (cm)
NORMAL PARAMETER	4.5-5.5	<2.7	1.3	Up to 1.6	28-40	40-100	<0.6
PATIENT	5.4	--	--	1.6	35	66	0.2
CANINE CARDIAC PARAMETERS	**HR** (BPM)	**AV VMAX** (m/s)	**PV MAX** (m/s)	**BODY WEIGHT** (kg)	**LAD** LA MAX 4 Chamber	**LVIDd** Avg; 2D and m-mode short axis (cm)	**LVIDs** Avg; 2D and m-mode short axis (cm)
NORMAL PARAMETER	50-100	0.7-1.7	0.7-1.6				
PATIENT	111	1.4	0.7	--	3.4	2.9	--

Cardiac Presentation

The echocardiogram in this patient demonstrated borderline to mild increased **left atrial** size based on 2 different LA measurement methods without evidence of intra atrial septal deviation. The cranial and caudal **mitral** valve leaflets presented thickening consistent with endocardiosis with no evidence of valvular prolapse. Doppler indicated moderate to significant eccentric MR insufficiency noted on doppler. MR velocity 5.4 m/s. The **left ventricle** presented borderline increased dimension. 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. 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 noted. No echographically detectable evidence of cardiac / pericardial tumors was visible.

Urinary System

The urinary bladder, trigone, cystourethral junction, and visible pelvic urethra to a depth of 3.0 cm exhibited normal thickness and tone. Anechoic urine was present in the lumen with no uroliths or

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

The area of the aortic trifurcation was free of pathology.

Normal size and margination was 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. No evidence of pelvic dilation was present. The left kidney measured 4.5 cm in length. The right kidney measured 5.1 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 0.42 cm width at the caudal pole. The right adrenal gland exhibited an indistinct, non-homogeneous, mildly hyperechoic mid to cranial right nodule with mild associated right adrenomegaly measuring 1.1 cm x 0.72 cm. The right adrenal gland measured 0.55 cm width at the caudal pole. Mildly enlarged cranial right adrenal pole measured 1.3 cm width.

Spleen

The spleen exhibited primarily finely textured and homogenous parenchyma which was hyperechoic to the liver and renal cortical parenchyma. Several to coalescing, well-defined, symmetrical, hyperechoic nodules were present with an example measuring 1.0 cm in diameter. 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 hyperechoic nodules tend to trend benign and are most consistent with benign hyperplasia or myelolipomas.

Liver

The liver presented enlarged in size. The parenchyma of the liver was subjectively normal in echogenicity compared to the spleen and renal cortices. The liver parenchyma was uniform with a mildly coarse echotexture. The capsule of the liver was symmetrically rounded to mildly swollen in margination. The hepatic and portal vasculature were normal in appearance without signs of congestion. The gallbladder was non distended in size with mild, non-organized, 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

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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.

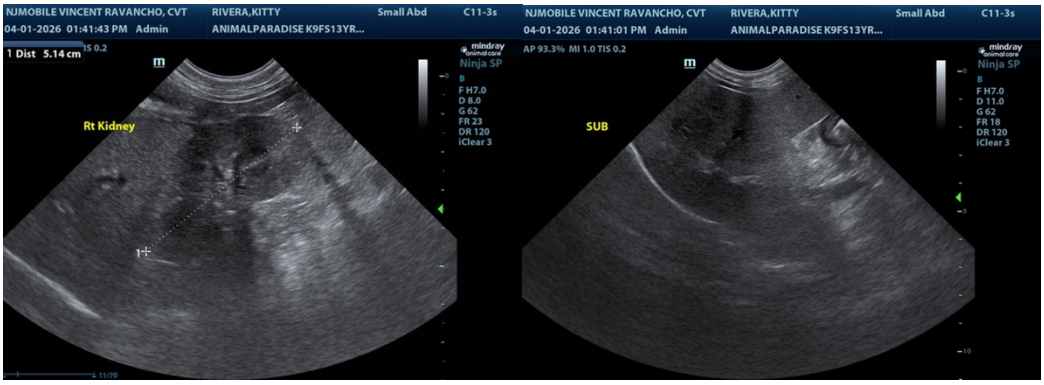
ULTRASONOGRAPHIC FINDINGS

- Chronic mitral valve disease (ACVIM emerging to mild B2)
- Mild age-related renal changes
- Hyperechoic to coalescing splenic nodules – most consistent with benign myelolipomas
- Hepatomegaly
- Minor gallbladder debris
- Indistinct right adrenal nodule with mild cranial right adrenomegaly – hyperplasia, adenoma, emerging right adrenal tumor not excluded

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

The borderline to increased LA dimension indicates the current and future risk of complication secondary to MR is mildly elevated yet overall, the heart appears to be stable. This patient is considered borderline for the use of Pimobendan based on EPIC study criteria yet given evidence of emerging LA enlargement, Pimobendan 0.3 mg/kg PO BID is warranted. No indication for cardiac medication. Prognosis is variable and sonographic monitoring is advised. Recheck echo recommended in 6-12 months, sooner if clinical signs arise. Anesthetic risk is considered mild. Suggested anesthetic protocol may include opioid or Benzodiazepine pre-med, induction with Propofol or Alfaxalone, and appropriate gas anesthesia with avoidance of alpha 2 agonists.

If clinical signs consistent with Cushing's Syndrome, adrenal workup indicated. Monitoring of systemic BP for evidence of hypertension which might potentially allude to emerging right pheochromocytoma is recommended. Sonographic monitoring of the right adrenal gland with initial recheck in 6 weeks, would be ideal.



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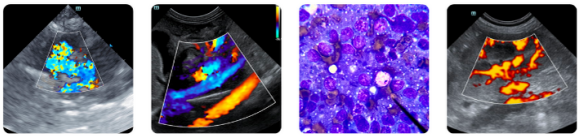

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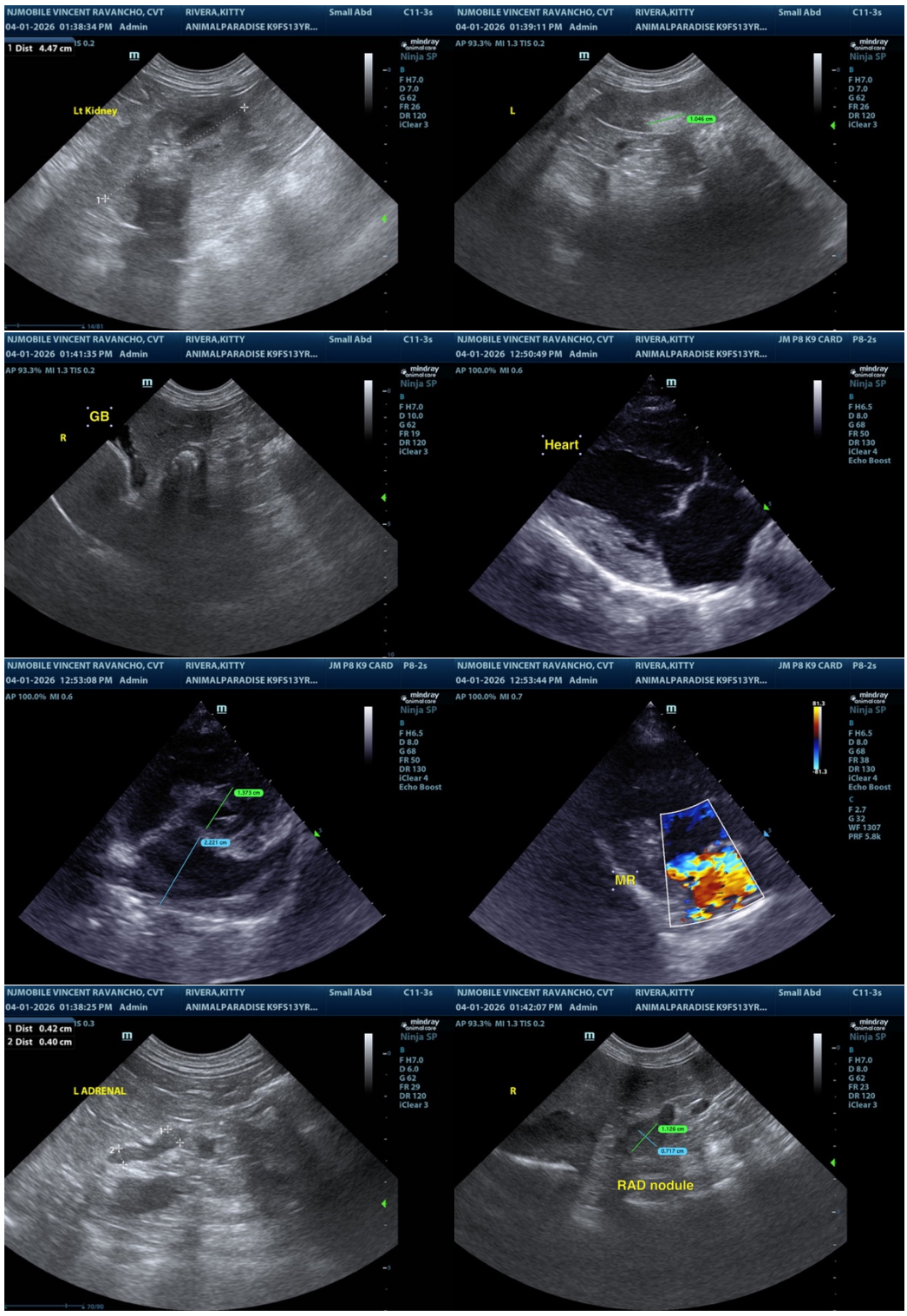

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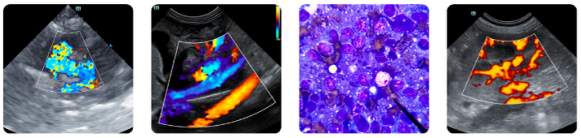

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The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

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)

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